The Rockefeller Foundation

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Annual Report

1925

The Rockefeller Foundation
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Printed in U. S. A.

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[1] Died November 24, 1925.

THE ROCKEFELLER FOUNDATION

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1926

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Director of the Division of Medical Education

Richard M. Pearce

Director of the Division of Studies

Edwin R. Embree

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[1] Succeeded Dr. Buttrick.
[2] Died May 27, 1926.

THE ROCKEFELLER FOUNDATION

President's Review

To the Members 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, 1925, to December 31, 1925, together with the detailed reports of the Secretary and the Treasurer of the Foundation, the General Director of the International Health Board, the General Director of the China Medical Board, the Director of the Division of Medical Education, and the Director of the Division of Studies.

Respectfully yours,

GEORGE E. VINCENT

President

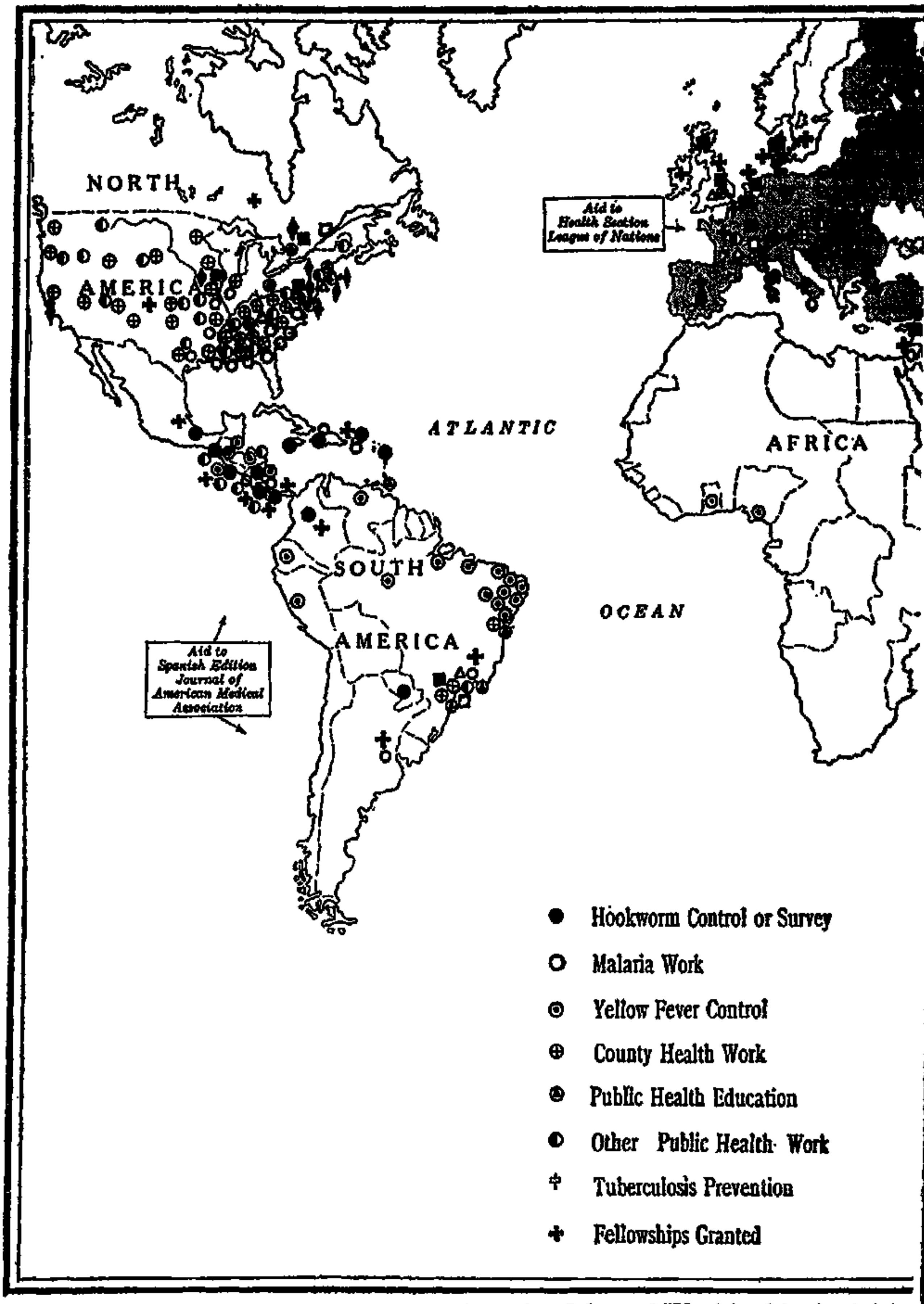
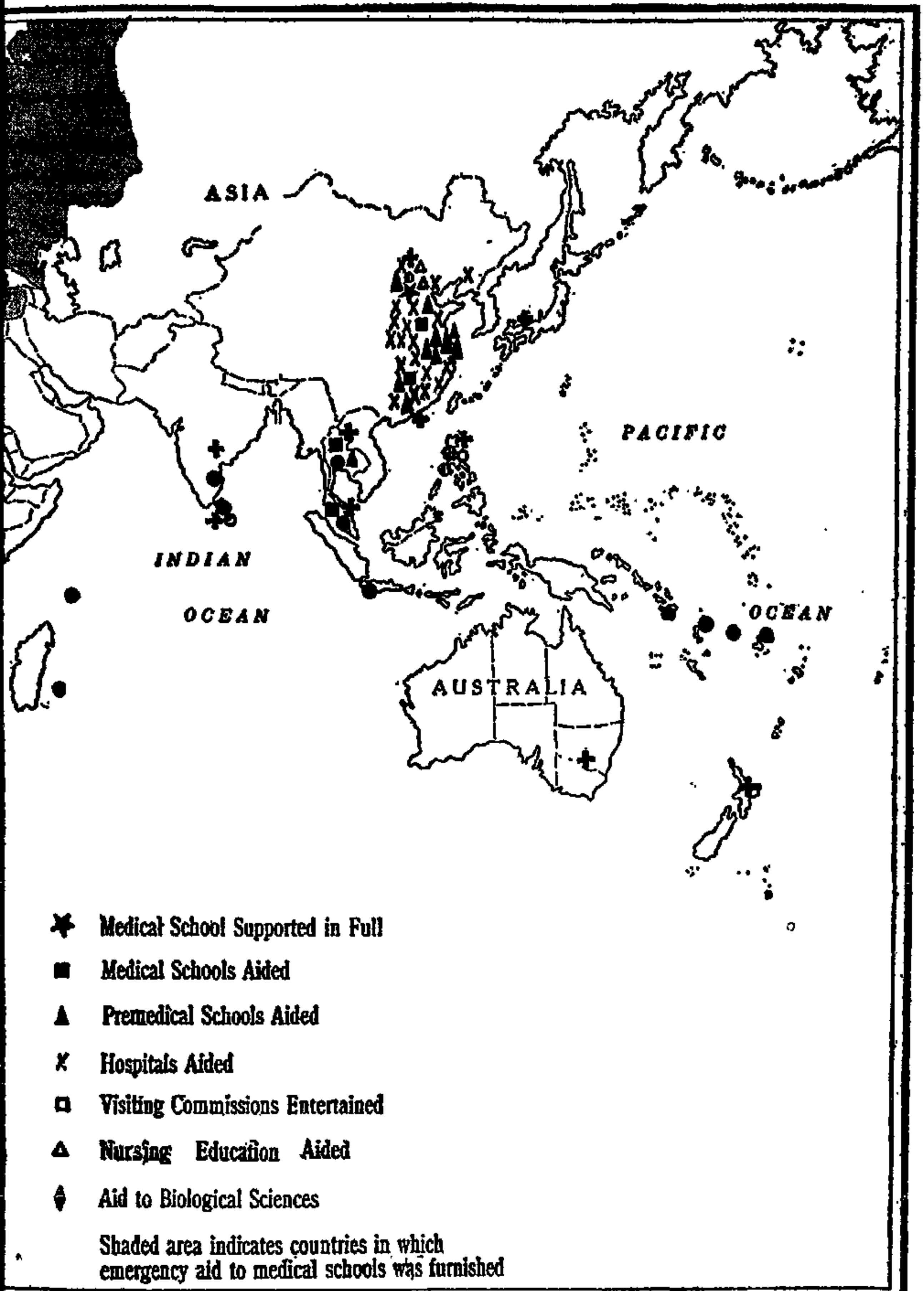


Fig. 1.—Map of World-wide Activities



the Rockefeller Foundation in 1925.

PRESIDENT'S REVIEW

The Year in Brief

During 1925 the Rockefeller Foundation in spending $9,113,730 through its departmental agencies, the International Health Board, the China Medical Board, the Division of Medical Education, and the Division of Studies, (1) aided the governments of eighteen countries to combat hookworm disease; (2) gave funds to the budgets of organized rural health services in 220 counties in twenty-six American states and in eighteen districts in Brazil, Poland, Czechoslovakia, Austria, and France; (3) took precautionary measures against yellow fever in Salvador, Guatemala, Nicaragua, and Honduras; (4) continued to work with Brazil in freeing its northern coast from this disease; (5) sent a yellow fever commission to the West Coast of Africa; (6) helped to show the possibilities of malaria control in twelve American states and in Brazil, Argentina, and Italy; (7) shared in the development of professional training of public health officers at Harvard University and the University of Toronto and in schools and institutes in London, Copenhagen, Prague, Warsaw, Belgrade, Zagreb, Budapest, Trinidad, and São Paulo; (8) contributed to the progress of medical education at Cambridge, Edinburgh, Copenhagen, Brussels, Utrecht, Strasbourg, Beirut, Singapore, Bangkok, São Paulo, and Montreal; (9) provided emergency aid in the form of literature and laboratory supplies for 112 medical centers in Europe; (10) maintained a modern medical school and teaching hospital in Peking with 195 students and eighty-seven teachers; (11) aided two other medical schools and nineteen hospitals in China; (12) helped to improve the teaching of physics, chemistry, and biology in three Chinese and seven foreign institutions in China and in the government university of Siam; (13) supported nurse training courses in Peking Union Medical College, Yale University, Vanderbilt University, and the George Peabody College for Teachers, and contributed to nursing education and service in Brazil, France, Yugoslavia, and Poland; (14) provided current funds for an Institute of Biological Research in the Johns Hopkins University; (15) assisted departments at Yale and Iowa State universities engaged in biological and mental research, and aided the Marine Biological Station at Pacific Grove, California; (16) provided, directly or indirectly, fellowships for 842 men and women from forty-four different countries, and financed the travel of fifty other persons either in commissions or as visiting officials and professors; (17) contributed to the League of Nations' international study tours or interchanges for 128 health officers from fifty-eight countries; (18) continued to aid the League's information service on communicable diseases; (19) made surveys of health conditions, medical education, nursing, biology, and anthropology in thirty-five countries; (20) lent staff members as advisers and made minor gifts to many governments and institutions; (21) assisted mental hygiene projects both in the United States and Canada, demonstrations in dispensary development in New York City, and other undertakings in public health, medical education, and allied fields.

Private Aid in Public Tasks

The recent growth in the number and resources of privately endowed foundations, notably, although not exclusively, in the United States of America, has quite properly raised questions as to the place of these agencies in the social order and their relation to the work of governments. The new organizations are aiding elementary and high schools, colleges, universities, medical schools, teaching hospitals, and museums of science and art; they are promoting research in the natural and social sciences and in the activities of cities, states, and nations; they are providing fellowships for investigation and for the development of teachers; they are promoting international intercourse, scientific and cultural; they are helping societies for community service and civic betterment. Several of the foundations are at work in the field of public health and hygiene.

In only a few of these activities do the private Funds come into direct relations with the tasks of government. Aid to a state-supported university may raise questions of principle and policy. Inquiry into the methods of government is quite obviously a matter of some delicacy. Any attempt by endowed agencies to influence public opinion or to secure specific legislation is likely to be resented. Efforts to substitute voluntary for governmental machinery are pretty sure to make trouble. This applies especially to the task of protecting a community against disease. For this the government must assume primary responsibility. Its power to tax and to command obedience is essential.

Moreover, the official agency is the continuing source of authority; it represents permanence; what it adopts as a part of its regular procedure stands a good chance of being perpetuated. It is only the government that can maintain the sole basis of a sound public health organization. That basis is the sanitation of the environment and the control of communicable diseases. Without good water and milk; proper disposal of wastes; clean food; sanitary housing; protection against typhoid fever, smallpox, malaria, and diphtheria; and a minimizing of scarlet fever, measles, venereal diseases, and tuberculosis, a village, town, or city cannot hope to do effective work in infant and maternity welfare, school hygiene, and the other features of a well-rounded scheme of public health.

The Rockefeller Foundation, therefore, has adopted the policy, so far as public health is concerned, of working only with and through governments. Its International Health Board lends a hand only on the invitation of an official agency. Nor is any effort made to over-persuade a government to undertake a forward step prematurely or with misgiving. The project for which aid is sought must be something new in the official program—a qualitative demonstration, not merely an expansion of the old. The whole purpose is to help a health officer to prove to his community the value of an innovation. A further consideration has to do with cost. It would be a disservice to put a demonstration on a level which could not later be fairly well maintained out of the public funds, for the Board undertakes the co-operation only on the clearest understanding that its contribution is to diminish steadily until the public budget has assumed the whole expense. To withdraw entirely at the earliest moment that the success of the demonstration will permit is the Board's constant aim. Co-operation not rivalry, response not propaganda, economy not speculation, temporary aid not continued subsidy, official responsibility not usurpation of authority, a permanent gain not an ephemeral exploit, are the watchwords of the Foundation, a private agency, in its relations with official organizations of public health.

From Hookworm to Hygiene

The policy of working with government health departments was developed by the Rockefeller Sanitary Commission, which in 1910 began to aid several southern states in an attempt to control hookworm disease. The undertaking followed upon the discovery by Dr. Charles Wardell Stiles of the American form of the hookworm parasite, which is very like the European type that had been found to be the cause of serious and often fatal sickness among miners and tunnel workmen. In 1913 this early Commission, renamed the International Health Board, became an agency of the Rockefeller Foundation, which was chartered in that year. From the beginning, surveys and control measures with respect to hookworm disease have played a prominent part in the program of the Board and have had a continuing influence upon its policies.

Hookworm disease lends itself well to proving that health work pays. It is easily detected, readily cured, and effectively preventable. The vicious circle of the malady is this: minute worms, hatched in contaminated soil, make their way, usually through the skin of the foot or leg, into the body of their human host. In due time and growing steadily they reach their goal, the small intestine, to the walls of which they attach themselves for a time. Here they cling, impoverishing the blood of their victim and sending out with the wastes of his body eggs which, deposited in a suitably moist and warm soil, such as is found in semitropical or tropical countries and often in mines, produce a new army of invaders. Two or three doses of a drug will drive out the parasites or reduce them to a negligible number, but only the provision and use of proper latrines will prevent the recurrent pollution of the soil and protect a bare-footed population against reinfection.

During 1925 in eighteen different countries the Board had a part in official antihookworm measures which included the treatment of nearly one and a half million people and the erection or rebuilding of thousands of latrines. The areas of work were Porto Rico and Jamaica in the West Indies, Mexico, five countries of Central America, Colombia, Paraguay, the Madras Presidency in India, Ceylon, Java, Siam, the Straits Settlements, and islands of the Indian Ocean and the South Sea. In addition to control work, surveys to determine degrees of infection and other facts were made in Haiti and Montserrat in the West Indies, in certain islands of the Seychelles group, in the New Hebrides and Rarotonga in the South Pacific, and in a mining district in Spain.

In reality much more was being done to combat hookworm disease than this statement would imply, for in the Southern States and elsewhere general health organizations known as county units or rural health departments have included measures against this malady as a part of their work. From the outset the aim was not primarily the relief from one handicap to health, but the education of communities in the meaning and possibilities of public hygiene. The purpose to use hookworm disease as a means of promoting health work in general in tropical and semitropical countries is being steadily realized.

A county health organization usually includes a full-time health officer, a sanitary inspector, a public health nurse, and a clerk. The annual budget averages about $10,000. The Board joins for a time with the local and state authorities in providing the necessary funds. The Board's share rarely exceeds a quarter of the whole—the average percentage in 1925 was 12.8. It grows less each year until it ceases altogether.

Under this plan in 1925 aid was given to 220 counties in twenty-six states of the United States, to eight counties in the state of São Paulo and to five in the state of Minas Geraes in Brazil. The idea has spread to Europe where co-operation was extended to the department of Hérault in France, to the district of Hartberg in Austria, to a similar region in Czechoslovakia, and to two others in Poland.

Yellow Fever Retreats from the Americas

Hookworm disease and yellow fever stand in sharp contrast. The one is slow, insidious, undramatic, crippling; the other swift, striking, spectacular, deadly. The first, as has been explained, is spread by the steady invasion and growth of parasitic worms; the second solely by the bite of a certain mosquito, the female Stegomyia or *Aëdes aegypti*. This insect becomes infective some days after sucking the blood of one who is in the early stages of the fever. Prevention in the case of this scourge calls for the control of mosquito breeding. When such control becomes effective, the fever can no longer be transmitted. It leaves only two products, the dead and the immune. There are no carriers as in hookworm, malaria, or typhoid fever.

A community in which yellow fever is kept alive by light and unnoticed infection in infants and children and an abundance of mosquitoes, is an endemic center. With the coming of non-immune adults the disease flares up in its full virulence. From such an endemic center the fever may be carried by infected persons—sometimes by infected mosquitoes in ships or trains—to other places where for a time it becomes epidemic. It persists until there are no more victims or until, in temperate zones, the local mosquitoes are benumbed or killed by cold.

Fortunately the Stegomyia is an insect of domestic habits. It lays its eggs in water containers in or near the house. By eliminating almost all available breeding-places and by watching the few which remain, the sanitarian is able to bring mosquito breeding below the danger line. The protection of all water containers against mosquitoes by screening, or the use in the containers of fish which eat the larvae, will put a stop to the production of the Stegomyia.

During 1925 only three cases of yellow fever were reported from all the Americas. These occurred in Northern Brazil.[1] It is not quite certain that all three were authentic. To one who knows something of the history of yellow fever this record is striking. What a contrast to the early days when from certain endemic centers in Mexico, Central America, the Caribbean Islands, Ecuador, Venezuela, and Brazil, the dread disease used to spread terror and death far and wide! It invaded the ports of the United States from New Orleans to New England. It took toll of the California pioneers as they crossed the Isthmus of Panama. It even made its way to the Mediterranean, carried by sick men and ship-bred mosquitoes.

The opening of this century saw the beginning of an attack before which yellow fever has been steadily giving ground. Of late it has been in rapid retreat. In 1900 a United States Commission headed by Walter Reed discovered in Habana the method of transmission. Then Gorgas quickly brought the fever under control in

[1] As the Review goes to press (June, 1926) an outbreak of yellow fever has been reported from Northern Brazil. A considerable number of cases have appeared in the states of Parahyba and Bahia, and cases have been reported from the states of Maranhão, Ceara, Rio Grande do Norte, Pernambuco, and Minas Geraes.

all of Cuba. His methods were soon successfully applied in Vera Cruz in Mexico, and in Rio de Janeiro and Santos in Brazil. Everywhere quarantine measures became more effective. Later, in the Panama Canal Zone, Gorgas repeated his Cuban triumphs. A sense of security began to pervade regions which had once lived under the shadow of fear.

But the fever had been scotched, not killed. It lurked in old endemic centers, and now and then broke forth in epidemic form. As the opening of the Panama Canal approached, the sanitarians of the Far East became alarmed. New trade routes might carry the disease to the Philippines, China, India. At this time, too, came the suggestion that Gorgas would welcome another and perhaps a final bout with an old foe. The Rockefeller Foundation through its International Health Board decided to organize a concerted campaign of control. In 1916 Gorgas made a preliminary survey and outlined a plan of attack, but it was not until 1918 that work began in earnest. The essential feature of the strategy was the cleaning up of endemic centers through the team-work of governments under central leadership.

The program was carried out step by step. Noguchi isolated the fever germ and thus provided means of diagnosis and possibly of immunity.

Guayaquil in Ecuador, for a century and a half a known seed-bed of yellow fever, was rid of the disease; an epidemic in Northern Peru was controlled; Mexico carried out a successful campaign; Central America was gradually set free; finally Brazil undertook large-scale operations which are proving effective. During 1925 mosquito control measures were continued in eleven Brazilian states. Solely as a precaution similar work was done in Salvador, Guatemala, Nicaragua, and Honduras. Surveys made in these four countries and in Venezuela, Peru, and Ecuador showed that all were free from yellow fever.

An Adventure on the Gold Coast

Gorgas had included in his plan a commission to the West Coast of Africa to study reported epidemics of yellow fever. He was on his way to Africa when he fell ill and died in London in July, 1920. Strong evidence has been adduced to show that yellow fever is an African disease and not, as it used to be believed, a malady indigenous to the New World. It was carried, chiefly in slave ships, from the West Coast of Africa to America.

Authorities differ about the prevalence of yellow fever on the West Coast. A few have even denied that it is to be found there. The relative immunity of the native peoples, their tendency to hide their sick, the presence of one or two maladies which have symptoms very like those of yellow fever, the scarcity of doctors who have had first-hand experience with well-authenticated cases, the character of the records, have made it difficult, without laboratory tests, to confirm clinical diagnoses. The commissioners sent under Gorgas found no case of yellow fever, but they reported a belief that the disease was present and recommended further investigation.

With the gradual disappearance of yellow fever from the Americas, West Africa becomes the last stronghold of this stubborn enemy. The fortress is formidable enough. An area as large as the United States east of the Mississippi, a tropical climate, the prevalence of many diseases, few and for the most part difficult means of travel, a population of thirty million natives—superstitious, secretive, and suspicious—present a challenge that turns sanitary and health work into a high adventure. The danger that the completion of trans-African railways may carry the fever to the East Coast whence it may make its way to India and the Far East revives the fear which the opening of the Panama Canal aroused over ten years ago.

In July, 1925, the International Health Board established yellow fever headquarters in Lagos in Nigeria. A director, specially trained bacteriologists, a pathologist, and experts in field work make up the staff which has its own housing, commissary, and laboratory equipment. Preliminary studies of all available records were made and the data mapped before the party left the United States. These provisional outlines are being checked on the ground with the hope that endemic centers may be delimited. Laboratory tests for the fever are being applied to all suspected cases that can be found. When a sufficient basis of verified information has been laid, plans for control measures will be formulated. The work is as usual being undertaken on the invitation of the governments concerned and with their hearty co-operation.

The cause of yellow fever control suffered a serious loss in the death of Dr. Henry Rose Carter in September, 1925. As a member of the United States Public Health Service he had wide experience with the disease in the Southern States, Cuba, and Panama. He was the first to note (1898) and publish (1900) the fact that the fever exists for a period outside a human host, an observation which Walter Reed declared had given him the chief clue to the insect-borne nature of the infection. Dr. Carter's expert counsel throughout the campaign which began in 1918 was of the highest value to the Board's staff in field and laboratory. At the time of his death he had completed under the Board's auspices the more important sections of a "History of Yellow Fever." His exhaustive research offers strong evidence of the West African origin of the disease. By his scientific attainments, unselfish devotion, and noble character Henry Rose Carter won the right to be included with Reed and Gorgas among the leaders in the winning fight against one of the world's most deadly foes.

A New Use for Paris Green

The poison so fatal to the potato bug is now being used to kill the larvae of the malaria mosquito. Only by control of Anopheles breeding can malaria be satisfactorily prevented. Experience proves that large groups of people will not take quinine long enough to get rid of the germs of this disease. As soon as the sick feel better they discontinue treatment. There are several ways of heading off the insects that pass the infection from person to person. Drainage on a large scale is often effective; small ditching projects are helpful; fish will eat eggs and larvae in pools, stock-ponds, lakes, and streams which are kept free from vegetation; various oils, or creosote spread upon water surfaces will suffocate the "wigglers" when they come to the surface to breathe. In 1921 a member c' the staff of the United States Public Health Service announced success in poisoning larvae by sprinkling breeding areas with a powder ninety-nine parts road dust and one part paris green. The Government has recently made interesting experiments in dusting large areas from aeroplanes.

During 1925 the International Health Board in conjunction with the Italian Government, experimented with the new method in two towns, one in Calabria, the other in Sardinia. The paris green proved effective, cheap, and safe. Mosquito breeding was practically stopped at surprisingly low costs. It was unnecessary to remove vegetation from the water before the dust was applied. The minute particles which killed the wigglers did no harm to fish or live stock. While the use of the new method was gratifying, the demonstration as a whole fell short of being completely convincing. Temporary invasions by mosquitoes showed that the areas selected for dusting were too small. Then there were other complications. At one time groups of townspeople slept in distant fields to watch their crops and were exposed to mosquito attacks. The giving of quinine to school children was also continued during the experiment. But in spite of these things the undertakings were encouraging and proved the possibility of controlling mosquito breeding by the use of paris green.

In addition to these experiments in Italy, assistance in malaria control was given in twelve states of the United States, in Porto Rico, in the state of Rio de Janeiro in Brazil, in the province of Tucuman, Argentina, in Palestine, and in the Philippine Islands. Malaria surveys to determine prevalence of infection, nature of mosquito breeding, indicated methods of control, etc., were carried out in Haiti and Costa Rica. Staff members conferred with the authorities in Ceylon about local malaria problems. A training post for malaria workers was maintained at Leesburg, Georgia, and a contribution was made toward the expenses of a similar center in Corsica for French-speaking malariologists. Short training courses were also given in Brazil, the Philippines, Italy, and Poland. Several important field and laboratory investigations were carried out (see page 62).

Dr. Samuel T. Darling, a member of the staff of the International Health Board and a recognized authority on malaria, was killed in a motor accident in Syria on May 21, 1925, while he was serving as an associate of the Malaria Commission of the League of Nations. Dr. Darling was an investigator of originality and untiring zeal, an inspiring trainer of men, a notable figure in his chosen field. He has left as his monument scientific contributions of enduring value, and ideals of research, industry, and devotion which will long animate the men who are continuing his work.

Health Training from Toronto to Belgrade

Health work calls for persons, knowledge, power, and money, and the greatest of these is persons. With the growth of science and the accumulation of experience there is no escape from specialization. Men and women must be trained for public health as a whole-time vocation which has its own peculiar problems and technique. It is at best no job for the partial attention of a private practitioner. Think of the things about which an officer of health should have some knowledge: (1) the minute organisms of infection, the animal and insect parasites; (2) possibilities of protection by vaccines and sera; (3) methods of controlling communicable diseases; (4) sanitation, including water-supplies, sewerage, disposal of wastes; (5) hygiene of ventilation, diet, sleep, and exercise; (6) mental hygiene, delinquency, feeble-mindedness; (7) maternity, infant, and school hygiene; (8) the diseases and hazards of industry; (9) sanitary and health laws; (10) statistical methods applied to births, deaths, and sickness; (11) the organization and administration of public health work; (12) education of the community concerning prevention of disease and the promotion of physical and mental health.

The requisite training is given preferably by courses in special schools of public health supplemented by experience in the practical work of office, laboratory, field, and health center. Or when this full preparation is not feasible, apprenticeship in actual health organization, entered upon after a fundamental medical education, may be enriched and guided by a series of short courses in universities, in training stations, in special institutes, even by correspondence. Only for those who occupy responsible positions of general administration is the broadest preparation essential or highly desirable. Statisticians, epidemiologists, sanitary inspectors, laboratory workers, nurses, technicians, clerical assistants need special training, which may be found in many educational institutions and may, to a considerable degree, be acquired under expert direction in the actual work of public health services. The demand for workers so far exceeds the number which the special schools can supply that for a long time every reasonably adequate method of preparation will have to be utilized.

THE ROCKEFELLER FOUNDATION 1913
THE WELLBEING OF MANKIND THROUGHOUT THE WORLD

Photograph Excised Here

Fig. 2.—State Institute of Hygiene and School of Hygiene, Warsaw, Poland.

The Foundation, through the International Health Board, aids many forms of special public health training. During 1925, for example, appropriations were made in the Americas to the School of Hygiene and Public Health of the University of Toronto, to a similar school of Harvard University, to the Medical Faculty of Bahia and to the Institute of Hygiene of São Paulo in Brazil, and to the Imperial College of Tropical Agriculture in Trinidad. In Europe grants were made to the London School of Hygiene and Tropical Medicine, to the State Serum Institute in Copenhagen, to an institution of the same type in Oslo, to the School of Public Health in Warsaw, to the State Institute of Hygiene in Budapest, the Central Epidemiological Institute in Belgrade, the State Public Health Institute in Prague, and the School of Public Health in Zagreb, Yugoslavia.

Less formal assistance was rendered in several ways. Graduate physicians were given short periods of intensive training in special field stations in preparation for public health posts; officials in active service were offered similar opportunities; fellowships were granted to 147 persons to enable them to fit themselves for specific positions in government services (see page 59); members of the Board's staff were allowed leave for study in schools of hygiene

Photograph Excised Here

Photograph Excised Here

Fig. 3.—A member of the staff of the Charité Nurse Training School, Lyon.

Photograph Excised Here

Fig. 4.—School of Public Health and Bedside Nursing, University of Cracow, toward the building and maintenance of which the Rockefeller Foundation has contributed.

and at field training centers; a few selected undergraduate medical students were employed during the summer in order to give them an idea of the nature of preventive work; small grants were made to help local institutes for health officers to secure lecturers of note from a distance; and a final appropriation was made toward a demonstration of the feasibility of keeping local officers and personnel alert and currently informed by means of a correspondence course.

Medical Education in Many Lands

The Foundation's interest in public health goes back inevitably to medical education, for much as well-trained officials may accomplish, real success depends upon the medical profession as a whole. Unless the average practitioner can be imbued with the idea of the prevention of disease and led to regard himself more and more as a promoter of positive physical and mental well-being for both the individual and the community, the cause of public health and hygiene is doomed to fall short of its larger possibilities.

Consider for a moment the dependence of preventive work upon the average doctor. The very bookkeeping of health, vital statistics, is a result of his knowledge and sense of duty.

It falls to him ordinarily to report births, deaths, and certain communicable diseases. The statistics are valuable in proportion to his expertness and accuracy. It is his conscientiousness which chiefly determines the efficiency of control over such maladies as smallpox, diphtheria, scarlet fever, measles, tuberculosis, and venereal diseases. It is his attitude toward scientific knowledge and community co-operation which vitally influences the views and conduct of his patients. The friends of public health are, therefore, interested in medical education not only because it gives fundamental training to future health officers, but even more because it prepares a profession which can largely make or mar the success of the preventive idea.

But eagerness to emphasize this point of view in the undergraduate medical course has its dangers. An interest in public health can be effectively developed only as a part of a thoroughly organized, well-rounded professional training in the laboratory and dispensary and at the bedside. For example, control of communicable diseases presupposes a knowledge of bacteriology; personal hygiene is based upon a scientific physiology; maternity welfare is directly related to the state of development of obstetrics; the prevention of infantile and children's diseases is measured by the progress of pediatrics. It follows then that the demand for "the permeation of the medical curriculum with the preventive idea" is based upon the assumption that there exists a curriculum of the right sort to be permeated.

Viewed internationally, medical education necessarily displays certain common ideas and procedures. But wide variations are also revealed. In one group of countries early access for the student to sick people in large numbers is deemed of first importance. In other places, preliminary practical individual training under whole-time teachers in dissecting-room and laboratories is regarded as essential. There are also differences in preliminary education, length of the course, and types of organization. In one case the individuality of the institute or the clinic is conspicuous; in another the unity of the school as a whole is emphasized. So, too, with respect to the teaching of medicine, pediatrics, surgery, and obstetrics, plans and methods are very different. They vary from entrusting the work on the one hand to busy practitioners to insisting, on the other, that leadership at least be vested in men who devote themselves exclusively to the care of patients, to teaching, and to research.

The Rockefeller Foundation, through its Division of Medical Education, seeks to be of service in promoting the growth of effective medical education in influential centers in various countries. It offers no one model for universal imitation; it has no inflexible program. It recognizes that each type of medical school has developed under certain conditions, racial, economic, governmental, social. It has responded to the needs and demands of its environment. Obviously each country has something to contribute to a common fund of scientific knowledge and practical experience. The Foundation seeks to promote interchange of ideas (see page 59) by which each nation may improve its institutions at the same time that it puts its own characteristic gains at the service of other lands. From this process certain commonly accepted ideas tend gradually to emerge. The Foundation helps to give wider currency and effectiveness to such principles and methods.

During 1925 support was given either in the form of aiding new projects or in fulfilment of previous pledges to medical schools in Edinburgh, Cambridge, Brussels, Strasbourg, Utrecht, Copenhagen, Beirut, Montreal (University of Montreal), New York (Columbia University), Philadelphia (University of Pennsylvania), Iowa City (State University of Iowa), Sao Paulo (Brazil), Singapore (King Edward VII College of Medicine), and Bangkok, Siam.

The aid varied from rather modest grants to substantial appropriations. The funds thus expended amounted to approximately $3,000,000. In every case the Foundation's contribution was supplemented by funds from other sources. In addition, visits and surveys of medical schools were made in ten different countries (see page 65).

From Emergency to Development in Europe

The aid to medical education reported in the preceding paragraph may be described as constructive. It represents a permanent gain in buildings and equipment or in endowment or in both. Ordinarily the Foundation refrains from making emergency gifts. In cases of earthquakes and great fires, floods, and famines, relief is a special responsibility of the Red Cross and similar agencies. These societies either maintain or can quickly mobilize organizations for collecting funds and supplies and sending these to the point of need. Except during the war the Foundation has not given money for purposes such as these. The response of the public almost never fails to be sufficient. A Foundation gift might easily merely take the place of funds which would otherwise come from individuals.

But within the special field of the Foundation there developed during the past five or six years in countries of Central and Eastern Europe, and to some extent throughout the Continent, emergencies which could not be consistently ignored. In addition to laboratories and hospitals, permanent equipment, professional staff, other personnel and general maintenance funds, a medical center which is to do effective teaching and research must have these essentials: (1) important books and journals which report the progress of the medical sciences in the leading countries; (2) new special apparatus and current laboratory supplies, i. e., glassware, chemicals, experimental animals, etc.; (3) an adequate number of able young graduates in competitive preparation for vacancies in the staff; (4) occasional relations with other medical schools at home and abroad through visits of professors and migrations of advanced students.

It was precisely those essentials which were seriously threatened in the countries which had been isolated by the war and in which collapse of currencies and economic distress had reduced salary and maintenance funds of medical centers almost to the point of disaster. Through its Division of Medical Education, the Foundation began in 1920 a program of temporary emergency relief. This has included: (1) the gift of scientific journals and books chiefly in the English language (see page 61); (2) funds for laboratory supplies, usually at first administered by local committees; (3) resident fellowships, i. e., stipends and sometimes additional literature and supplies to enable young scientists to continue their studies in their home countries; and (4) foreign fellowships for work abroad (see page 59) and provision for visits of professors (see page 60).

With gradually improving conditions it has been possible to begin a transition from a policy of emergency relief to a plan of developmental aid. Appropriations for literature are being reduced as medical schools are able to assume more of its cost. In some cases larger sums are being given for back files of journals with the understanding that current support from the Foundation will be withdrawn in the early future. As to laboratory supplies, these will cease to be provided for general institutional purposes but will be given for the special use of certain returned fellows, or put at the disposal of individual department chiefs in selected institutions. In the same way resident fellowships will gradually be transformed into stipends for assistants whom such chiefs select for their staffs.

Thus the characteristic feature of the developmental programs will be not generalized assistance but the concentration of stipends and supplies in certain medical school departments whose leaders have shown their ability to contribute to the progress of science and to train men in research and teaching. For a time such aid is likely to be almost wholly limited to the laboratory subjects. In the future this policy may well lead to constructive projects of a more significant and permanent kind.

Peking Union Medical College Carries on

A Westerner is likely to ask: "Is it not almost impossible to conduct a medical school in a country like China distracted by civil war, strikes, and political agitation?" On the other hand a teacher returning from Peking reports surprise and concern among the Chinese over the prevalence of banditry in the cities of the United States! Much depends on the point of view. As a matter of fact, China's very backwardness is in times of stress a source of strength. There is so little centralization, political, industrial, or commercial, that conditions which in a Western country would cause paralysis are in China largely localized in their effects. The areas occupied by armies are, of course, disturbed; strikes and boycotts have their influence; but elsewhere the common daily life goes on normally. Family control, guild comradeship, community justice, sacrosanct traditions, and coercive customs insure a fairly orderly existence.

So during 1925 the Peking Union Medical College carried on almost as usual. It is true that there was some interruption of examinations in June, but the work was made up in the autumn. There were times of anxiety about the supply of coal which comes by rail, but the fires under the boilers never failed for lack of fuel. The number of students who entered in October was reduced not so much, it is believed, by difficulties of travel as by lack of family funds. A summer school for science teachers in which the College had an interest was given up because the preliminary registration seemed too small to insure success. The Chinese colleges especially did not have the funds with which to send their teachers.

The College is a unique item in the program of the Foundation, the only case in which complete responsibility has been assumed for the building, staffing, and temporary maintenance of an institution. Elsewhere there has always been a sharing of tasks with government or university which has carried the chief burden of cost and the whole duty of administration. But in China there were no suitable agencies of this kind. So, through a specially created subsidiary, the China Medical Board, the Foundation took over a school which had been co-operatively organized by certain missionary societies, British and American. A complete new establishment of laboratories, hospitals, staff-houses, service buildings, together with plants for providing water, electric light and power, and gas was built; a staff of full-time teachers, administrators, nurses, technicians, orderlies, and service personnel was recruited, and work was begun in graduate and undergraduate medical education, in nurse training, and in the preparation of students for admission to both the medical course and the school of nursing.

From the outset the Foundation made clear that its purpose was not to create a permanently foreign institution in China, but to transform the College gradually into a Chinese medical center with a Chinese staff and ultimately a Chinese board of trustees in complete control. It was recognized that this transition would have to be made slowly and carefully, as Chinese doctors and others proved themselves capable of caring for patients, teaching students, carrying on research, and doing administrative work.

The results of this policy have begun to show. In 1920, of a teaching staff of thirty-one the

Chinese numbered nine, or 29 per cent; in October, 1925, the percentage of Chinese was 53. More significant still is the fact that Chinese doctors now occupy positions of leadership in two departments. One of the two or three most important posts in the entire institution, that of medical superintendent of the Hospital, is efficiently filled by a capable Chinese. The attitude of a young Chinese doctor who was offered advancement to the headship of a department is worth recording. "If this offer is made," he said, "because of my ability as a scientist, I accept, but if promotion is proposed because I am a Chinese, I must decline."

But not only within the College staff is Chinese influence growing. In its relations with the public the institution enjoys the valuable aid of an Advisory Committee of prominent Chinese citizens who are interpreting the work of the College to the people. The Committee also makes useful suggestions to the College and Hospital authorities. To some degree, these Chinese advisers play the part of local trustees. Moreover, the institution from the beginning has frankly sought to put itself in harmony with the growing sense of nationality which beneath all superficial movements is the characteristic and enduring feature of the present situation. The College asked for and received government recognition as a condition of beginning work. While the institution maintains a department of religious work under a Chinese Christian, no theological tests are applied to either faculty or students; no Biblical or religious courses or exercises are included in the requirements.

In June, 1925, the premedical school ceased to exist. It was established as a temporary expedient to be given up as soon as a sufficient number of secondary schools and colleges were in a position to give satisfactory preparation in mathematics, physics, chemistry, biology, and English. Progress in both Chinese and foreign schools justifies the College in turning over this duty to other institutions. A special arrangement has been made with Yenching University—a foreign institution in the suburbs of Peking—to take over certain equipment and to assume teaching responsibility for preparing medical students and giving a preliminary training to nurses.

The setting up in co-operation with the College of a health center under local auspices in Peking serves at least two important purposes. It affords a demonstration for the first time in China of a modern health organization with its clinic, records, visiting nurse service, and educational features, and it provides a means of giving medical undergraduates a much needed practical training in the meaning and methods of public health and preventive medicine.

The statistical facts about the College may be given in summary form. As of June 30, 1925, the members of the medical faculty and their assistants numbered eighty-seven, of whom, as has already been mentioned forty-six, or 53 per cent, were Chinese. The teachers are graduates of thirty-one medical schools and represent ten different countries. There were besides five teachers in the School of Nursing. There were also three visiting professors, two Americans and one Chinese. The student enrollment totaled 195, distributed as follows: Medical School, fifty-seven; School of Nursing, undergraduate students twenty, graduate students eleven; graduate and special students, both Chinese and foreign, 107. During the teaching year 1924–1925 eighty-four doctors and nurses, Chinese and foreign, were registered for either regular work or in short intensive courses on small grants from the China Medical Board.

The China Medical Board, in addition to maintaining the Peking Union Medical College, continued contributions to the medical schools of Shantung Christian University and the Hunan-Yale institution at Changsha, aided ten premedical courses, and assisted nineteen hospitals in various parts of the country. Minor items of aid and service are reported on page 65.

The Nurse, the Home, the Hospital, and the Health Service

There has already been mention of the nurse in this Review. She plays an essential part in organized public health work; she is indispensable in the teaching hospital. And just now she is a storm center. Discussion, animated, sometimes excited, busies itself with questions of her training, qualifications, fields of work, hours, pay, motives, attitude. Physicians complain that she is hard to lure to the bedsides of private patients, that she is too often overtrained in theory, unduly professionalized, lacking in practicality and docility. Families find fault with the amount of her salary, the limitation of her hours, and her unwillingness to lend a hand in domestic tasks. Few people of modest means can afford to have her at all.

The hospitals, too, cherish a grievance. They give her a sound training only to see her desert the wards to do public health nursing, school nursing, industrial hygiene work, and the like. Some of the smaller hospitals especially are quite bitter about this exodus. One of the most frequent complaints has to do with educational requirements. These are declared to be uselessly high, too theoretical and professional, and a chief cause of keeping numbers low and costs high. All the plaintiffs tend to picture the nurse as something of a profiteer who has lost the Florence Nightingale spirit of sacrifice and service.

What has the defendant, the graduate registered nurse, to say about these indictments? Here are some of the things she believes ought to be considered. Her education has cost her time and some money—actually a substantial sum if what she might have been earning in other work is taken into account. After an elementary school course, and often one or more years of high school, she has spent three years in a hospital. She thinks that during her period of training the hospital had a good deal of work from her on fairly cheap terms. When she has finished her course she feels that she has the right to choose between continuing in hospital service and entering the fields of private nursing or salaried public health or institutional nursing.

From this point she can hardly be described in the singular. A good many nurses fall into hospital routine and remain in spite of often rather irksome conditions of work, residence, and discipline. They cannot agree that the pay is excessive when their hospital duties and responsibilities toward pupil nurses are fairly appraised. Large numbers take private cases although there are disadvantages in living in families, in periods of unemployment, many times in a sense of being ineffectively utilized or even superfluous. Here, too, the actual income seldom leads to affluence when time lost, vacations, necessary expenses, insurance, and saving for old age are taken into the reckoning.

It is not strange that alert young women with initiative, imagination, and a liking for responsibility tend in growing numbers to enter the field of salaried public health service. Here they find continuous income, fixed hours, independence in personal living, and the satisfaction of giving well-organized aid and protection to large groups of needy and appreciative people. As to the Florence Nightingale spirit, the nurses admit that they are human, are not uninfluenced by the standards of living, dress, recreation, conduct, and personal ideals of their environment. Yet they are sincere in believing that in the mixture of motives by which they are actuated there is a steady current of sympathy and of loyalty to a high purpose. If they lack something of the devotion of the religious orders, it seems only fair to point out that society has not provided modern nurses with what these orders guarantee, support for active life and an old age of peace and security.

As in every case of clashing interests each group seems justified from its own standpoint. Attempts to fix blame lead as usual to more heat than light. Certain facts emerge more or less clearly from the turmoil. There are too few nurses. The cost of private nursing service is prohibitive to people of small, or even moderate, means. Hospitals, especially the smaller ones, have more and more difficulty in recruiting pupil nurses and in retaining competent graduates. Nursing service is too uniformly standardized to be used effectively and economically. Acute and complicated cases require a very different kind of nursing from that which suffices for mild or chronic ones. Often domestic aid is the primary need, with some incidental and simple attendance on the sick. But it must be remembered that becoming a nurse is still a voluntary step. Young women cannot be conscripted or evangelized or hypnotized into a nursing career. It must be made reasonably attractive to suitable types in competition with other opportunities which society has to offer.

Fortunately, committees which include doctors, nurses, and lay people are beginning to study the problem with open-mindedness and good will. They are making studies of the actual facts; they are considering the classification of nurses into three or even four kinds with appropriate training for each; they are discussing changes in the curriculum, better and more economical organization of nursing service both in the home and in the hospital, the more effective utilization of public health nurses, and means of making the nursing career more desirable. In all this the Rockefeller Foundation takes a deep interest, but it has no panacea to offer, no special program to impose.

Aid for the Training of Leaders in Nursing

Whatever the solution of the nursing problem, one thing seems certain. There will, in any event, be a need for able and thoroughly trained women as administrators, teachers, and supervisors. The rank and file may include distinct grades, e.g., registered nurse, household nurse, even aide or attendant, each appropriately prepared; but the officers for these privates must have a superior and special education. It is this training of leaders in countries in which cooperation in public health or medical education or both is being given that primarily appeals to the Foundation.

Ordinarily, except in cases of wide sectional differences, aid is confined to one government or university school in a given country. Assistance takes several forms: contingent gifts toward buildings and equipment, contributions, usually in decreasing annual sums to current budgets over a series of years, fellowships for persons of exceptional ability (see page 60), and study visits abroad for selected administrators. While the Foundation realizes that a uniform program which fails to reckon with widely varying conditions in different countries cannot wisely be urged, it does not seem worth while to help a school which cannot from the outset guarantee a certain minimum standard of preliminary education, instructing staff, curriculum, teaching facilities, and living conditions for pupils.

During 1925 the Foundation in conformity with this policy supported a School of Nursing in the Peking Union Medical College; contributed to the budget of the Yale University School of Nursing, which now grants the degree of Bachelor of Nursing to university matriculants who complete successfully a combined five-year course in the science curriculum and in nursing education; made similar grants to Vanderbilt University and the George Peabody College for Teachers, Nashville, Tennessee, which jointly conduct a hospital and public health nursing course; pledged $130,000 toward a nurses' home project and contributed to the teaching budget of a Brazilian government school of nursing in connection with the Hospital Gerál de Assistencia in Rio de Janeiro; and aided the same sort of plan for building and maintenance at the Cracow University School of Public Health and Bedside Nursing in Poland.

In addition to this characteristic program a variety of appropriations, large or small, for nursing service or education were made in connection with different phases of the Foundation's work. Thus aid was given to the Public Health Nursing Service of the Brazilian Department of Health in Rio de Janeiro and to the Bureau of Public Health Visiting, France. Minor forms of help were rendered to the Salpêtrière School in Paris, the Charité School in Lyon, the University College Hospital School in London, the Nursing School in Zagreb, Yugoslavia, and that of the Elizabeth Sleeper Davis Memorial Hospital, Peking. The co-operation in nurse training during the year also included the support of seventy fellowships from thirteen different countries (see page 59), and the financing of international visits by nine leaders (see page 60), and of two studies of special problems in nurse service and training.

"The Proper Study of Mankind Is Man"

It has been said that in creating science human searchers began with the distant stars and only of late have come to man himself. There were good reasons why this should be so. Comte offered an explanation in what he called the "hierarchy of the sciences." Bodies of knowledge, he said, fall into a natural order of increasing complexity. Mathematics as a method and tool comes first. Then follows physics which rests upon mathematics. After physics, and dependent upon it, chemistry appears. Until physics and chemistry have reached a certain stage of development the general science of life, biology, is hampered in its growth. In the same way, psychology rests on biology, while sociology, the most intricate of all, can advance only as all the preceding sciences become more exact and authentic. This does not mean, of course, that the sciences have developed historically in any such formal fashion, only that no one of them can make important progress until its immediate predecessor in the scale has provided the necessary facts and laws.

Medicine, both curative and preventive, whether it be considered as science or art, quite obviously depends directly on psychology, biology, chemistry, and physics. The discovery of microbes, for example, created a new biological science, bacteriology, which radically modified medical ideas and procedures. Later, the progress of chemistry in its relation to organic life had a profound influence on knowledge of the body and its processes. Now it is realized that the modern science of the mind, psychology, must be taken systematically into account by the medical scientist and the physician. So the Rockefeller Foundation has naturally, if not inevitably, been drawn into at least the borders of the fields of biology and psychology, as these have a bearing on medicine and public health, and on man's development.

During 1925, through the Division of Studies, the Foundation aided both the American and the Canadian committees for mental hygiene, which are concerned with the relations of psychology to mental diseases, their treatment and prevention. Grants were made to the State University of Iowa for research in brain physiology and its application to certain problems of mental defects in children. Support was continued for forty-one fellowships in biology administered by the National Research Council. The sum of $50,000 was appropriated toward new buildings for the Marine Biological Station at Pacific Grove, California. Funds were also supplied for a biological abstract service which is described in another section (see page 57).

In the field of human biology, under which may be included physiology, psychology and psychiatry, and anthropology both physical and cultural, as these throw light on man's body, mind, and social relations, significant beginnings were made. Contribution was given toward the support of an Institute for Biological Research at the Johns Hopkins University, which has chosen as one of its leading problems studies in the duration of life in selected insects, other animals, and in man. Another project from which valuable results are expected is a study at Yale University of the growth, diseases, behavior, intelligence, and possible means of communication of primates. Four young chimpanzees have been under observation during the past year in a special laboratory. The funds which enable the Department of Psychology to carry on this work are supplied by the Foundation through the Division of Studies.

Racial Laboratories of the Pacific

The investigator in human biology proper must rely on observations and comparisons, for quite obviously he cannot in the case of human groups resort to experiment. He must study societies as they exist, preferably in relatively primitive and simple forms and so far as possible in isolation from one another. From this point of view the complaint of a zealous anthropologist against missionaries is at least understandable. He said that they confuse social and cultural conditions and make the work of the sociological student harder. But under certain circumstances a mixture of races affords just the opportunity which the investigators of heredity, of racial interbreeding, and of cultural interaction are seeking.

There are many things which the scientists want to know about the so-called primitive

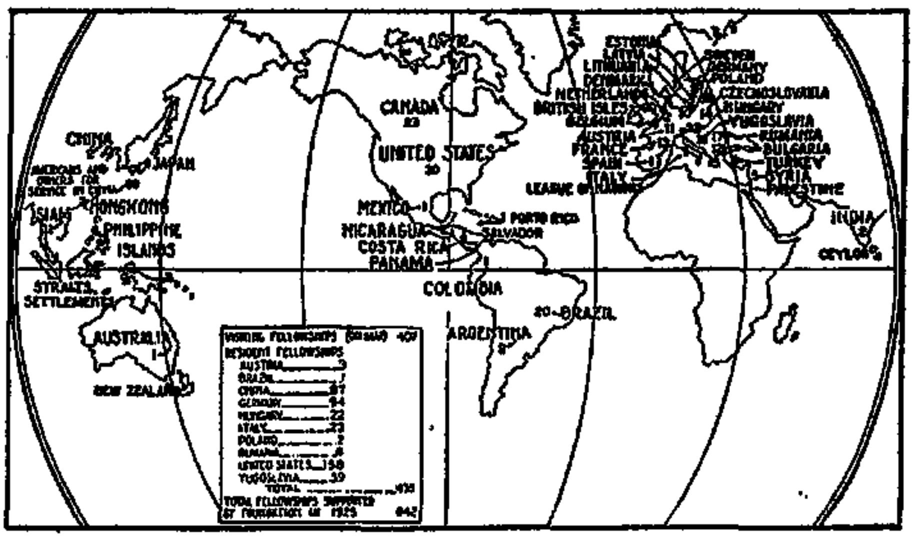


Fig. 5.—Fellowships for forty-four countries.

peoples. Measurements of heads and bodies are important; the constitution of the blood, the processes of nutrition, and other physiological facts are significant; susceptibility to communicable diseases throws light on problems of natural or acquired immunity; general intelligence as tested by ability to solve life problems, to record and use knowledge and experience, etc., has a bearing on the whole subject of human psychology; that elusive something called temperament has meaning for science; social organization for leadership and control is full of interest; handicrafts, tools, ornaments, customs, legends, music, ceremonies, religion, repay the most careful study; attempts to discover the causes of individual and group survival or decay are of value; and not the least is the desire to get evidence about the migration and distribution of races.

The islands of the Pacific offer exceptional advantages for investigating racial and social problems. The Polynesian people in Hawaii, Samoa, the Marquesas, the Society Islands, Ellice Islands, etc., will repay continued study. The Melanesians in the Admiralty Islands, Bismarck Archipelago, Solomon Islands, New Hebrides, Fiji, and other islands offer a wide and fruitful field for investigation. Certain aboriginal groups in Australia represent one of the few examples of people in an early stage of development. Hawaii is a unique center for the investigation of racial crossing, cultural interaction, and social relationships. The various opportunities are not permanent. Some of the peoples are disappearing, others are being rapidly Westernized. If further and more systematic studies are to be made, too much time must not be lost.

Australia, which under the League of Nations holds mandates for the more important of the

Melanesian Islands, is following an enlightened policy in training administrators for these areas. A department of anthropology has been established in the University of Sydney. Here, in addition to research, special courses will be given for government officials to prepare them to deal intelligently and sympathetically with the native peoples. In time this should result not only in the protection of the Melanesians but in adding to our knowledge of their characteristics and social life. The Australian aborigines, who constitute a quite separate problem, are also to be studied by members of the staffs of Australian universities. The Foundation, through the Division of Studies, has pledged funds for co-operation with the agencies which will make these investigations, has provided special trips for two professors from Sydney and Adelaide, and has sent representatives on study visits to Hawaii, New Zealand, and Australia (see page 65).

A World Memory for Biology

The interest of the Foundation in biology as fundamental to medicine, hygiene, and the study of human individuals and groups has already been described. One special form of aid to the progress of biology calls for separate notice. The enormous number of scientific papers and volumes published annually throughout the world in every field of research creates the need for some kind of systematic organization of this material in a readily accessible form. A great library undertakes at least a part of this task. Such an institution has been likened to a social memory or brain. Here are stored vast accumulations of information. By means of classifications and card catalogues the knowledge which bears upon a given problem can be quickly assembled. Just as the well-trained and informed scholar can concentrate his own knowledge and experience on a new situation, so society as a whole may be thought of as utilizing its memory through the organized resources of its libraries and museums.

But each library after all is only a section of a national and of a world memory or brain. The books and periodicals on its shelves come from all lands where new truth is discovered and then described in print. Thus in the field of biology alone it is estimated that each year 40,000 articles of at least some value appear in 5,000 journals, transactions of scientific societies, proceedings of congresses, and the like. To be sure, these papers vary enormously in their importance. Probably in a given year only a small percentage is highly significant in fundamental ways. The bulk of them perhaps deal with useful details. A good many are likely to be trivial if not negligible. Yet if a scientific worker is to avoid duplicating the research of others, if he is to compare his methods with theirs, if he is to have his mind steadily fertilized by relevant ideas and suggestions, if he is to increase the chance of getting a happy illuminating flash upon his problems, he must have constant access to the world memory.

To meet this need abstract journals which give the gist of articles and papers have appeared in different countries. Elaborate indexes make reference easy and accurate. Some of the journals have attained international standing. Biology as a whole, however, has lacked satisfactory service of a world-wide sort. Recently eighteen American biological societies joined in a plan to publish a journal of biological abstracts on an international basis. The co-operation of individuals and organizations in foreign countries is being sought and in most cases secured. The National Research Councils of Japan and Australia have responded warmly. The Royal Society of London and the French Federation of Natural Science Societies have expressed an interest. Arrangements for exchange of material with abstract journals in Europe are being worked out.

The details of the new plan have been carefully studied. Eighty sections of subject matter will be handled by eighty special editors. Co-operating foreign correspondents and libraries will help to scan the 5,000 serials for significant papers. Authors and editorial collaborators will prepare the abstracts. By the use of a thin opaque paper 1,030 large pages of small but legible type will occupy only an inch of shelf room. When once under way it is expected that twelve monthly numbers with elaborate annual indexes will run to between 3,000 and 3,500 pages. The entire enterprise will be directed by a small full-time central staff of editors. The University of Pennsylvania provides headquarters free of charge, while the Marine Biological Laboratory at Woods Hole offers summer offices on the same generous terms. In addition to the contributions of the American societies and the income from subscriptions, the Rockefeller Foundation has pledged $350,000 to be spent over a ten-year period toward the cost of this plan to provide a world memory for biology.

International Trade in Men and Ideas

Aid to Biological Abstracts is in harmony with a guiding policy which leads the Foundation to encourage in many ways a constant exchange of knowledge and suggestion among the various countries of the world. This commerce of ideas, unhampered by tariffs, is carried on through personal intercourse and printed page. Thus the Foundation stations representatives in foreign countries, grants fellowships for graduate study, invites individuals and commissions to make study trips to countries other than their own, sends visiting professors abroad, distributes bulletins of information about medical education, supplies in emergencies scientific literature to medical libraries, and maintains a steady volume of international correspondence about public health, medical education, nurse training, and allied subjects.

During the year 1925 the Foundation, through its own or other agencies, contributed to the maintenance of 842 fellowships, held by representatives from forty-four different countries. Of these fellowships, 365 were foreign, i.e., their holders crossed national boundaries. Of the remainder, twenty-nine were held by Americans studying in the United States, 404 were resident fellowships for graduate study, and forty-four were emergency resident scholarships for certain temporary needs. As to geographical distribution, 408 fellowships were assigned to Europe, 241 to the Americas, and 193 to the Orient. In a general way the distribution reflected the co-operative activities of the Foundation, for the fellowships are not regarded as an end in themselves but as means of constructive aid. They are granted only to selected individuals of unusual promise for special professional training in preparation for officially guaranteed administrative, research, or teaching positions in government or university services. The total sum spent upon fellowships in 1925 was $792,655.

International commissions and individual guests during 1925 included: eleven health officers from Canada, Trinidad, Porto Rico, Austria, Denmark, the Irish Free State, and Ceylon; eight representatives of medical schools from Brazil, France, and Siam; and nine leaders in nurse training from England, Canada, the United States, Rumania, Bulgaria, Yugoslavia, and Austria. In addition, two visiting professors were sent to Peking Union Medical College. In connection with this subject of international intercourse it is pertinent to add that for a number of years the Foundation, through the International Health Board, has contributed substantially to the interchanges of health officers which are organized by the Health Committee of the League of Nations. In 1925 under League auspices 128 medical officers from fifty-eight different countries participated in these interchanges and similar meetings. It thus appears that during the year nearly six hundred specialists went from one country to another either wholly or chiefly with the aid of Foundation funds.

The Division of Medical Education issued in 1925 another bulletin belonging to the series "Methods and Problems of Medical Education" (Vol. III). This contains descriptions of medical school departments written by professors of twelve medical schools in seven different countries. The articles, illustrated with building plans and photographs, describe the housing, equipment, staff, curricula, and methods of research and teaching. The publication went out to all the 460 medical schools of the world and to many individual scientists and administrators. In connection with the emergency program in Europe (see page 35) medical literature was sent to 112 medical faculties in twenty countries.

Research under Foundation Auspices

The prosecution of research is not ordinarily a direct activity of the Foundation. In certain fields of medicine and hygiene investigation is a special function of the Rockefeller Institute for Medical Research which is a quite distinct and separate organization with its own trustees and endowment. Indirectly, it is true, Foundation funds are being used to promote research in schools of hygiene, medical schools, university departments of biology, psychology, and anthropology, or under the auspices of special committees or commissions. Throughout this Review frequent mention has been made of aid to institutions or groups which are adding to the sum of scientific knowledge.

In connection with the work of the Foundation, however, a good deal of original investigation of specific problems is being carried on either by staff members themselves or by men working in schools, institutes, or university departments. Thus in 1925, under the auspices of the International Health Board, studies were made of the life histories of hookworm eggs and larvae, and of growth retardation in school children harboring varying numbers of the mature parasites. Another important inquiry threw more light upon the use of a certain drug (carbon tetrachloride) in the treatment of hookworm disease. At the Board's training base in Alabama still other inquiries were made into the pollution of soils of different kinds, the effectiveness of various sanitary measures, and the like. In this way improvements in methods of control were introduced.

So also with respect to malaria more facts were brought to light. The breeding and behavior of malaria mosquitoes in Brazil were carefully observed. Experiments with bird malaria—the discovery by Ross of the transmission of this disease by anopheline mosquitoes led to the knowledge of how human malaria is spread—were carried on with the hope of gaining further insight into the malaria problem. Other researches had to do with laboratory tests for discovering latent malaria in human beings and with the possibility of re-enforcing quinine with more effective substances. At the training bases in Georgia and Alabama field studies of mosquito breeding and of various means of preventing it under different conditions were continued to good purpose. Reference has been made (see page 21) to the field studies in yellow fever which are being conducted by a special commission on the West Coast of Africa.

Under the auspices of the Division of Studies an inquiry was made into the problem of maternity care in England and on the Continent with the aim of getting information about the European midwife system and of learning, if possible, why American maternal deaths in child-bearing are twice what they are in England and three times as great as in the Netherlands and Denmark. While the visits of representatives to European countries, the Pacific Islands, Australasia, and the Far East to make studies of health conditions, medical schools, university departments of biology, etc., cannot be strictly regarded as scientific research, much important information was secured in this way.

Consultation and Field Service

Health departments and medical schools often require the temporary services of experienced specialists to aid them in reorganizing or expanding their programs. The loan of such experts or the provision of small appropriations to permit the establishment of new lines of work which will later be adopted into the regular budget of the state or institution, are forms of assistance which the Foundation is frequently called upon to render.

During 1925 the International Health Board, through service of this kind, aided in the development of public health laboratory facilities in twelve states of the United States and in six foreign countries. In the same way assistance was given in strengthening systems of vital statistics and disease reporting or in furthering sanitary engineering projects in thirteen states of the United States and in two Central American republics.

The General Director and other officers of the Board made surveys and visits of inspection in the United States, Europe, and the Far East. In Czechoslovakia, France, and Hungary aid was given to temporary advisory bureaus which are studying or reorganizing the national health services.

Representatives of the Division of Medical Education made studies of the needs of individual medical schools in five countries of Europe and five countries of the Far East.

The Division of Studies made a survey of negro nurse training in the United States which included a comprehensive study of all the important schools for negro nurses and of the work of these women in public health. Observations were made in sixteen cities. The Director of the Division, accompanied by scientists distinguished in the fields of anthropology and biology, visited Japan, China, Hawaii, New Zealand, and Australia to investigate possible fields for studies in human biology. The China Medical Board conducted an architectural bureau in connection with the Peking Union Medical College, where advice on laboratory and hospital construction could be had.

Working with Other Agencies

In addition to its co-operation with governments and institutions for medical training, the Foundation gives assistance to a number of voluntary agencies equipped to do certain specialized work in public health, medical education, and allied fields. There follows a list of such organizations receiving aid during 1925:

Medical Research Council (Great Britain). Fellowships in medicine.

The National Research Council. Fellowships in mathematics, medicine, physics, chemistry, and the biological sciences; contribution toward current expenses of Concilium Bibliographicum.

Union of American Biological Societies. Organization of Biological Abstracting Service.

New York Committee on Dispensary Development. Payment toward general expenses.

American Conference on Hospital Service. Contribution toward maintenance of hospital library and information bureau.

National Committee for Mental Hygiene. Survey of the care and treatment of mental deficiency and mental diseases; general expenses; fellowships.

Canadian National Committee for Mental Hygiene. Studies in the application of mental hygiene to school children.

New York Academy of Medicine. Contributions toward expenses of program of reorganization and expansion.

American Medical Association. Payment toward deficit on publication of Spanish edition of the Journal of the American Medical Association.

Council on Health Education (China). General budget.

China Medical Missionary Association. Current expenses, maintenance of standards of medical education.

National Medical Association of China. Expenses of Committee on Uniform Medical Terminology in Chinese.

North China Union Language School. Payment toward cost of Recitation Building.

Association of American Medical Colleges. Study of medical curriculum.

Comité National de Défense contre la Tuberculose. Contribution toward current expenses.

Applications for Aid

In 1925 the Foundation was obliged to decline formal applications for aid to the number of 631, inasmuch as the types of assistance requested did not fall within the scope of its activities as determined by its present policies. The Foundation does not make gifts or loans to individuals, nor contribute to the building or maintenance of churches, hospitals (except as certain hospital features may be included in plans for medical education), and other local institutions, nor support campaigns to influence public opinion on social or political questions. A record is kept of all applications formally refused by the officers or the Executive Committee, and these are regularly reported to the trustees; but the names of the applicants and the details of their requests are not made public.

The applications declined during 1925 may be classified under the following headings: public health 17, medical education 156, general education 68, local institutions 120, personal aid 193, miscellaneous 77. This list does not include the many tentative requests for co-operation made to the central office or to staff officers in the field.

By-Products of Team-Work

In this story of international co-operation in research, medical education, public health, and the development of the biological sciences, the reader may have missed familiar allusions to mutual understanding, good will, and world-wide peace. This reticence is due to no lack of interest in these things but rather to the belief that they are by nature peculiarly elusive when directly and consciously pursued. Like culture, refinement, good taste, *esprit de corps*, they seem to be precious by-products rather than ends in themselves. Leaving to others the purposeful promotion of amity among the nations, the

Rockefeller Foundation fixes attention upon common interests of all peoples, in the development of science and its application to health and welfare. By fostering intercourse among scientists through travel and print, by helping each nation to put its characteristic contributions at the service of all, by deepening the conviction that there are great causes in which all have equal concern, by helping to make co-operation and comradeship easy and habitual, the Rockefeller Foundation seeks in its chosen field to realize the purpose of its charter, "the well-being of mankind throughout the world."

Finances for 1925

In the accompanying table is presented a summary of the receipts and expenditures for 1925. The income accruing from investments was $8,237,303; the balance carried over from 1924 was $7,611,793. Of these total funds, $9,113,730 was needed to meet the obligations which came due during the year and $6,170,047 was subject to call in fulfilment of outstanding pledges. The remainder available for transfer to the 1926 budget and subject to appropriations for that year was $565,319. Details of expenditure for 1925 will be found on pages 83 to 85. A more complete financial statement appears in the Treasurer's Report, pages 427 to 493.

TABLE I: RECEIPTS AND DISBURSEMENTS IN 1925

Receipts		*Disbursements*		
Balance from 1924 (including refunds during 1925 on prior year appropriations)	$7,611,793	General Budget:		
Income during 1925...	8,237,303	International Health Board..........		$2,581,586
		China Medical Board		1,539,689
		Division of Medical Education.......		649,554
		Division of Studies..		624,261
		Central Administration............		141,767
		Capital Expenditures:		
		International Health Board..........		1,040,894
		China Medical Board		53,722
		Division of Medical Education.......		2,482,257
				$9,113,730
		Balance:		
		Payable on 1925 and prior appropriations..	$6,170,047	
		Available for 1926 appropriations..	565,319	6,735,366
	$15,849,096			$15,849,096

THE ROCKEFELLER FOUNDATION

Report of the Secretary

To the President of the Rockefeller Foundation:

Sir:

I have the honor to submit herewith my report for the period January 1, 1925, to December 31, 1925.

Respectfully yours,

NORMA S. THOMPSON

Secretary

SECRETARY'S REPORT

The following were members and trustees of the Rockefeller Foundation during 1925:

MEMBERS

John G. Agar	John D. Rockefeller, Jr.[2]
Wallace Buttrick[1,2]	Wickliffe Rose[2]
John W. Davis	Julius Rosenwald
Simon Flexner	Martin A. Ryerson
Raymond B. Fosdick[2]	Frederick Strauss
Charles E. Hughes	George E. Vincent[2]
Vernon Kellogg[2]	William Allen White

Ray Lyman Wilbur

Officers of the Rockefeller Foundation during 1925 were:

John D. Rockefeller, Jr.	*Chairman, Board of Trustees*
George E. Vincent	*President*
Norma S. Thompson	*Secretary*
L. G. Myers	*Treasurer*
L. M. Dashiell	*Assistant Treasurer*
Robert H. Kirk[3]	*Comptroller*
Chase Andrews[4]	*Assistant Comptroller*
George J. Beal	*Assistant Comptroller*
C. C. Williamson	*Chief of Information Service*
Clifford W. Wells	*Fellowship Adviser*

Meetings

Regular meetings of the Foundation were held on February 25, May 27, and November 6, 1925. Eighteen meetings of the Executive

[1] Died May 27, 1926.
[2] Executive Committee.
[3] Died November 24, 1925.
[4] Died December 27, 1925.

ROBERT HORNER KIRK

Robert Horner Kirk, for ten years comptroller of the Rockefeller Foundation, died at his home in Summit, New Jersey, on November 24, 1925, following a long illness.

Mr. Kirk was the son of the late William D. Kirk, president of the Capitol Bank of St. Paul, Minnesota. He was born in St. Paul June 10, 1872, and received his early education in the schools of that city. He was graduated from the Massachusetts Institute of Technology in 1894 and returned to St. Paul as chief engineer of the American Hoist and Derrick Company. In 1904 he married Edith Styles Driscoll, and two years later removed to Cleveland, Ohio, where he became associated with the Long Arm Company in the manufacture of automatic doors for battleships.

When the Rockefeller Foundation was established in 1915 he was appointed its first comptroller. He set up the accounting procedure of the new organization, put in operation the other activities of the comptroller's division, and served for a number of years as office manager. From 1918 to 1921 he was a trustee of the Peking Union Medical College. In 1918, when the College plant was in process of construction, he visited Peking to advise on building operations.

As comptroller of the Foundation, Mr. Kirk rendered a service the influence of which will long be felt in the work of the institution. As the volume and detail of the work increased he never failed to keep pace with the demands which the expanding enterprise made upon the office organization. Only those who know something at first hand of the requirements to be met can fully appreciate the accuracy, vigilance, and resourcefulness which he displayed. The difficult tasks of his office Mr. Kirk discharged in such a way as to command the respect and confidence of all his colleagues.

The welfare of the field and office staffs was always a matter of deep concern to Mr. Kirk. He had a sympathetic understanding of the problems of the field men and was ever ready to make all possible adjustments to expedite or facilitate their work. He did much of the preliminary work involved in perfecting the plan to provide life insurance and retiring allowances for members of the staff, and when this was adopted by the trustees in 1923 he devoted himself unsparingly to the task of putting it into operation.

His personal integrity was of the finest type. He was unswerving in loyalty to what he conceived to be his duty. Yet with all this he never failed to maintain poise and courtesy in all his personal relations. The officers and staff feel his loss, not only as an able executive, but as a true friend.

Robert Horner Kirk

CHASE ANDREWS

Chase Andrews, assistant comptroller of the Rockefeller Foundation, with which he was connected for nearly ten years, died at his home in Flushing, Long Island, on December 27, 1925, after an illness of several months.

Mr. Andrews was born in Washington, D. C., March 23, 1881. He attended the Putnam Academy in Zanesville, Ohio, and the Western High School in Washington. He was graduated from Princeton University in 1903, and in the following year became connected with the Auditing Department of the New York Central Railroad, where he remained until February, 1916, when he joined the staff of the Rockefeller Foundation. In 1918 he was sent to Paris to reorganize the Accounting Department of the International Health Board's office in that city. On January 1, 1920, he was appointed assistant comptroller of the Foundation. He was married on October 23, 1920, to Catherine Mount Simpson, who with his mother and five brothers, survives him.

Mr. Andrews was a man of fine personality and of great ability in his profession. Gracious, kindly, cultivated, unobtrusive, he exemplified the best in our citizenship and endeared himself to his associates as it is given few men to do. As an organization the Foundation feels itself impoverished in the loss of his able and devoted services; individually, the members of the organization feel a deep personal sorrow that he has gone from among them.

Committee were held during the intervals, to execute programs within general policies approved by the trustees.

Departmental Organization

The programs of the Foundation are carried out by two Boards and two Divisions created by resolution of the Board of Trustees, the International Health Board in 1913, the China Medical Board in 1914, the Division of Medical Education in 1919, and the Division of Studies in 1923. Each of these agencies is devoted to special functions and depends upon the Foundation for funds.

The officers and members of these departmental agencies in 1925 were as follows:

INTERNATIONAL HEALTH BOARD

George E. Vincent, *Chairman*

Wallace Buttrick[1]	Edwin O. Jordan
Rufus Cole	Vernon Kellogg
David L. Edsall	John D. Rockefeller, Jr.
John G. FitzGerald	Wickliffe Rose
Simon Flexner	Victor C. Vaughan
Raymond B. Fosdick	William H. Welch

Norma S. Thompson, *Secretary*

F. F. Russell, M.D.	*General Director*
John A. Ferrell, M.D.	*Director for the United States*
Victor G. Heiser, M.D.	*Director for the East*
H. H. Howard, M.D.	*Director for the West Indies*

Florence M. Read, *Executive Secretary*

[1] Died May 27 1926

CHINA MEDICAL BOARD

George E. Vincent, *Chairman*

Ernest D. Burton[1]	Vernon Kellogg
Wallace Buttrick[2]	Paul Monroe
Simon Flexner	John R. Mott
Raymond B. Fosdick	Francis W. Peabody
Frederick L. Gates	John D. Rockefeller, Jr.
Frank J. Goodnow	Wickliffe Rose

William H. Welch

Norma S. Thompson, *Secretary*

Roger S. Greene	*General Director*
Henry S. Houghton	*Acting Resident Director in China*

Margery K. Eggleston, *Executive Secretary*

DIVISION OF MEDICAL EDUCATION

Richard M. Pearce, M.D.	*Director*
Alan Gregg, M.D.	*Associate Director*
William S. Carter, M.D.	*Associate Director*
F. W. O'Connor, M.R.C.S. (Eng.)	*Assistant*

DIVISION OF STUDIES

Edwin R. Embree	*Director*
F. W. O'Connor, M.R.C.S. (Eng.)	*Assistant*

Summary of Expenditures

The following summary of payments made by the Rockefeller Foundation for all purposes during the year 1925 outlines in expenditures the work described in terms of aims and results in the President's Review. In many instances payments involved sums appropriated in former years. On the other hand, in some instances payments represent but a portion of appropriations made during 1925, remainders of which will be paid during succeeding years. For a full statement of the finances of the Foundation, see the report of the Treasurer, pages 427 to 493.

[1] Died May 5, 1925.
[2] Died May 27, 1926.

TABLE 2: SUMMARY OF THE EXPENDITURES OF THE ROCKEFELLER FOUNDATION FOR THE YEAR 1925

I. PUBLIC HEALTH

International Health Board

1. Regular program in control of hookworm, malaria, and yellow fever, and in county health work, state health and laboratory service, public health administration, and public health nursing	$2,014,822
2. Tuberculosis in France	13,948
3. Public health education	
(a) Fellowships	209,518
(b) Schools of hygiene and public health	
(1) London School of Hygiene and Tropical Medicine	269,164
(2) University of Toronto	262,500
(3) State Public Health Institute, Prague	126,490
(4) School of Public Health, Zagreb, Yugoslavia	88,863
(5) School of Public Health, Warsaw	83,000
(6) Institute of Public Health, Budapest	40,000
(7) Harvard School of Public Health	31,250
(8) Institute of Hygiene, São Paulo	5,618
(9) Department of Hygiene and Legal Medicine of the Medical Faculty of Bahia	3,550
(10) Imperial College of Tropical Agriculture, Trinidad	4,851
(c) Government health institutions	
State Serum Institute, Copenhagen	144,640
Central Epidemiological Institute at Belgrade	33,950
(d) Study and training courses, and travel of visiting scientists	38,183
4. Administration	252,133
	$3,622,480

II. MEDICAL EDUCATION

A. China Medical Board

1. Peking Union Medical College	
(a) Land, buildings, and equipment	$53,722
(b) Operation (1924–1925, part 1925–1926)	1,116,371
2. Aid to medical and premedical schools and to hospitals	275,351
3. Fellowships and scholarships	60,719
4. Administration	87,248

B. Division of Medical Education	
1. Medical Schools	
(a) University of Brussels	$720,000
(b) University of Copenhagen	324,195
(c) University of Pennsylvania	250,000
(d) University of Cambridge	240,686
(e) State University of Iowa	225,000
(f) King Edward VII College of Medicine, Straits Settlements	195,344
(g) University of Utrecht	184,414
(h) University of Edinburgh	156,227
(i) Central Europe—Journals and apparatus	105,105
(j) University of Strasbourg	94,050
(k) Chulalongkorn University, Siam	61,686
(l) New York Academy of Medicine—Educational program	32,698
(m) University of Montreal	25,000
2. Visiting commissions and professors, surveys and publications	47,358
3. Fellowships for medical scientists (including those granted by the Division of Studies)	362,841
4. American Medical Association (toward publishing a Spanish Edition of Journal)	8,988
5. Field staff	33,286
6. Administration	64,933
	$4,725,222

III. MISCELLANEOUS

Division of Studies	
1. Studies and demonstrations	
(a) Mental hygiene	$69,500
(b) Hospital, dispensary service, and nursing education	239,595
2. National Research Council	
(a) Fellowships in physics, chemistry, and mathematics	104,540
(b) Fellowships in biological sciences	55,038
(c) Concilium Bibliographicum, Zürich	10,000
(d) International Biological Abstracts	17,980
3. University of Iowa—Research in physiology of the brain	15,256
4. Johns Hopkins University—Biological research	26,500
5. Marine Biological Station at Pacific Grove	50,000
6. Yale University—Promotion of anthropoid research	5,000
7. Surveys in human biology	5,749
8. Administration	25,103
	$624,261

IV. ADMINISTRATION

A. Maintenance of executive offices, the treasurer's office, and the European office	$137,063*
B. Furniture and fixtures, and books	3,704
C. National Information Bureau (membership for 1925)	1,000
	$141,767
	$9,113,730

Funds and Property

As of December 31, 1925

PRINCIPAL FUNDS

General Fund		$165,204,624
Special Funds		
Gifts of Laura S. Rockefeller	$50,000	
Gifts of John D. Rockefeller	37,000	
		87,000
		$165,291,624

LANDS, BUILDINGS, AND EQUIPMENT

In China: Medical school lands, buildings, and equipment	$8,919,008	
In New York: Furniture and equipment of offices	43,146	
		$8,962,154

UNDISBURSED INCOME

General Income (for offsetting liabilities see below)	$6,735,366

UNPAID APPROPRIATIONS AND PLEDGES

Balance due on appropriations payable in 1925 and prior years		$6,170,046
Appropriations and pledges which become effective in 1926 and following years:		
1926	$8,262,194	
1927	3,399,492	
1928	2,291,760	
1929	1,628,417	
1930	905,107	16,486,970
		$22,657,016

*Includes expenditures under special appropriations for travel of Fellowship Adviser.

INTERNATIONAL HEALTH BOARD

Report of the General Director

INTERNATIONAL HEALTH BOARD

Report of the General Director

To the President of the Rockefeller Foundation:

Sir:

I have the honor to submit herewith the report of the International Health Board for the period January 1, 1925, to December 31, 1925.

Respectfully yours,

FREDERICK F. RUSSELL

General Director

INTERNATIONAL HEALTH BOARD

OFFICERS AND MEMBERS

George E. Vincent, *Chairman*
Frederick F. Russell, *General Director*
Wallace Buttrick[1]
Rufus Cole
David L. Edsall
John G. FitzGerald
Simon Flexner
Raymond B. Fosdick
Edwin O. Jordan
Vernon Kellogg
John D. Rockefeller, Jr.
Wickliffe Rose
Victor C. Vaughan
William H. Welch

Norma S. Thompson, *Secretary*
Florence M. Read, *Executive Secretary*

[1] Died May 27, 1926.

PERSONNEL OF STAFFS DURING 1925[1]

ADMINISTRATIVE STAFF

FREDERICK F. RUSSELL, M.D., *General Director*
JOHN A. FERRELL, M.D., *Director for the United States*
VICTOR G. HEISER, M.D., *Director for the East*
HECTOR H. HOWARD, M.D., *Director for the West Indies*
WILBUR A. SAWYER, M.D., *Director of Public Health Laboratory Service*
FLORENCE M. READ, *Executive Secretary*

FIELD STAFF[2]

ARGENTINA

N. C. DAVIS	Malaria control

BRAZIL

G. K. STRODE	Director of work in Argentina, Brazil, and Paraguay; hookworm control; county health work; malaria control
N. C. DAVIS	Malaria control
J. H. JANNEY, JR.	Organization of county health departments
M. F. BOYD	Malaria control
ETHEL PARSONS[3]	Public health nursing service
J. H. WHITE[3]	Yellow fever control
E. J. SCANNELL[3]	Yellow fever control
G. J. CARR[3]	Yellow fever control
A. F. MAHAFFY	Yellow fever control
A. M. WALCOTT[3]	Yellow fever control
L. C. SMITH[3]	Yellow fever control

[1] Personnel employed by government in co-operative work not listed.
[2] Names are listed under each country in which the staff members served for any part of the year.
[3] Special staff member.

BRITISH HONDURAS

E. I. Vaughn (resigned)	Yellow fever survey

CEYLON

J. F. Docherty (resigned)	Hookworm control
W. C. Sweet	Hookworm control
W. P. Jacocks	Hookworm control
M. E. Barnes	Malaria survey
P. F. Russell	Malaria survey

CHINA

J. B. Grant	Services lent to Peking Union Medical College as Professor of Hygiene and Public Health; public health laboratory service

COLOMBIA

D. B. Wilson	Hookworm control

COSTA RICA

R. M. Taylor	Public health laboratory service

ECUADOR

M. E. Connor	Yellow fever survey

FRANCE

Selskar M. Gunn	Director of Paris Office
George Bevier	Assistant to director of Paris Office
W. Leland Mitchell	Assistant to director of Paris Office
R. K. Collins	Assistant to director of Paris Office

GUATEMALA

J. E. Elmendorf, Jr.	Hookworm control; public health laboratory service; yellow fever control

HAITI

G. C. Payne	Health survey
W. A. Hoffman[1]	Malaria survey

HONDURAS

F. E. Hulse[1]	Sanitary engineering; yellow fever control

[1]Special staff member.

INDIA

J. F. Kendrick	Hookworm control

ITALY

L. W. Hackett	Malaria control
N. C. Rector [1]	Malaria control

JAMAICA

B. E. Washburn	Hookworm control
W. C. Hausheer	Hookworm control

JAVA

J. L. Hydrick	Hookworm control
Cornelis van Noort [1] (resigned)	Hookworm survey

MAURITIUS

C. H. Yeager	Hookworm control

MEXICO

A. J. Warren	Hookworm control
H. P. Carr	Hookworm survey

MONTSERRAT

Hugo Muench, Jr.	Hookworm survey

NICARAGUA

D. M. Molloy	Organization of public health activities; hookworm control; public health laboratory service; yellow fever control
E. H. Magoon [1]	Malaria control; sanitary engineering

PALESTINE

P. S. Carley	Malaria control

PANAMA

Louis Schapiro	Hookworm control

PARAGUAY

F. L. Soper	Hookworm control

PERU

M. E. Connor	Yellow fever survey

[1] Special staff member.

PHILIPPINE ISLANDS

W. D. Tiedeman[1] (resigned)	Malaria control
J. J. Mieldazis[1]	Malaria control
G. R. Lacy[1] (resigned)	Assistant to director, Bureau of Science
Frank Milam	Field study in rural health organization

PORTO RICO

R. B. Hill	Hookworm control
W. C. Earle	Malaria control
H. A. Johnson[1] (resigned)	Malaria survey

SALVADOR

M. E. Connor	Director of yellow fever control in Central America
H. R. Muller[1]	Yellow fever studies

SEYCHELLES

C. H. Yeager	Hookworm resurvey

SIAM

M. E. Barnes	Director of work in Siam and Straits Settlements; hookworm control
H. R. O'Brien (resigned)	Hookworm control
P. M. Lowell[1]	Hookworm control

SOUTH SEA ISLANDS

(Cook Islands, Fiji, New Hebrides, Tonga)

S. M. Lambert	Hookworm surveys or control

SPAIN

C. A. Bailey	Hookworm and public health survey

STRAITS SETTLEMENTS

M. E. Barnes	Director of work in Siam and Straits Settlements; hookworm control
P. F. Russell	Hookworm survey

[1] Special staff member.

UNITED STATES

Alabama

W. G. Smillie	Director of training station
C. N. Leach	Epidemiological service; director of training station
R. K. Collins	Organization of county health departments
F. C. Caldwell	Hookworm research

Georgia

S. T. Darling[1]	Director of Leesburg station for field studies in malaria control
M. F. Boyd	Director of Leesburg station for field studies in malaria control
H. P. Carr	Malaria control investigations

North Carolina

H. A. Taylor	Malaria control investigations

Oregon

Hugo Muench, Jr.	Organization of county health departments

Tennessee

F. C. Caldwell	Director of state divisional public health laboratory
J. A. Kerr[2]	Hookworm survey
E. R. Rickard[2]	Hookworm survey

Texas

Hugo Muench, Jr.	Organization of county health departments

VENEZUELA

Henry Hanson[2]	Yellow fever survey
L. H. Dunn[2]	Yellow fever survey

WEST AFRICA

Henry Beeuwkes	Director of yellow fever surveys in West Africa
Henry Hanson[2]	Yellow fever survey
A. F. Mahaffy	Yellow fever survey
H. R. Muller[2]	Yellow fever studies
A. M. Walcott[2]	Yellow fever survey
L. H. Dunn[2]	Yellow fever survey

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[1] Died May 21, 1925.
[2] Special staff member.

AT HOME OFFICE

P. W. Covington	Assistant to director for United States (headquarters, Salt Lake City)
W. G. Smillie	Assistant to director for United States

STUDY LEAVE

W. C. Hausheer
W. P. Jacocks
J. F. Kendrick

AT TRAINING STATIONS

C. B. Blaisdell[1] (resigned)
P. S. Carley
H. P. Carr
R. K. Collins
J. F. Docherty (resigned)
J. A. Kerr[1]
W. A. McIntosh
Frank Milam
E. R. Rickard[1]

YELLOW FEVER ADVISORY COUNCIL

Henry R. Carter,[2] M.D., Assistant Surgeon General (retired), United States Public Health Service (died September 14, 1925)
Hideyo Noguchi,[2] M.D., Rockefeller Institute for Medical Research
Joseph H. White,[1] M.D., Assistant Surgeon General (retired), United States Public Health Service

[1] Special staff member.
[2] Not staff member; appointed to serve in an advisory capacity.

TABLE OF CONTENTS

INTERNATIONAL HEALTH BOARD

I

The International Health Board was created in 1913 "to extend to other countries and peoples the work of eradicating hookworm disease as opportunity offers, and so far as possible to follow up the treatment and cure of this disease with the establishment of agencies for the promotion of public sanitation and the spread of knowledge of scientific medicine." Its aims and policies have not changed, but the field of activity and the methods followed have been constantly changing to take advantage of added experience and newly discovered fact.

In recent years the Board's work has expanded to include co-operation with governments in the control of malaria and yellow fever, in addition to hookworm disease; aid in establishing public health laboratories; and assistance in developing essential divisions of state health services such as epidemiology, sanitary engineering, vital statistics, and public health nursing. Because it is clearly recognized that continued advance in preventive medicine the world over depends upon an adequate supply of skilled public health workers, training courses for physicians and public health nurses have been promoted; contributions have been made toward the establishment of schools of hygiene and public health; fellowships have been granted to provide training for men and women for strategic positions in official health agencies or as teachers in schools of hygiene; research has been supported or conducted in special cases to meet the needs of the Board's field work.

The object of all the activities is the promotion of public health. Every phase of the program is intended to be a step toward helping society to develop its own governmental functions so that health will be greatly improved and fully protected.

In the greater part of its activities the Board is lending assistance to the health officials of states and nations in developing well-conceived public health projects. Most commonly the aid consists of the assignment of a member of the Board's field staff to serve for a time with the health authorities, and it may include also an allotment of funds toward the costs of new health functions of government during their trial period.

Important as the allotment of funds may seem, it is probably a lesser service than the collection and dissemination, through the widely scattered field staff, of the results of the current experiences of many countries.

Only on the solid basis of science can this service produce sufficient results to justify itself.

At first glance, it would seem a simple matter merely to distribute widely from the vast stores of scientific facts produced by the laboratories of the world, for few of the discoveries in disease prevention have been fully applied. And yet, when a specific work is undertaken, as in the control of hookworm disease or malaria, it is soon found that there are serious gaps in the knowledge essential to successful control. The lack of this information not only delays progress but prevents the application of many facts already discovered. In pure research one discovery gives the clue to another and knowledge increases like a branching tree. Within the accumulations of science the Board is constantly searching for facts directly applicable to the great projects in which it is involved, but often the answer to some crucial question is not to be found. Then the Board gives support to investigation and research bearing on its immediate problems and designed to reveal more effective and economical processes. As a consequence, although the past year has seen no change in the essential policies of the Board, the methods used are becoming more discriminating, more precise, more sure.

When collaborating with governments in the early stages of important new undertakings, the Board has found it advisable to send trained representatives to participate in the study of the problems, the selection of methods, and the demonstration of their application. The amount of applicable scientific knowledge and the quality of the field staff are the two major elements determining the limits to the Board's effectiveness within its financial resources. During the past few years much thought has been given to increasing the opportunities of the staff for study in schools of public health and at field stations during periods of leave.

The methods by which the Board works toward the promotion of public health throughout the world are: by demonstrating the practicability of controlling certain diseases; by fostering the development of governmental health agencies; and by encouraging the development of schools for the cultivation of hygiene as a science and for training public health personnel.

Summary of Work in the Year 1925

During the past year the International Health Board gave assistance to public health enterprises of various types in ninety-seven states and countries. It participated in infection and sanitation surveys, operations for the control of yellow fever and hookworm disease, field studies and experiments in malaria control, county and rural health work, the development of special divisions of public health services, and the establishment and maintenance of schools and institutes of hygiene and public health. It also provided 197 fellowships for training in public health for men and women from twenty-seven countries, supported field stations for the training of prospective health officers in methods of malaria and hookworm control and in other public health work, and contributed funds to the Health Section of the League of Nations toward the support of international interchanges of public health personnel, the maintenance of an epidemiological and public health intelligence service, and the training of government health officials in vital and public health statistics.

II

Greater Discrimination in Hookworm Control

Modern methods of hookworm control have been made possible by a succession of important observations. The species *Ancylostoma duodenale* was discovered in 1838; its rôle in causing disease was first recognized in 1853; a satisfactory method for detecting the presence of hookworms was found, in 1877, in the microscopic examination of feces for the characteristic ova; the development of the larvae outside the human host was observed in 1866, and again in 1878. Through accident it was discovered in 1898 that the larvae may enter the human body through the skin and find their way to the intestines. In 1902 the other species of hookworm parasitic in man, *Necator americanus*, was recognized and described. Drugs were found which kill hookworms in the human intestinal tract, notably thymol, oil of chenopodium, and (in 1921) carbon tetrachloride.

With the development of extensive campaigns against hookworm disease, many studies were undertaken in the laboratory and in the field to overcome difficulties encountered and to make the projects more successful. Methods of diagnostic examination for ova in feces were improved by concentrating the ova either by centrifuging the diluted specimen or by bringing the eggs to the surface by means of a heavy solution as diluent. The simplest of these methods and the one at present most widely used is the Willis salt-flotation method (1921). The International Health Board's Uncinariasis Commission to the Orient standardized a technique for measuring intensity of infection by counting the worms expelled after vigorous treatment (1915–1917). The worm count was used also in comparing the efficacy of different vermicidal drugs and in determining what percentage of the hookworms present were of the species *Ancylostoma duodenale* (the species formula). Greater precision in control methods was made possible also by the Baermann method (1917) of isolating and counting hookworm larvae in the soil. With its later improvements this method has been found very useful in measuring the number of larvae developing in experimental hookworm cultures and in determining the sources of infection in epidemiological studies.

That infection rates are not reliable as a measure of intensity of infection and of the benefit from treatment was demonstrated by a member of the Board's staff in 1921, for a series of worm counts showed a reduction after treatment in the number of worms which was proportionally greater than the fall in infection rates and decidedly more lasting. Beginning in the same year a series of investigations, carried out with assistance from the Board, gave valuable results. It was found in 1921 that hookworm larvae, contrary to common opinion, do not migrate laterally but die out rapidly in the soil under tropical conditions, most of them dying within six weeks from the time of hatching. An important step toward more accurate quantitative methods was taken in 1922 in this same series of studies when a simple and accurate technique was devised for counting hookworm eggs in diluted feces and estimating the number of worms present in the host, but the factors needed in computing the number of worms have been secured only for the species *Necator americanus.* This dilution method of egg counting makes it possible to determine the intensity of hookworm infection for large groups of people in the field, thus measuring more accurately the need for control measures and also the effectiveness of the procedures that have been used.

Investigations at the Hookworm Field Research Station

During the past year a number of important studies were made by members of the Board's staff and by other investigators carrying on research with the assistance of the Board.

At the hookworm field research station maintained by the Board at Andalusia, Alabama, W. G. Smillie and his associates completed a study of the effects of varying degrees of intensity of infection with hookworms of the species *Necator americanus* on the physical and mental condition of school children. For the purposes of these studies the children were classified according to intensity of infection as follows:

Group	*Number of Hookworms*	*Intensity of Infection*
1	0	No infection
2	1 to 25	Very light
3	26 to 100	Light
4	101 to 500	Moderate
5	501 to 1,000	Heavy
6	1,000 and over	Very heavy

THE ROCKEFELLER FOUNDATION 1913
THE WELLBEING OF MANKIND THROUGHOUT THE WORLD

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Fig. 7.—Building under construction for the School of Hygiene and Public Health of the University of Toronto.

The children with from one to twenty-five worms were found to be the equals of the non-infected group in weight, height, hemoglobin index, and intelligence quotient. They had received no demonstrable injury from their hookworms. Those who harbored from twenty-six to 100 worms showed no measurable retardation in growth as evidenced by their weight and height, but there was a slight reduction in the hemoglobin index, and they also had a very slight mental retardation. The moderately infected group (101 to 500 worms) were definitely damaged. The children of this group who were over nine years of age were distinctly under weight and the group as a whole was below normal in standing height. The intelligence quotient was lowered. The hemoglobin index was slightly reduced but definitely lower than that of normal children. The heavily infected and very heavily infected groups showed a definite retardation in growth, a reduced hemoglobin index and a low intelligence quotient. In general the amount of damage rose as the number of worms increased.

In connection with these studies it was observed that colored children, though many of them were infected, as a rule had far fewer hookworms than white children living in a similar environment. Consequently the negro

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Fig. 8.—Natives of the New Hebrides see the hookworm eggs for themselves. The microscopist is giving demonstrations while carrying on the laboratory work of the hookworm survey.

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Fig. 9.—One of the latrines erected by Ceylon villagers as a result of the campaign of sanitation and hookworm control.

children were practically free from symptoms of hookworm disease. The studies explain, for one region at least, the frequently observed "immunity" of the negro to hookworm disease. It remains to be explained why the infection in negroes is so much lighter than in whites.

Improvements in the Willis salt-flotation method for detecting hookworm ova in feces were worked out in the hookworm field research station by F. C. and E. L. Caldwell. They found that with some specimens it was difficult to release the ova in the feces by stirring with salt solution, but that this difficulty could be obviated by adding a small quantity of antiformin to the specimen. As a precipitate was formed in some instances when the diluent was added, it became necessary to substitute a sugar solution for the salt solution. The method was still further improved in accuracy by a new method of removing the ova, touching the surface with the open end of a glass vial and transferring the film containing the ova to a slide. The investigators found also that the Stoll dilution method of counting hookworm ova could be modified without loss of accuracy by treating the feces with antiformin and using sugar solution as a diluent in place of the sodium hydroxide solution.

Other important investigations conducted at the hookworm field research station included the completion of the demonstration by W. G. Smillie and D. L. Augustine of the close relation between the physical characteristics of the soil and the intensity of hookworm infection; the inquiry by the same investigators into the effectiveness of a single treatment with a mixture of carbon tetrachloride and oil of chenopodium in removing *Necator americanus;* and an epidemiological study by E. L. Caldwell bearing on the relation of the Ascaris of man to that of the pig and on the effect of different types of soil on the prevalence of Ascaris.

Further Studies at the Johns Hopkins University

During the year research in hookworm disease was continued at the School of Hygiene and Public Health of the Johns Hopkins University by W. W. Cort and his associates, with assistance from the Board. They made an analysis of the data collected by the China Hookworm Commission[1] in 1923 and 1924. It revealed very little hookworm infection in North China and an irregular distribution of infection in Central and South China. The spread of hookworm infection appeared to be limited by the high

[1] Drs. W. W. Cort, J. B. Grant, and N. R. Stoll composed the China Hookworm Commission. They were assisted in their studies in China by the Department of Pathology of the Peking Union Medical College.

mortality of ova and larvae (1) during storage of feces before use as fertilizer, (2) during the drying of the fertilizer in the fields, and (3) while the fertilizer was under water in the rice-fields. Severe hookworm disease was found to exist in places in Central China as an occupational disease of the people who cultivate mulberry trees. The fertilization of the trees with fresh night-soil resulted in the creation of huge cultures of hookworm larvae under the trees. The exposure of the feet of the pickers to these cultures made conditions peculiarly favorable for infection. The Commission made special studies of the relation of egg counts to anemia and also of the viability of ova in night-soil after storage.

Stoll and Hausheer made studies of the relative efficiency of the Stoll dilution method and the Lane direct centrifugal flotation method for counting hookworm ova. They also devised and announced two optional details of the Stoll method. One provided for the measurement of the feces by displacement in a graduated flask, thus doing away with the need for weighing in a balance, and the other provided for a more convenient quantity of the suspension to be examined under the microscope.

In the latter part of the year the emphasis in the investigations of the Cort group was shifted to the host-parasite relationship in hookworm infections and a new series of studies was commenced.

Toxicity of Anthelmintics

In selecting drugs to destroy hookworms in the intestinal tract of man the aim is to find substances highly poisonous to the worm and as nearly harmless as possible to man. All the efficient agents for destroying hookworms are slightly poisonous for man even in the smallest amounts which can be used effectively. Unfortunately, also, a few individuals have an idiosyncrasy for certain drugs even when administered in very small doses. When hundreds of thousands of people are treated with oil of chenopodium, thymol, or carbon tetrachloride, illnesses in which the drug is a factor are almost sure to occur, and there may even be deaths. Such accidental poisonings have been rendered less frequent by the exclusion from treatment of very young or feeble persons and those with serious chronic diseases, and also by giving purgatives with the idea of sweeping the drugs out of the intestinal tract before there has been a high degree of absorption. Even with these precautions an occasional illness, and sometimes a death, occurs among the million persons, more or less, who are being treated annually under the auspices of the International Health Board and under other auspices, governmental and private.

The use of carbon tetrachloride has become widespread on account of its superiority over the other drugs in removing *Necator americanus*. Like the other vermicides, it causes occasional poisonings which have been erratic and hard to explain. They sometimes occur even when small doses are used, but they seem to happen most often when the drug has been administered to persons addicted to alcoholic drinks, especially if they drink near the time of treatment, and to children heavily infested with *Ascaris lumbricoides*, a large round-worm intestinal parasite. To decrease the danger, carbon tetrachloride and oil of chenopodium have been given in mixture, the dose of each being thus reduced and the danger of either type of poisoning diminished. The mixture has a further advantage over carbon tetrachloride alone in that the oil of chenopodium which it contains is highly effective in removing ascarides. In areas where alcoholism is unusually widespread, the administration of carbon tetrachloride is avoided, even in mixture.

With a view to further steps in the prevention of unexplained illnesses after the administration of carbon tetrachloride, the Board has assisted research in the pharmacology and toxicology of the drug. Fortunately it was possible to interest Dr. P. D. Lamson, of the Johns Hopkins Medical School, and later of the Vanderbilt University Medical School, in this problem. With his associates he has carried on investigations which have shown something of the way the drug acts in the body and which give promise of further revelations bearing directly on the problem. It appears that absolutely pure carbon tetrachloride is toxic; that it is rapidly and regularly absorbed from the intestines and excreted through the lungs; that the lesion found in carbon tetrachloride poisoning is necrosis of the liver; that no acidosis occurs after inhalation or oral administration of carbon tetrachloride; that in dogs alcohol increases the toxicity of large doses, but not of small doses, of carbon tetrachloride.

The studies are to be continued in 1926 in the hope that direct methods will be found for preventing the rare and as yet insufficiently explained cases of poisoning.

Hookworm Surveys

Nothing in recent years has done more to accelerate scientific hookworm control than the general introduction of the egg count as a measure of the intensity of hookworm infection. By this method those who are in charge of the field operations are able to determine the average number of hookworms per person in communities before effective control measures are undertaken. This gives the level of equilibrium of hookworm intensity, from which future improvements due to sanitation and treatment can be measured. In a complete hookworm survey the data should include, in addition to facts regarding general conditions and sanitation, maps of the country showing the distribution of hookworm infection according to intensity; charts showing what proportion of the population is infected with large numbers of worms and what proportion includes merely lightly infected "carriers" not requiring treatment; tables revealing the relation between the distribution of hookworm intensity and environmental conditions, especially sanitation, rainfall, temperature, and the nature of the soil. With such data it is practicable to concentrate control work in the areas requiring it most, to regulate intervals between treatments according to the need, and to omit treatments altogether when the infection is very light. The more precise methods of making surveys have greatly reduced the control problem by cutting down the areas to be covered in treatment campaigns and diminishing the number of persons within treatment areas to whom vermicidal drugs need be administered.

The growing experience in the field points more clearly than ever to sanitation as the essential method of controlling hookworm infection. It also predicts the gradual replacement of the special campaigns of the pioneering period by effective permanent organization for general rural sanitation including hookworm control.

Localizing the Problem in Tennessee

There are many parts of the world where hookworm disease is patchy in distribution and on the whole rather light in its intensity. In such regions it is obviously wasteful to give treatments as a relief measure in the entire infected area or even to treat all infected persons in the borderline areas of moderate infection. In some regions sanitation is so backward and infection so severe that periodic mass treatment of the whole population will be needed for many years to come, but greater discrimination is advisable in most countries. A system under which people are treated only when they are actually suffering from hookworm disease, pending effective control through sanitation, reduces to the vanishing point the actual hookworm disease which is causing economic loss to the community, it often lessens the cost of hookworm control measures, and incidentally it reduces the risk from the rare cases of illness which occur in the treatment of large numbers of people.

In Tennessee the State Board of Health made a scientific hookworm survey with the co-operation of the Board. The state was first mapped according to the environmental conditions which would favor or inhibit hookworm infection, particular emphasis being placed on the composition of the soils in the different belts. Then school children living in areas which were representative of the several soil regions were examined by egg count. There is virtually no hookworm problem among adults since shoes are worn by everyone after childhood. In this way data were obtained which permitted the mapping of all areas where hookworm infection was sufficiently severe to require that treatments be given and also determined the areas where hookworm infection though present was of no economic importance and could readily be controlled by the gradual installation of sanitation. On the basis of this survey the state and local authorities are enabled to initiate a logical comprehensive system of permanent hookworm control. By this plan, in places where the average intensity of infection was found to be high enough to justify the procedure, all school children would be examined at specified intervals as a part of the regular school medical examination and those having over twenty-five hookworms (*Necator americanus*) would be treated as a relief measure, just as other remediable defects would be corrected. In the meantime the prevention of hookworm disease through sanitation would be pressed, emphasis being placed on the locations where soil pollution is producing the most severe infections.

The survey in Tennessee has been a field experiment for the purpose of finding methods which can be adopted in rural sanitation in connection with county health work in the United States and elsewhere. In the United States hookworm control is now merely a phase of the expanding activities of governmental rural sanitation, and the hookworm campaigns in many other countries are gradually evolving into permanent organizations for promoting general public health in rural regions.

Assisting Many Countries in Control Measures

The governments of eighteen countries were aided in 1925 in hookworm control operations, and hookworm surveys were made in nine countries other than the United States. The outstanding feature of this work is the greater emphasis on the intensity survey and the increased use of intensity estimates in planning control.

The infection survey in **Mexico,** undertaken in April, 1924, was brought to a close in January, 1925. Egg counts, worm counts, and hemoglobin estimations were made and the data analyzed. This study, which was extended to seven states, showed hookworm infection to be widely prevalent in the tropical regions of heavy rainfall but non-existent on the high, arid plateaus. It is improbable that any considerable degree of infection can exist anywhere in the vast regions of low rainfall in the northwest. The evidence that was obtained showed that the hookworm disease problem of Mexico is limited to a small part of the total area and principally to a strip along the eastern coast, exclusive of Yucatan, and to a small area on the western coast adjacent to Guatemala.

The hookworm campaign inaugurated in 1924 by the Department of Health with the help of the Board progressed during the year 1925 under plans based on the preliminary survey. Sanitation and education were emphasized with the result that an increasing number of latrines were constructed. Mass treatment campaigns were completed in eleven areas of the state of Vera Cruz. The persons treated one or more times numbered 46,091, and 632 new latrines were built.

Hookworm Control and Sanitation in Central America

In Central America hookworm control measures were carried out in Costa Rica, Salvador, Nicaragua, Guatemala, and Panama, and sanitation without special reference to hookworm disease was promoted in Honduras. In Costa Rica and Salvador the work was conducted entirely by the governments. In Nicaragua the Government bore the full cost of field work, but the Board provided the services of the director. This officer acted also as consultant on rural health matters to the neighboring Government of Salvador. The Board's director in Panama served in a similar capacity to the Government of Costa Rica. The governments of Panama and Guatemala substantially increased their funds for hookworm work.

Permanent hookworm control units were established in six provinces of Costa Rica. A national service of sanitary inspection was created by decree on January 15, 1925, and three sanitary inspectors were appointed. Two inspectors were assigned to permanent zones with the supervision of latrines as one of their duties. It is part of the plan to have regional inspectors make sufficient hookworm egg counts to keep the health department informed regularly of the fluctuations in the intensity of hookworm infection. In the budget for 1926 provision was made for a supervising inspector for each province. To train these men and also the sanitary inspectors of the principal municipalities, the Government provided a two-months' course in which instruction was given by a sanitary inspector from the Canal Zone.

Although the general hookworm infection rate has been lowered but slightly by the control measures of past years, the intensity of infection is much less, as is manifested by the absence of severe cases in hospitals, the reduction in the number of deaths attributed to hookworm disease, and the low intensity of infection as evidenced by egg counts and worm counts. Incidental studies in certain areas showed a marked rise in the average hemoglobin index after treatment for hookworm disease. Government is expected to assume the full support of hookworm control at the end of next year.

In **Guatemala** the Government increased its participation in hookworm control measures, and from July 1 it carried half the costs. Local authorities and coffee plantations rendered material aid. In ten of the departments control operations were carried on, with a growing interest in sanitation as one result. The most difficult phase of the work was securing the installation of latrines in rural sections and the changing of ancient customs. Over sixteen thousand people were treated during the year. A railway dispensary car participated in the work of treating for hookworm disease and showed

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Fig. 10.—These children of the Southern United States all took hookworm treatment at one time.

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Fig. 11.—One day's attendance at a dispensary for the treatment of hookworm disease in Colombia.

cinema pictures on hookworm and malaria.

In **Salvador** the hookworm work is being continued by Government without assistance, except for occasional visits from the Board's representative in Nicaragua. In certain localities the officials have been slow to co-operate with the Central Government in hookworm control, but other localities have responded enthusiastically. In two towns hookworm control was supported by private subscription when public funds had been exhausted. An exhibition of progress in sanitation is being given by the capital city, San Salvador, which is installing complete systems of water-supply and sewerage.

Nicaragua Creates a National Department of Health

A national department of health was established in Nicaragua by legislative decree on March 27, 1925; it came into its official existence on July 8. The work of the Department is organized under six divisions, each with a full-time director. A national council of hygiene will function in an advisory capacity.

The responsibility for the control of hookworm disease will fall to the Division of Rural Sanitation and Local Sanitary Organization, the head of which was formerly the chief field director of the Department of Uncinariasis. Although this

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Fig. 12.—A latrine constructed by a cotton-grower of Paraguay. Sanitation is being improved as a hookworm control measure.

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Fig. 13.—Another type of latrine being installed in Paraguay.

Division has developed from the former hookworm service, its activities will cover a much wider field. In addition to continuing hookworm control it is actively at work bringing local health districts into existence. Over these will be medical health officers or sanitary inspectors, according to the local financial resources. The program for these districts will often include a local health center, sometimes with one of the branch public health laboratories as nucleus.

The Board is continuing its co-operation by furnishing a representative who assists in supervising the Division of Rural Sanitation and Local Sanitary Organization and also that of Laboratories and Research. He is available also as consultant to the Director General of Health with regard to the development of the department as a whole.

On account of the many problems of sanitary engineering in Nicaragua the Board has for some time lent the services of a sanitary engineer. He has made sanitary surveys paying special attention to water-supplies and sewage disposal and recommending methods for overcoming dangerous conditions. His services have also been available in getting under way the work of the new Division of Sanitary Engineering of the Health Department. A force of sanitary inspectors is being built up and should be able to cover all the principal cities and towns.

Hookworm Campaign Leads to a Health Department

In **Panama** a law authorizing the establishment of a national department of health and adopting a budget of $50,000 for this purpose became effective in January, 1925. The first division to be created was that of Child Welfare and Medical Inspection of Schools, which came into existence on September 3. An appropriation was made during the year for a division of sanitary engineering, to be organized later. In the planning of the department the Board's representative has given freely of his services as consultant.

The year has seen great activity in hookworm control, campaigns of treatment and latrine construction having been completed in seven municipalities comprising twenty-eight districts. Dispensaries were conducted in 239 villages. At the close of 1925 work was in progress in four districts: advance sanitation was going on in one, and curative measures in three. During the year 20,585 persons were treated at least once and the building of 4,654 latrines was brought about.

In the latter months of the year, 1,000 egg counts were made in Chorrera and the vicinity;

it was estimated that the number of hookworms harbored by the persons examined ranged from five per person to 1,700.

As far as practicable latrine construction was carried out in the towns in advance of treatment. The latrines built are of the pit type. They are substantial and rather expensive, but lasting. The floor and riser are of concrete and are supported on long hardwood beams, and the superstructure has wide eaves to prevent the rain-water from washing channels into the pit. In remote districts the materials for such latrines were not easily obtainable and a simpler and cheaper kind was advocated. To prevent breeding of Culex mosquitoes in the pits the householder was required to apply oil at specified intervals.

In one district only 8 per cent of the homes in the central town had latrines when the work commenced and there were none in the rural areas. At the end of the work 99 per cent of the town dwellings and 97 per cent of the 1,108 rural homes had latrines. To prevent the gradual loss of the heavy investment by householders in latrine construction, owing to the deterioration and neglect of the structures, permanent sanitary inspectors, one for a province, are being provided by the Government. They are to continue the work of supervising latrine construction and maintenance. The program for permanent control which is being worked out provides also that these inspectors shall give hookworm treatment at specified intervals to the school children who need it.

Four such permanent provincial sanitary inspectors have already been appointed to work in certain of the provinces in which campaigns have been held, — Cocle, Herrera, Los Santos, and Veraguas. The great extent of the rural territory under permanent sanitary control makes effective supervision of latrine maintenance a difficult problem, as can be judged from the fact that the four permanent inspectors have in their combined areas 19,673 dwellings with 15,298 latrines. They actually made 39,669 inspections. To keep the work of the provincial inspectors within the limits of practicability, and at the same time develop local sanitary inspectors, the *alcaldes* and *corregidores* are required to make monthly inspections of dwellings in the district capitals. This enables the provincial inspectors to devote more attention to the scattered hamlets.

Organizing for Better Sanitation

In **Honduras**, although the campaign specifically directed against hookworm disease was interrupted in May, 1924, work in general sanitation is being developed and will have as one result a reduction in hookworm disease. The sanitary engineer who was assigned to Honduras by the Board at the request of Government has continued his work of investigating insanitary conditions and advising how they may be corrected. The public water-taps in two cities were converted to a sanitary type and provided with catch basins and drains so as to eliminate swampy ground and pools; streets were renamed and houses numbered so as to facilitate sanitary inspection; a sanitary survey of government buildings, including military barracks, schools, and offices, was made and recommendations submitted; a study of the sewage disposal problem of a hospital at Tegucigalpa was begun; a proposed new sanitary code was drafted; preventive measures against yellow fever were carried out.

The outstanding accomplishment of the year, however, was the organization of a Department of Sanitary Engineering and one of Sanitary Police, both of which are parts of the National Health Service and are wholly supported by Government, the total appropriation for the two departments being approximately $37,000.

The Department of Sanitary Police came into existence on August 1, 1925, and soon afterward a start was made in selecting and training a corps of uniformed officers to make sanitary inspections, enforce health laws, and in general carry out the detailed local work of the Health Service.

Progress in the West Indies

In the West Indies hookworm control campaigns were conducted in Porto Rico and Jamaica, and infection surveys were made in Haiti and Montserrat. In **Porto Rico** three treatment units were operated; one of these was supported entirely by Government, and the expense of another was taken over at the end of the year. The legislature voted $150,000 per year for the Bureau of Uncinariasis of the Health Department during the biennial period beginning July 1, 1925. This Bureau is now headed by a local director, and the Board's representative acts in an advisory capacity. In the middle of the year 1925, thirty-three full-time sanitary inspectors were being employed in the island and seventy local officers were devoting part of their time to latrine construction. At the close of the year the Bureau of Uncinariasis had 125 full-time employees.

During the year approximately 25,000 latrines were erected by the sanitary officials, bringing the total number of latrines built since the work was begun up to 65,000. At the end of the year over one-fourth of the rural population of the island had been reached by the sanitation campaign and one-fifth by the treatment measures. At the same time inspections were made to insure that sanitation once established should be permanent. A total of 126,734 treatments were given to 49,746 persons, the number of treatments per person being large owing to the high average intensity of the infection.

Much valuable investigational work was carried on in relation to the control measures. A two-to-one mixture of carbon tetrachloride and oil of chenopodium in a total single dose of 2.4 mils produced an average reduction of 96 per cent in the hookworm egg count in over 1,100 persons treated. The intensity of infection in several regions was measured by egg count and found to vary considerably, one area having the high estimated average intensity of over 700 hookworms per person. In another area a low egg count showed that the severe anemia of that locality, which had been attributed to hookworm disease, must have another cause. In one region egg counts were made before and after treatment in 1922, and re-examinations were made in 1923 and 1925. Persons examined each of these times showed an initial average intensity of 2,680 ova per gram, corresponding to about 122 hookworms. The count was reduced 97 per cent by treatment. A slow, steady rise in intensity followed, reaching 262 ova per gram in one year, and in three years 475 ova, representing about twenty-two worms. That sanitation played an important part in delaying this return toward the former level was suggested by a previous study of a less sanitary and more heavily infected area in which the intensity rose to half its original height in one year after treatment. In connection with these several studies R. B. Hill observed that many persons had hookworm eggs in their feces as long as six to fourteen days after treatment, although the eggs then disappeared completely, showing that all hookworms were gone.

Jamaica Hookworm Commission

During the year great advances were made in sanitary work in Jamaica. Ten out of fourteen parishes conducted campaigns of sanitation, three employed full-time medical officers of health, and three more voted funds for full-time health officers. It was not possible to secure enough trained medical officers to fill all these positions.

The work in Jamaica offers an excellent example of advance sanitation. Under the guidance of the Government and the parochial boards pit latrines of a substantial type were built according to standard specifications. After a region had been supplied with these latrines, district sanitary inspectors made regular rounds to see that the latrines were properly maintained. It was planned to have the sanitary campaign in a given area completed six months before the treatment campaign was to begin, and in this way to minimize the amount of reinfection after treatment. In 1925 two treatment units were operated under the direction of the Board's representative and 25,459 persons were treated.

Under a plan started in 1924, the program of one hookworm unit was expanded so as to include participation in the demonstration of full-time county health work in St. Andrew Parish. A scheme for general disease control was developed there including work in school hygiene and public health education. In October, 1925, a school dental clinic was opened.

Several men who had been trained on the hookworm staff were transferred to serve as sanitary inspectors for the parishes or the Central Government. Vigorous educational measures were carried on to popularize the general public health program and facilitate hookworm control.

Surveys of Montserrat and Haiti

During the early part of the year a hookworm survey was made in **Montserrat.** This showed the low infection rate of 35.4 per cent. Egg counts, however, showed an intensity of infection disproportionately high, when compared to conditions in other islands of the Leeward group.

A health survey of **Haiti**, including observations of conditions with regard to hookworm disease, was begun in 1924 and completed in 1925. The prevalence of hookworm infection was found, as elsewhere, to be affected by the amount of rainfall and the nature of the soil. In some areas 80 per cent of the people were infected and there was an equally high rate of infection with Ascaris and Trichuris. In certain dry areas no hookworm disease was in evidence. As a rule, only milder forms of hookworm disease were found among the negroes.

Expanded Program in Colombia

Among the South American countries, Colombia and Paraguay carried on hookworm work during the year with assistance from the Board; Brazil had already incorporated its long-standing hookworm activities with the work of the local rural health units; Venezuela made arrangements with the Board for the assignment, in 1926, of a medical representative to help develop hookworm and malaria control, and also for a consultant in sanitary engineering.

In Colombia a new five-year hookworm control program was undertaken with participation by the Board. The Department of Uncinariasis, formerly separate, became a section in the

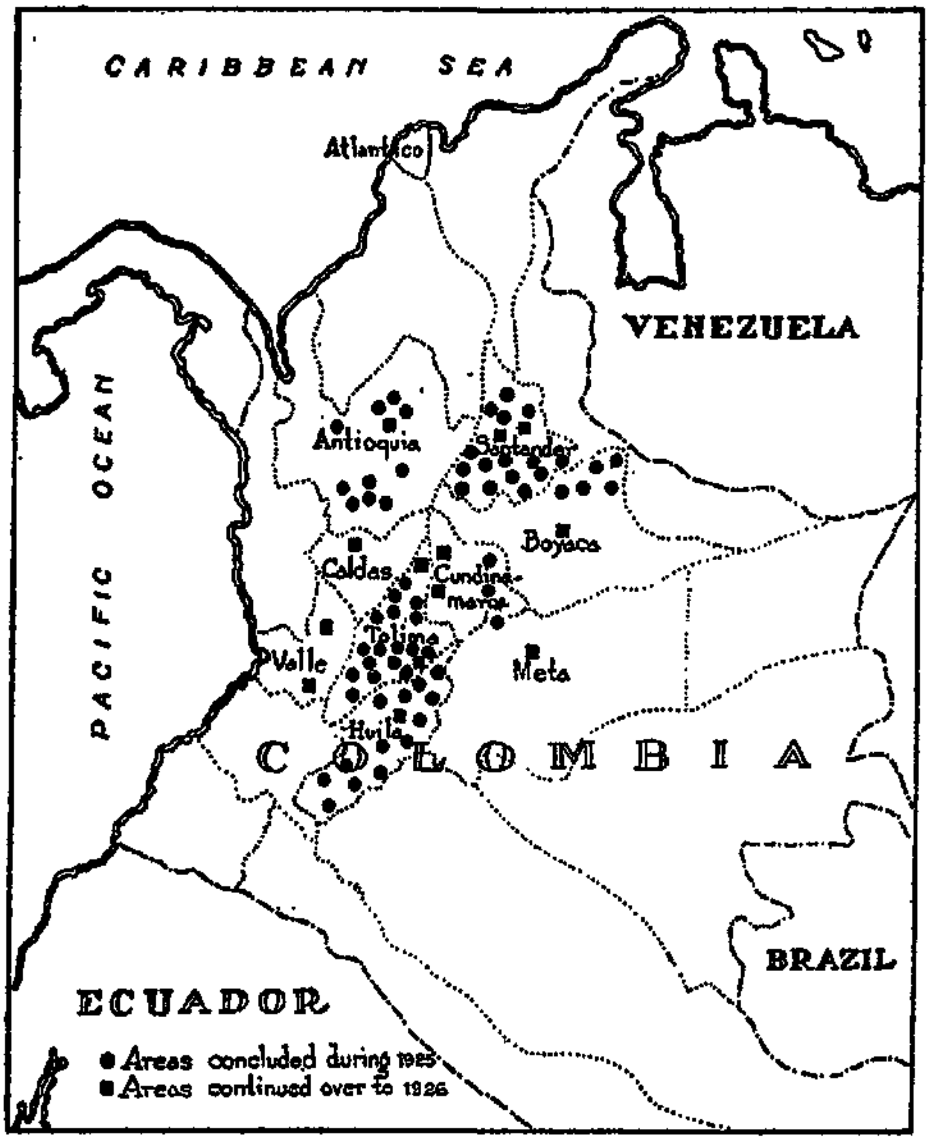


Fig. 14.—Geographic distribution of hookworm control activities in Colombia in 1925. The increasing participation of the departments has made it possible to extend the work to so wide an area.

National Health Service, which is to be expanded also by the creation of departments of Vital Statistics, Communicable Diseases, and Sanitary Engineering. An extensive and well-equipped laboratory was purchased by the Government for $205,000 and will be converted into the

National Laboratory of Hygiene of the Health Service, with branches in the states.

The Government appropriated $60,000 toward the co-operative hookworm budget for 1926; the states of Antioquia, Boyacá, Huila, and Valle rendered financial support to the campaign; Atlántico voted funds for future work; and the municipalities in which work was done rendered assistance by appointing sanitary inspectors, and in other ways. The partial decentralization of the work, with the states taking increasing responsibility for permanent control measures, was one of the encouraging developments. All the work, however, was under a central plan and with the supervision of the Section of Uncinariasis.

Work in seventy-two municipalities in nine states included 518,342 treatments for hookworm infection given to 300,233 persons, a number of treatments almost double that of the previous year. In the areas where work was completed the percentage of homes having sanitary latrines was increased from 19.2 to 65.3. In one town of 801 houses an efficient inspector increased the number of latrines from seventy-two to 769, with only seven below standard. In another municipality of 493 homes the number of latrines rose from four to 364; it was estimated that the people spent $9,000 for sanitation, as they paid about $25 for each latrine. The salary of the inspector who brought this about was $280 for the time he was working in this town. In each of these places the work was left in the hands of a permanent local inspector appointed by the municipality.

The attitude of the people is strikingly friendly toward the work. Every effort has been made to keep them informed of the objects and methods by means of talks, distribution of leaflets and almanacs, and the display of posters in schoolrooms. Over half a million persons attended educational conferences during the year.

Colombia is a country of a great variety of climates. There are hot and humid coasts and river valleys, chilly uplands, and intermediate temperate zones. A wide variation in the intensity of hookworm infection has inevitably resulted. To ascertain conditions more exactly one microscopist was detailed to make intensity surveys and teach the Stoll egg-count method to microscopists attached to the several treatment units. An egg-count survey was made in Huila and another undertaken in Valle. Dispensaries in Cundinamarca and Santander were already employing the method. The data obtained were used as a guide in the assignment of curative units and in determining the intervals between their visits.

The methods of treatment most generally

adopted were to give oil of chenopodium in castor oil to young children, and to adults a mixture of carbon tetrachloride and oil of chenopodium, with water or syrup, followed by a purge. In certain regions where alcoholism was common, oil of chenopodium was given alone, as the danger of poisoning with carbon tetrachloride is increased by the taking of alcohol. Treatments were given mostly at centers in the villages, and only enough persons were examined to show whether the infection was sufficiently prevalent and severe to warrant treating practically the whole population.

Second Year of the Work in Paraguay

The second year of the five-year hookworm campaign carried on by the National Department of Hygiene and Public Welfare of Paraguay with the co-operation of the Board showed a decided gain in accomplishment. The number of treatments given rose from 51,964 in 1924 to 129,084 in 1925, and the number of new latrines from 1,751 to 15,020. The persons treated in 1925 totaled 75,644. By the end of the year the treatment and sanitation campaigns had been completed in Asunción and in the majority of the surrounding counties, the most densely populated part of Paraguay. Preliminary plans had been drawn up for a permanent organization to conserve the benefits secured and ultimately develop into a general rural health service.

Treatment was administered at the homes of the people, preliminary examinations being usually omitted, as the infection was very prevalent. A dispensary was maintained in Asunción for the benefit of persons living where active work was not going on. The standard treatment for an adult was the administration of 2.4 mils of a two-to-one mixture of carbon tetrachloride and oil of chenopodium and at the same time a purgative dose of magnesium sulphate solution. Persons between six and eighteen years of age were given one-eighteenth of this dose for each year of age. Alcoholics and children less than six years of age were given a dose of oil of chenopodium divided into two parts and followed by a purge. Two treatments were given before a case was discharged.

Several important studies were made or completed during the year. The selection of the two-to-one mixture of carbon tetrachloride and chenopodium and the size of the dose were based on an extensive study of the best drug for an area in which there were present *Ancylostoma duodenale*, as well as *Necator americanus* and Ascaris. Egg-counting methods were studied and compared. It was observed that female worms of the species *Ancylostoma duodenale* contained about twice as many eggs as females of *Necator americanus*.

Survey of the Mines of Spain

It has long been known that hookworm disease exists among miners in Spain, but exact knowledge of the distribution and degree of the infection has not heretofore been ascertained. At the invitation of the Spanish Government a representative of the Board directed a complete survey of hookworm infection in the mines during eight months of the year 1925.

Examinations were made of 9,088 miners from seventy-six mines in nine provinces, and several hundred demonstrations of treatment methods were given. Specimens of feces were first examined by the Willis method and, if eggs were found, the specimens were again examined by the Stoll egg-count method. Of the 9,088 miners examined, 2,409 were infected to some degree. Of the positive specimens, 2,041 were suitable for examination by the Stoll egg-count method. The egg counts made with these specimens were grouped according to the number of eggs per gram of feces as follows:

Group	*Eggs per Gram*	*Number of Miners Examined*
1	50 to 200	1,319
2	201 to 500	335
3	501 to 1,000	189
4	1,001 to 3,000	147
5	3,001 to 6,000	39
6	Over 6,000	12
	Total	2,041

It will be impossible to estimate accurately the intensity of infection from the egg counts given in the table until it is ascertained by worm count what proportion of the hookworms in the miners are *Ancylostoma duodenale* and until someone determines factors for computing the number of worms of this species from the eggs per gram of feces. Using the factors already determined for *Necator americanus*, the number of hookworms harbored by each miner in Group 1 would be estimated as less than ten; in Group 2, less than twenty-three; and in Group 3, less than forty-six. The few miners in Group 6, on the other hand, would have more than 272 worms each, enough to do definite harm. Where *Ancylostoma duodenale* predominates, the estimated number of worms would be less and the damage per worm greater, but no one can yet say how much. In the presence of this serious deficiency of our knowledge, it is still possible to conclude that the miners of Group 1 and probably those of Group 2 are damaged very little if at all by their hookworms. Between 65 and 90 per cent of the miners examined would, therefore, be classed as "carriers" rather than as persons having hookworm disease.

Some mines were less heavily infected than others and some were entirely free of infection. In the latter group were the copper and iron mines and a well-sanitated lead mine. As a rule, however, there was infection in the lead and coal mines, the percentage of infected miners being usually less than 40; in only fifteen mines was it over 40, and in but ten, over 60. Of the total group of seventy-six mines examined, seventeen were free from infection and six more had less than 2 per cent of infected miners. During the survey hookworm larvae were frequently demonstrated in soil samples from infected mines by means of the Baermann apparatus.

The study showed that the infection rate was moderately high in the coal and lead mines, but that the average intensity of infection was low. In many of the mines there were no latrines underground and the conditions in the polluted soil were favorable to hookworm larvae. Recommendations were submitted for controlling hookworm disease in mines through better sanitation supplemented by the education and medical treatment of the miners.

The survey in the mines was but a first step in a series of more general health surveys and demonstrations in which the Government has asked co-operation. A brief sanitary survey of Malaga was completed before the end of the year.

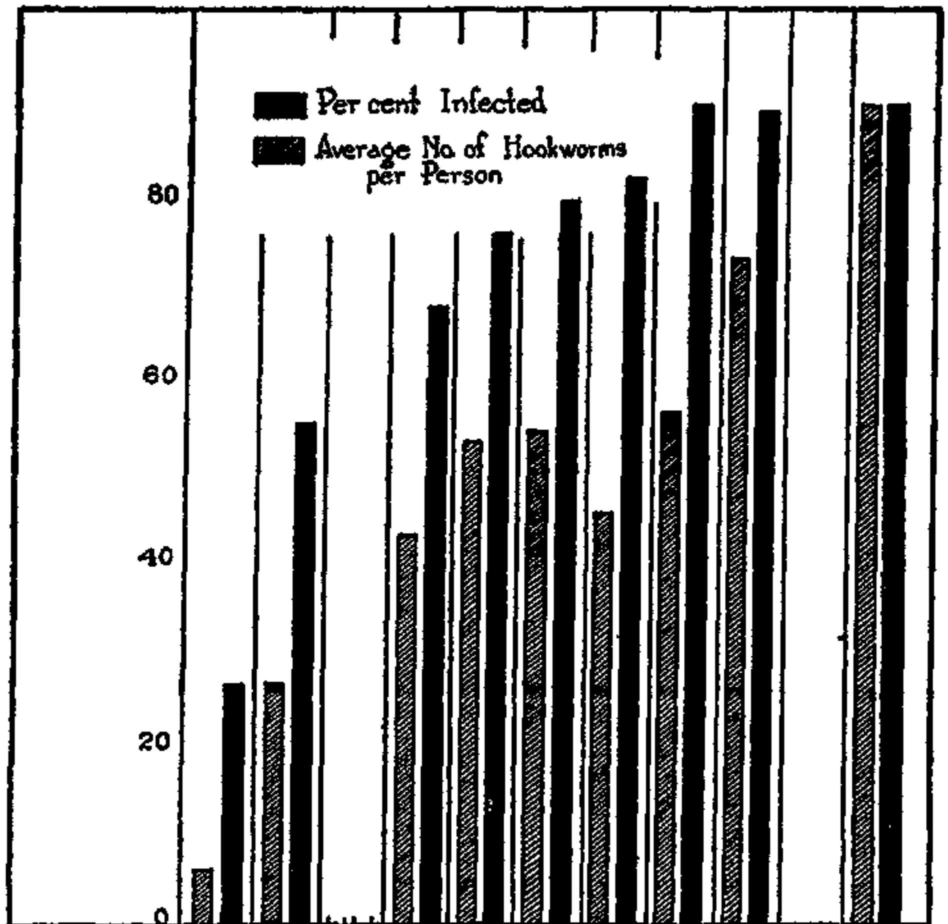
Island-wide Survey of Ceylon

In the Far East the Board participated with governments in hookworm surveys or control in

Ceylon, Madras Presidency, Siam, Java, Straits Settlements, Mauritius, Seychelles, Fiji, Cook Islands, Tonga, and the New Hebrides.

In Ceylon control campaigns were conducted in villages of Western and Southern provinces and on many estates in Central Province including those in the Dimbulla, Dickoya, Bogawantalawa, and Maskeliya Planters' Associations. Approximately 155,000 persons were treated in connection with these campaigns. In addition all patients seeking medical aid at government hospitals and dispensaries were examined for hookworm disease and treatment was given to those infected. About 742,000 persons received anthelmintic treatment at these institutions. School hookworm campaigns of instruction and treatment were conducted in Northern Province, where the infection in adults is light. This study reached about 19,000 children. School latrines were inspected and their proper maintenance stressed. All this school work was placed under a special officer, and it is expected that practically all children will be instructed and treated twice during their period of schooling. According to estimates nearly one million persons were treated for hookworm infection during the year.

It was noticed that estate coolies were beginning to ask for treatment and the people in general were becoming increasingly accustomed



Years after Treatment	0	1	2	3	4	5	6	7	8		Never Treated
No. of Persons Examined	1728	154	18	181	561	635	473	582	253		3825
Average No. of Worms per Person	6	26		43	53	54	45	56	73		89
Per cent Infected	26.7	55.2		67.9	75.3	79.7	82.0	89.0	88.5		89.1

Fig. 15.—Rate at which hookworms are reacquired in Ceylon after the hosts have been largely freed by treatment. The average number of worms found to be present at varying intervals after treatment is shown, and also the percentage of people infected. The observations made two years after treatment were too few to be significant.

to the use of latrines. Annual treatment of coolies on estates was recommended.

Under the auspices of the Department of Immigration and Quarantine, the Medical and Sanitary Department, and the Ancylostomiasis

Campaign, coolies about to embark from India for work on Ceylon estates were treated for hookworm infection at the Mandapam Quarantine Camp. This arrangement began January 20, 1925. It meant that coolies began their residence in Ceylon almost freed from hookworm infection and with experience in the use of latrines. Of the initial 16,837 coolies approached during the first half of the year, not one refused treatment.

An island-wide hookworm intensity survey, begun in May, 1924, was completed on December 15, 1925. Many representative communities were examined and approximately 32,000 egg counts were made and the results analyzed.

The intensity survey of Ceylon brought out facts which should point the way to more effective and economical control. In many areas where the infection rate was high the intensity was lower than expected, so that in these areas the methods of sanitation will need to be supplemented by routine treatments only at long intervals; in some places not at all. A lowering of the intensity of infection was observable as late as nine years after treatments were given. It was brought out in the survey that the intensity of infection reaches its maximum at about the eighth year of age and then begins to fall, suggesting that the infection is acquired most rapidly in childhood in the vicinity of the home. As adults go barefoot in Ceylon, it came as a surprise to find that as a rule they take in fewer hookworms than they lose. As in other countries, it was observed that rainfall was one of the factors controlling intensity.

The hookworm work was supported entirely by Government, the Board furnishing only a medical officer who acted as director. The Government appropriation for the year beginning October 1, 1925, was increased to approximately 148,000 rupees.

Incidental to this work investigations were made by J. F. Docherty and W. C. Sweet along a number of lines. It was found by comparing worm counts and egg counts that the Stoll factors for computing the number of hookworms (*Necator americanus*) from the number of ova per gram of feces were applicable to Ceylon conditions for routine field use in the examination of large groups. By arranging the data of a series of over 8,000 egg counts according to the length of time since the persons examined were last treated, it was shown that the reinfection was most rapid in the first three years after treatment; in seven years the percentage of persons infected had reached the original level but the intensity of infection was only about two-thirds as high as the original intensity. The rapid rise in the first years after treatment was explained on the supposition that the newly acquired hookworms had a low mortality and there were no old hookworms to die.

An intensive study of the results of hookworm treatment of coolies on a tea estate during 1923 and 1924 showed that treatment was followed by a rise in the number of red corpuscles in the blood and of the hemoglobin index, and by a reduction in the number of coolies at the dispensary and in hospital and also in the number of working days lost.

New Light on the Problem in the Madras Presidency

In the Madras Presidency control demonstrations, investigations of infection rates, and intensive educational work with regard to hookworm disease were continued by the Government with the Board's co-operation. During the year, 20,541 persons were examined for the presence of infection and 65.2 per cent were found to be infected. By bringing together the results of nearly 80,000 examinations in twenty-five districts during the years 1920 to 1925, a striking variation in the infection rate by regions was revealed. The rate for all persons examined in the entire area was 69.4 per cent, but those for the separate districts ranged from 10.8 per cent in Bellary to 94.7 per cent in South Kanara. Treatments were administered to 65,928 persons and in addition several estates carried on curative work at their own expense and an unknown but large number of treatments were given in hospitals and dispensaries. The intensive educational campaign reached 214 villages of the North Arcot District; infection-rate surveys were conducted in the Godavari, Ganjam, and Coimbatore districts and at the General Hospital in Madras, and treatments were administered in all these places and in the city of Madras. Over three thousand lectures were given to over a quarter of a million people.

In July the infection-rate surveys were terminated, and studies of the intensity of infection were commenced in September in the Tanjore District and at Mandapam Camp, using the Stoll egg count. In a series of untreated emigrants at Mandapam Camp the estimated average number of hookworms per person was fifty-six, hardly enough to cause serious symptoms in this region where *Necator americanus* predominates. With this average intensity, however, occasional infections of considerable severity would be expected. While infection is widely prevalent in Southern India, it is becoming apparent that the intensity of infection, at least in some areas, is not so high as formerly supposed.

The problem of sanitation in the Madras Presidency is far from being solved, but the outlook is becoming more hopeful, and plans have been made for demonstrations of sanitation in selected areas, and experiments to determine the best and least expensive types of latrines.

Seeking Exact Information in Java

As a basis on which to plan future hookworm control in Java, a large body of accurate information was added to existing knowledge by an unusually complete and systematic hookworm intensity survey, conducted by Government from July, 1924, to February, 1925, with the co-operation of the Board. Small communities scattered over the entire island were selected as being a representative sample of the thirty-five million people of Java. In each of these villages,

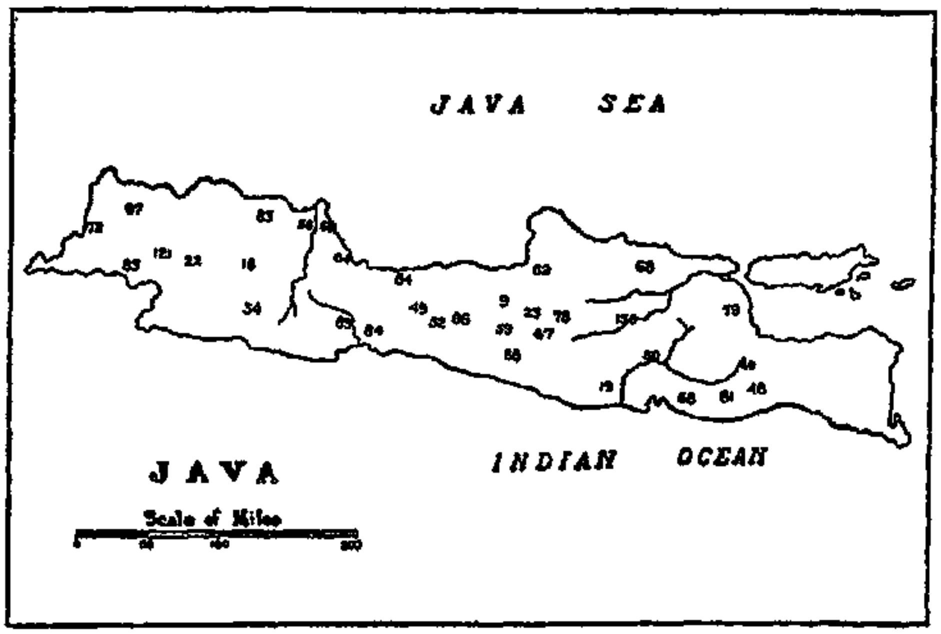


Fig. 16.—Average number of hookworms per infected person for various localities in Java, as determined during the hookworm survey of 1924–1925.

or kampongs, talks were given and Stoll egg counts made by native assistants who had received a preliminary course of training. The rule was to examine from 125 to 150 people in each community. The people chosen for examination were normally distributed by age, sex, occupation, and living conditions. Enough worm counts were made in prison populations to act as a check on intensity estimations by egg count and to reveal the hookworm species formula of the principal regions. On sketch maps of the villages the location of each household group investigated was marked with a rubber stamp as a rectangle containing six compartments. In these were recorded (1) the identifying number of the house, (2) the number of people living in it, (3) the number examined, (4) the number infected with hookworms, (5) the average number of hookworms per infected person, estimated by egg count, and (6) a symbol showing whether there was a latrine and its condition. The extent of anemia was measured by hemoglobin determinations, and spleens were palpated for enlargement, so that the part played by malaria as a cause of the anemia might be evaluated. To facilitate analysis, all important data were put on a simple punch-card.

The survey was accompanied by extensive educational methods. In addition to the talks given locally in many different languages by the native assistants, there were fifty-nine lectures with lantern slides.

The species formula, or percentage of *Ancylostoma duodenale* among the hookworms harbored, was obtained for the principal divisions of Java by examining by worm count a total of ninety-nine prisoners and hospital patients having 22,404 hookworms. The formula for West Java was 2.4, for Mid-Java 10.7, for East Java 14.8, and for Java as a whole, 8.1.

The average number of hookworms per infected person was seventy-two for the whole survey. For only two of the kampongs and four jails was the average above 100. Among infected persons considered separately, girls under 16 years of age had an average of 57.5 worms; women, 63.8; boys under 16 had 75.6; men, 84.3. Compared with other countries, an unusually high infection rate was found in children under three years of age. The average for all children for this age-group was 24.9 hookworms, and that for those who were infected was 55. The percentage of infected children in this group was 45. The number of worms rose slowly throughout life, being highest in the age-group "over 40 years," in which the intensity reached eighty-six worms for men and sixty-seven worms for women.

As the rainfall is abundant in practically all regions, there was little variation of intensity with the amount of rain. In the higher altitudes, on the other hand, with their lowered temperatures, the intensity was very slight, and in the highest regions the infection practically disappeared. At altitudes of from 0 to 300 meters the average number of worms per infected person was somewhere between seventy-two and eighty-one; at 300 to 500 meters it was forty-four; at 500 to 1,500 meters, between twenty and twenty-eight; and in a village 2,200 meters high it was nine. In this village there were only three infected persons out of 120 persons examined, the average intensity being only 0.23 hookworm per person and the infection rate 2.5 per cent.

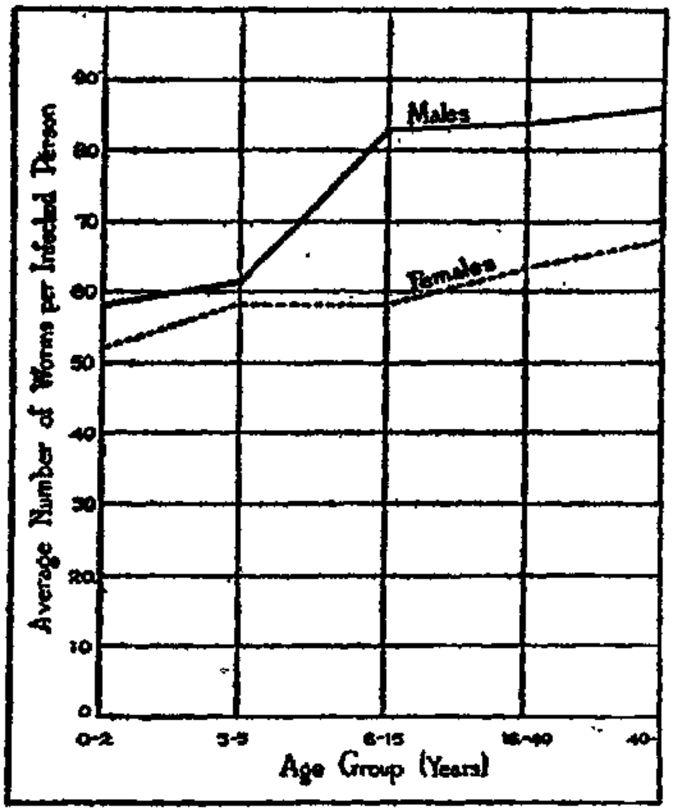


Fig. 17.—Rate at which the average number of hookworms per infected person rises with the age of the host in Java. The data are given separately for male and female persons.

The survey was followed on April 1, 1925, by the commencement of a five-year control program by the Government with the co-operation of the Board. Under this arrangement, on May 5, 1925, a hookworm control campaign was begun in the district of Serang of Bantam, West Java. Up to the end of the year the 34,862 people, with 9,111 houses, in the areas under control measures voluntarily built 925 latrines, and 18,283 persons came forward for treatment; 2,846 lectures and demonstrations were given to 34,793 people. The success of the demonstration in Bantam led to an arrangement according to which the Board's co-operation in 1926 will be chiefly in the educational phases of the work. In addition to the co-operative work in Bantam the Government carried on extensive control measures in Mid-Java in a population of about 200,000, giving 115,000 treatments, and causing 150,000 latrines to be built. It was found, however, that the co-operation of the public in treatment and sanitation was better in the Bantam region where the methods were slower and free from compulsion, and where the emphasis had been placed on education.

Preparing for Hookworm Control in the Straits Settlements

As a preliminary to a rural sanitation campaign in the Straits Settlements a survey of hookworm infection was undertaken by the Government with the assistance of the Board. The work began on February 25, 1925, and was completed within the year. It involved investigations in Singapore Island, Malacca, Penang, the Province Wellesley, the Dindings, and the island of Labuan (off Borneo). On the basis of this survey a plan was adopted for a three-year co-operative rural health campaign to begin in January, 1926.

During the survey the intensity of hookworm infection was measured in various ways: by counts of the eggs seen in slides prepared by the Willis method, by Stoll egg counts, by worm counts, and by hemoglobin estimations. At the beginning of the work some difficulty was encountered in training the native microscopists to make accurate Stoll egg counts, and it seemed advisable to the investigators to substitute a rough index of intensity which could be easily and rapidly determined for large numbers of persons. The flotation egg count was devised. The microscopists were instructed to note the number of ova per slide prepared by the Willis salt-flotation method and to classify the specimens in groups according to the average number of eggs per microscopic field, as follows:—Group 1, only one egg in six or more fields; Group 2, one egg in two to five fields; Group 3, one to four eggs per field; Group 4, five or more per field. While the method was admittedly highly inaccurate for individual specimens, it gave a rough idea of the general level of intensity for communities, as was shown by comparing the results of examinations by this method with those obtained by the Stoll method. No method was proposed for converting the results into terms of hookworms per person and thus making them comparable to the findings by worm count or the more accurate egg-counting methods. The presence of hookworms of the species *Ancylostoma duodenale* added to the difficulty of a more accurate estimate of intensity from egg counts, as the only mathematical factors at present available for the estimations were worked out where *Necator americanus* is found alone.

The hookworm infection rate, based on a total of 4,620 examinations, was 73.3 per cent for the whole series, and varied from 59.2 per cent in Singapore Island to 80.1 per cent in the Province Wellesley. Only 44.3 per cent of the coolies newly arrived at Penang from India were infected. This low rate is probably partly due to treatment in India before embarkation. Among children under five years of age 59.7 per cent were already infected. The infection rate reached 75.4 in the age-group "6 to 18 years" and then remained near this level.

By taking Groups 3 and 4 of the flotation egg count as indicating average infections of over 100 hookworms when large groups are considered, it was estimated that the following percentages of persons had over 100 hookworms: Malacca 12.6 per cent; Penang, Province Wellesley, and the Dindings, 6.2 per cent; Penang, municipal coolies, 7.4 per cent, and newly arrived coolies, 1.4 per cent; Labuan 9.1 per cent. By the Stoll egg-count method it was estimated from fifty-three examinations that the average intensity for Penang and the Province Wellesley was 77.5 hookworms per person, and that the average intensity in Malacca based on 185 examinations was 50.4 hookworms. By worm count it was found that over 60 per cent of the cases examined harbored twenty-five worms or more, and that over 31 per cent harbored at least fifty worms. The hemoglobin estimations demonstrated that the hemoglobin in the blood decreased with a rise in the number of hookworms harbored. Whatever standard was used in estimating intensity, it was evident that a considerable proportion of the population required treatment as a relief measure. Widespread soil pollution was observed in the rural areas and hookworm larvae were found in soil specimens examined with the Baermann apparatus. To control hookworm disease both treatment and sanitation were recommended.

Health Boat for the Rivers of Siam

The hookworm campaign in Siam is developing gradually into a movement for rural health organization. During 1925 five field units continued to treat for infection with hookworms and other intestinal parasites and to bring about the installation and maintenance of latrines. In the first nine months of the year, 175,251 persons were treated, and of 41,622 people examined, 25,795 were infected. The latrines inspected were 44,178, and 19,217 of these were new. An outbreak of cholera necessitated the temporary diversion of the field units to the control of this disease.

A local health center is being developed at Lopburi with the co-operation of a sixth field unit. The ideal is to organize local health work there as completely as resources will permit. The center will serve as a model for similar developments elsewhere and also as an experiment to determine the best type of organization for Siamese cities. The activities include among others the supervision of midwives, promotion of infant welfare, a health survey, and much educational work.

The work in public health education was intensified during the year. The accumulation of printed matter, models, posters, lantern slides, cinema films, and moving picture projectors has rendered the work more effective. A training course has been provided for health officers and another for sanitary inspectors. The course for inspectors lasted from May 15 to June 15, and forty-three men were enrolled. A second course started on June 15, with fifty-three pupils, and ended July 25. The course for health officers was planned to commence on October 1, and to last three months.

One of the unique additions to equipment has been a health boat, which was put into commission during the year. It is 52 feet long and has its own motive power and an electric light plant. It is equipped with a dispensary, a cinema machine, and educational exhibits. It tows a house-barge in which the staff will live while the rivers and canals of Siam are being navigated. By means of this floating messenger of health a large population will be reached which is accessible solely by water. Evening lectures will be given in temples on the river banks, treatments will be administered, and an impetus given to latrine construction.

Resurvey Five to Eight Years after Treatment

The original campaign against hookworm disease in the **Seychelles Islands** was carried on between February 8, 1917, and December 31, 1919, with assistance from the Board. There was an intensive campaign of treatment and sanitation in three islands of the group and a second series of treatments in part of one island. In 1925, from June 24 to August 5, the Board co-operated in a resurvey to determine what the conditions were after an interval of from five to eight years.

Examinations of 3,947 persons in thirty-four places in the same three islands showed that the hookworm infection rate was 85.4 per cent, almost as high as the rate when the original campaign was undertaken (90.2 per cent). The infection rates for Ascaris and Trichuris were 72.2 and 99.9, respectively.

To get an idea of the intensity of infection, worm counts, Stoll egg counts, and hemoglobin estimations were made. Both *Ancylostoma duodenale* and *Necator americanus* were found to be present, sometimes one species and sometimes both. Numerous cases of severe anemia with hemoglobin indices of 20 to 40 per cent were encountered and in the almost complete absence of malaria the condition was ascribed to hookworm disease.

Examinations of forty-five prisoners in Victoria prison was made by both Stoll egg count and worm count. Most of these men had been in prison for only a few weeks or months, and only six as long as one year. Of these prisoners thirty-three had been treated in the original campaign and it was noted that the intensity of their infection was almost as high as that of the others. Likewise outside the prison the people who had been treated in the original campaign had as intense an infection as those who had not.

In the island of Mahe 272 egg counts were made, the average number of eggs per gram of feces being 1,211. This would correspond to about fifty-five worms per person if all were *Necator americanus*. In the island of La Digue fifty-six persons had an average egg count of 1,682 per gram, corresponding to about seventy-six hookworms.

The explanation of this return to the original equilibrium of intensity in five to eight years was found in the prevalent soil pollution and the condition of the latrines. Examinations with the Baermann apparatus showed hookworm larvae in many soil samples. The most concentrated hookworm culture discovered was the earth floor of a latrine. It was concluded that the mud floor of a poor latrine was more dangerous than no latrine at all. Recommendations were made that a standard type of bucket latrine be adopted and that pit latrines be built with floors of reinforced concrete. Such standards have already been adopted by Government, and two men have been appointed to devote their whole time to hookworm examination and treatment. Steps have also been taken to increase the staff of sanitary inspectors.

Close of the Campaign in Mauritius

The work in which the Board co-operated in Mauritius was done in two steps. The first was a hookworm survey made between October 3 and December 22, 1920. On the basis of this investigation a three-year campaign was undertaken by the Government with the Board participating. It began on May 16, 1922, and ended on May 15, 1925. During the three-year campaign 67.7 per cent of the 90,941 persons examined were found to be infected with hookworms. The persons treated numbered 39,113. The drugs used were carbon tetrachloride and oil of chenopodium, singly or in mixture, followed by a purgative.

In making examinations of specimens of feces the Willis salt-flotation method was used. Egg counts by the Stoll method were the basis of an estimate that there was an average of less than ten hookworms per person in Port Louis and less than twenty-five in other districts. Occasionally heavily infected individuals were discovered, however. Worm counts in a series of

117 persons showed an average of thirty-four hookworms per person; in another series of eighty-eight cases, the average was twenty-nine per person; in still another series the individual counts varied from twenty-two worms to 347. A prisoner in Port Louis had 518 hookworms. Practically all the hookworms of Mauritius are of the species *Necator americanus*, but *Ancylostoma duodenale* has been found in a few instances. Examinations of soil were made for hookworm larvae, and the heaviest infection was found in the earth floor of a school latrine.

Educational work was a feature of the campaign. Lectures given to over 72,000 people numbered 472. At the last sanitary inspection 15,955 homes had sanitary latrines, 3,651 had insanitary latrines, and 492 were without latrines. The Government is now carrying the whole burden of the control measures.

South Sea Islands

During the year the Board participated in health activities in the South Pacific by lending the service of a representative who continued to act as consultant to Tonga and Fiji with regard to hookworm control and who made surveys in the Cook Islands and New Hebrides. In Fiji the co-operative program came to an end on January 31, 1925, and the Government is continuing the work of sanitation and treatment on the same scale. During the campaign almost the whole population was treated and given information about sanitation, and many latrines were installed. It was believed at the end of the campaign that the intensity of infection was so low among the Indian population that no treatment would be needed for a year or two. The campaign demonstrated the possibility of quickly lowering hookworm infection by mass treatment with carbon tetrachloride to a point at which hookworm disease disappears. To maintain the benefit from the campaign the Government appointed an ancylostomiasis officer who carried on control work with the co-operation of the district medical officers. The aim was to keep the intensity of infection at a level so low that there could be no measurable damage to health or efficiency. The ancylostomiasis officer had five full-time Indian sanitary inspectors to assist him in the work of installing and maintaining latrines. While sanitation is receiving the emphasis in this preventive work, there will also be periodic hookworm examinations of samples of the population to keep track of the gains and make it impossible for conditions to get worse without this fact being known to the authorities.

In **Tonga**, the co-operative survey of 1924 was

Photograph Excised Here

Fig. 18.—A prolific source of malaria. In this mill-pond of the Southern United States, the malaria mosquito, *Anopheles quadrimaculatus*, breeds abundantly under the protecting flotage.

Photograph Excised Here

Fig. 19.—A concrete tank for irrigation purposes in Italy. The growth of algae harbors great numbers of Anopheles larvae.

followed by great activity on the part of Government in matters of sanitation and hookworm control. The mass treatment of the entire population was completed late in 1925. The work of installing hundreds of latrines manufactured by prisoners was commenced. The hookworm campaign staff, practically a small health department, consisted of one European officer and three Tongan assistants who were being trained as health inspectors. Plans were formed for safe water-supplies and other sanitary improvements.

The health survey of the **New Hebrides** covered eleven islands and disclosed widespread infection of considerable severity with *Necator americanus*. Yaws, tuberculosis, and filariasis were prevalent. Steps were taken by the Condominium Government to establish a medical service and undertake the control of yaws and hookworm disease and improve health conditions in general.

In the **Cook Islands**, a survey showed that the hookworm incidence and the intensity were sufficiently high to warrant mass treatment, particularly in view of the general prevalence of Ascaris. Among 1,026 people examined, 70 per cent were infected with hookworms. In seven worm counts of prisoners and hospital patients the average intensity was fifty-six hookworms per person.

Photograph Excised Here

Fig. 20.—The only known source of malaria at a bathing resort in Sardinia. Over a thousand cases of malaria occur each year among the 6,000 inhabitants.

Photograph Excised Here

Fig. 21.—Mouth of the Anopheles-breeding river shown in the previous picture. The water is backed up by a low sand-bar and forms a fresh-water lagoon.

All hookworms were *Necator americanus*. The Government proposed to undertake control measures in 1926 and to improve sanitation.

The health work of recent years in the Pacific Islands has stimulated interest in public health and revealed the necessity for a body of trained men under central supervision to carry out the local measures needed for permanent sanitation and disease control. To meet this need six or more of the island groups are planning to maintain jointly a school for native medical practitioners at Suva, Fiji, where there is already a small school which can be enlarged and where there is also a hospital available for teaching purposes.

III

Malaria

The Year's Work

Field studies in malaria control were carried on with the Board's co-operation in many parts of the world during the year 1925. Assistance in malaria control demonstrations was given in twelve states of the United States; in Porto Rico; in the state of Rio de Janeiro, Brazil; in the province of Tucuman, Argentina; in two areas in Italy; in Palestine; and in the Philippine Islands. Malaria surveys were made in Haiti, Costa Rica, and Nicaragua. In Ceylon members of the Board's staff conferred with the Government regarding the local malaria problem.

Field Studies

Malaria levies a heavy tax on many nations. Dr. Andrew Balfour, director of the London School of Hygiene and Tropical Medicine, estimates the direct annual cost of sickness and death attributable to malaria in the British

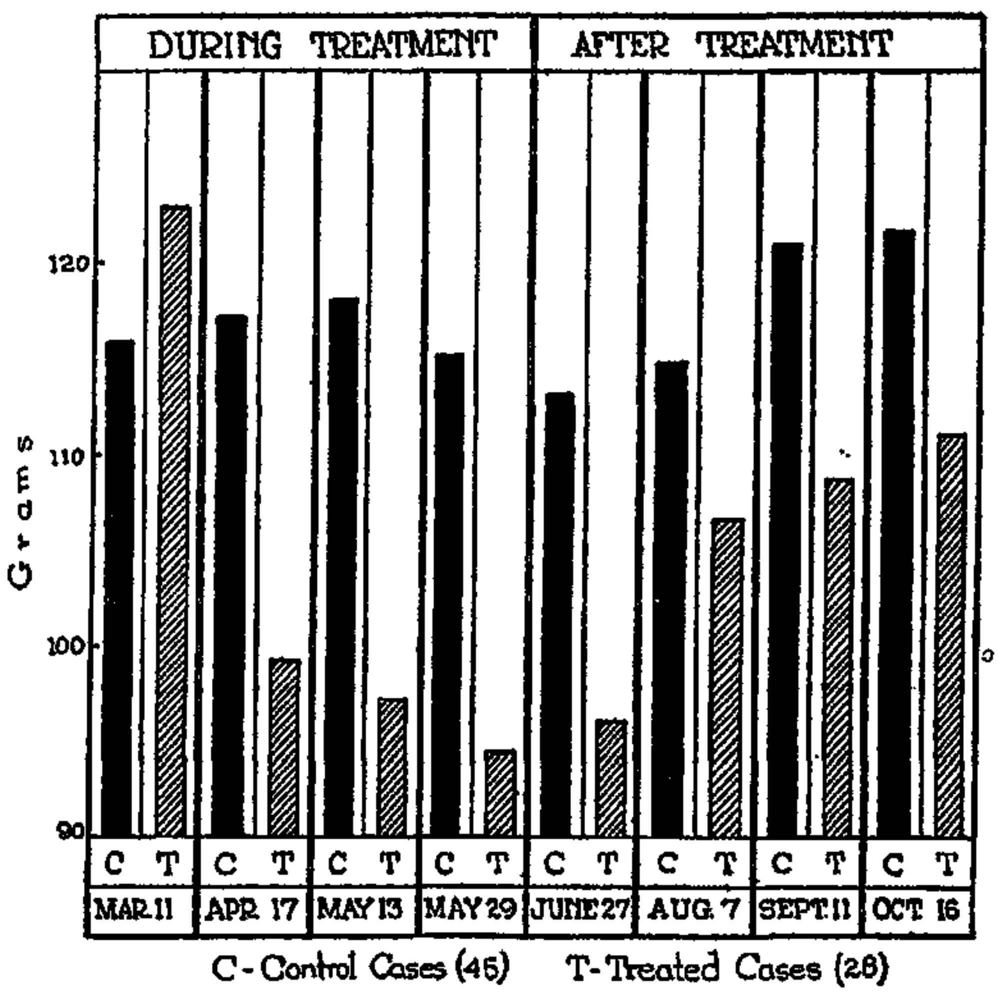


Fig. 22.—Average estimated spleen weights of persons who received the standard quinine treatment for malaria during an investigation at the Station for Field Studies in Malaria at Leesburg, Georgia. For comparison the average spleen weights of untreated persons are shown.

Empire as between \$250,000,000 and \$300,000,000; and the world death roll from malaria as 2,000,000 people each year. There is a further vast loss in diminished industrial efficiency.

The outstanding importance of malaria as a rural disease has long been recognized, but practical methods for extensive control outside large centers of population are only now beginning to be achieved. To hasten the time when more efficient and economical methods will be available the Board has maintained a Station for Field Studies in Malaria at Leesburg in southern Georgia. The Station was directed by S. T. Darling until his untimely death on May 21, 1925. He was succeeded by M. F. Boyd. Valuable field studies have been made at the Station. State appointees, members of the Board's staff, and fellows from many foreign countries have been given field training there in order to familiarize them with the various aspects of the malaria problem in the United States and also to acquaint them with the general methods of study and approach to the whole broad topic of malaria prevention.

The research work at the Station during 1925 included (1) the treatment of paretics by induced malaria, (2) experimental infection of Anopheles mosquitoes, (3) dissection of wild mosquitoes to determine natural infection, (4) observations on mosquito dispersal, (5) study of the results of intensive medication with quinine, (6) observations on the periodicity of malaria parasites in the peripheral blood, (7) study of Halteridium infection of pigeons, (8) observation of the characteristics of Anopheles ova, (9) recognition of the sex of Anopheles larvae, (10) study of the parasites of Anopheles mosquitoes.

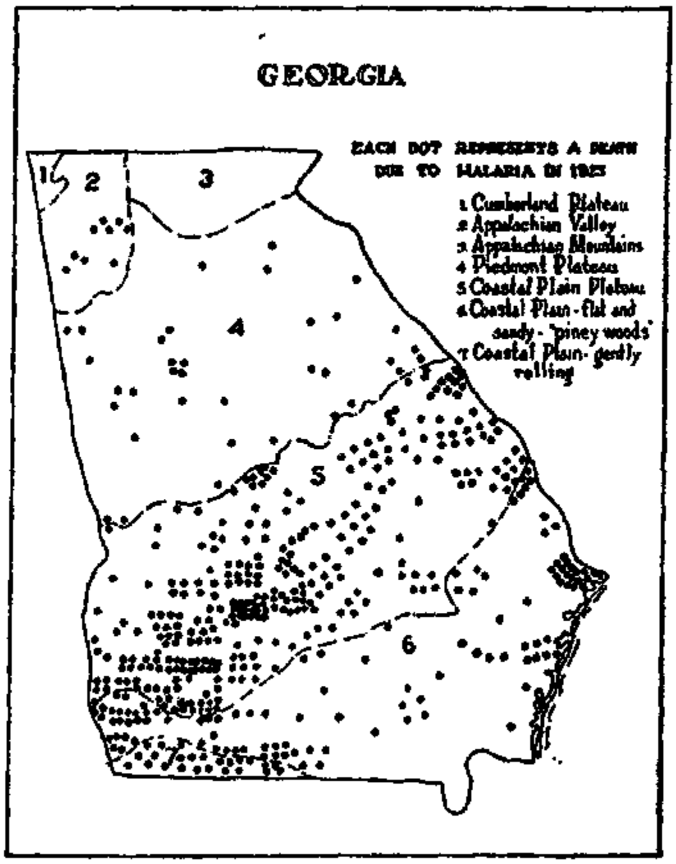


Fig. 23.—Relationship of malaria prevalence to topography in Georgia. In sections 5 and 7 lime sinks are common and *A. quadrimaculatus* breeds freely. As a result malaria is more prevalent than in other parts of the state. In the other sections conditions are relatively unfavorable to the breeding of this species of Anopheles, although other species may abound, and malaria deaths are few.

A study of the efficacy of the standard, or Bass, quinine treatment recommended by the National Malaria Committee was commenced by S. T. Darling and completed by R. K. Collins. Under this system of treatment an adult receives 10 grains

(0.65 gram) of quinine sulphate every day for eight weeks. If acute symptoms are present the amount of the drug is increased to 10 grains three times a day for the first three days. It was observed that the standard treatment temporarily eliminated malaria parasites from the peripheral blood stream and prevented relapse; but that this was true only so long as treatment was continued. On discontinuing treatment the peripheral blood was rapidly reinvaded by the parasites.

Research in the Universities

New light has been thrown on the way malaria develops and subsides by studies of the course of bird malaria in canaries, carried on under the direction of Professor R. W. Hegner, with support from the Board, at the School of Hygiene and Public Health of the Johns Hopkins University. This series of studies included also tests of the action of various quinine salts and derivatives on paramecia and on the course of malaria in birds. At the University of Chicago, Dr. W. H. Taliaferro, with assistance from the Board, conducted research into the immunology of malaria with the hope that he might be able to develop a serological diagnostic test.

In Vienna, Professor Franz Erben, with help from the Board, carried on chemical investigations on combinations of arsenic and quinine, in the hope of discovering a more effective drug for the treatment of malaria.

Studies in Alabama

Further evidence was accumulated to substantiate Dr. H. R. Carter's conclusion that *Anopheles quadrimaculatus* is the important vector of malaria in the Southern United States. In an epidemic of malaria at Gantt, Alabama, where there is an impounded water reservoir, the Anopheles density of the area was observed for a period of three years, both before and after the epidemic. The correlation between the density of *A. quadrimaculatus* and the occurrence of cases of malaria was most striking. Field studies under the direction of W. G. Smillie showed that each of the three types of Anopheles mosquitoes of this region has a definite seasonal incidence, definite food habits, places of preference for depositing eggs, preferential hiding-places, and a limited flight range. In the Gantt area, the density of *A. quadrimaculatus* varied inversely as the distance from the impounded area where the mosquitoes were breeding, up to one and three-fourths miles. Beyond this point no more *A. quadrimaculatus* were found. Other Anopheles were observed both within and without the area in equal numbers, and no relationship was observed between the incidence of

A. crucians or *A. punctipennis* and the presence of cases of malaria. Furthermore, over three-fourths of the cases of malaria during the

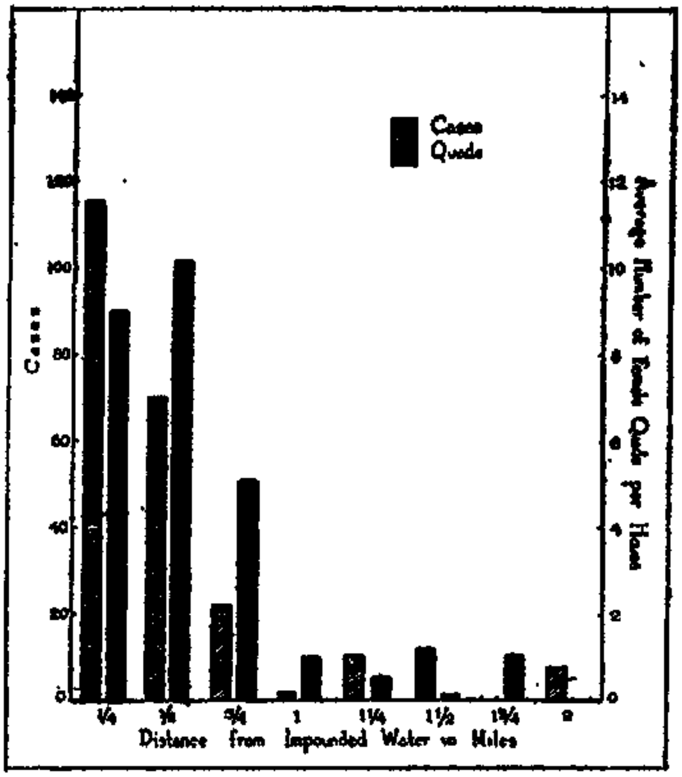


Fig. 24.—Cases of malaria and density of *A. quadrimaculatus* (females) at various distances from impounded water at Gantt, Alabama, in 1924.

epidemic occurred within one-half mile of the *A. quadrimaculatus* breeding-places and all except eight of the infected persons lived within Anopheles flight range of the pond —that is, within one and one-half miles. The eight exceptions were persons who lived outside the area but had spent some time in the area nursing the sick.

Experimental control of rural malaria by intensive quinine administration did not prove successful. In the Gantt area, where quinine treatment for eight weeks was given to a large number of persons during the epidemic, there occurred a very definite reduction in the number of days lost from illness among those treated, but the following spring many of these treated cases relapsed, and so far as one could judge, the quinine administration did not check the march of the epidemic in the slightest degree. Prophylactic quinine seemed to be of some value during the epidemic for the incidence of malaria was only 10 per cent in those taking it, whereas it was 30 per cent for the area as a whole. The prophylactic quinine apparently merely masked the symptoms, however, for many of those who followed out the treatment during the whole *A. quadrimaculatus* season, and were apparently

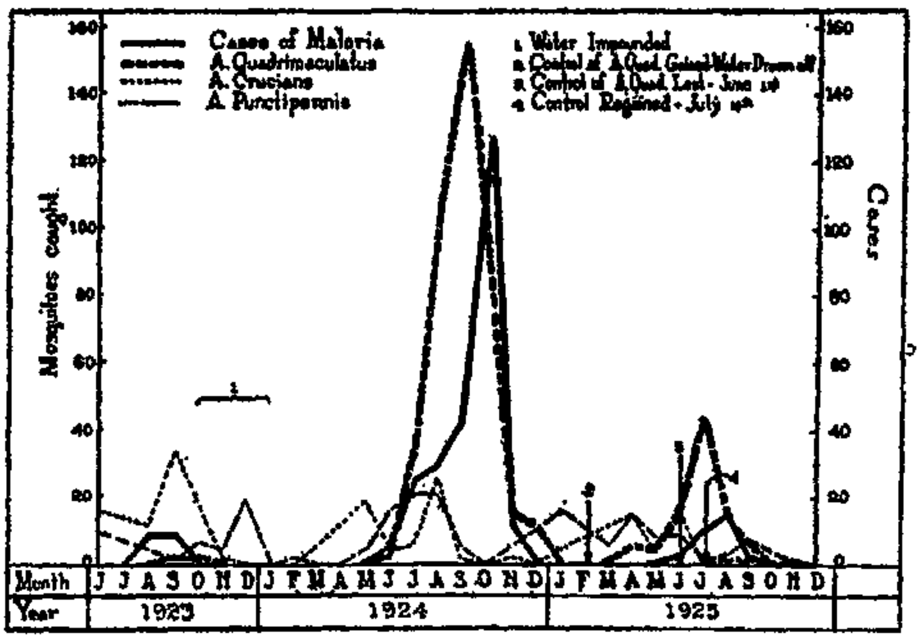


Fig. 25.—Anopheles density and cases of malaria in the Gantt area, Alabama, by months, in 1923, 1924, and 1925. The increase in Anopheles mosquitoes in 1924 followed the impounding of water without adequate mosquito control measures. The close relationship between rise in numbers of *A. quadrimaculatus* and increase of malaria shows that this mosquito was the principal vector.

protected, came down with malaria relapse the following spring.

Demonstrations in the United States

When the Board first gave financial assistance to governments—federal, state, and town—for projects in malaria control, the unit of control was the city or town. This plan was followed, not because there was no malaria in rural districts, but because the control of malaria in municipalities and towns was a concrete problem in public health for which the practical solution was known. Where population was dense and land values high, permanent drainage and radical mosquito control measures were practicable.

In 1920, 1921, and 1922, the Board and the United States Public Health Service, through and with the state boards of health, aided a number of towns in demonstrating the economic feasibility of complete mosquito control. These demonstrations were successful. This work has been continued by the states and towns themselves, extending to all parts of the South.

But malaria is essentially a rural problem, and methods of control which are successful in urban areas are not applicable to control of rural malaria because of the great cost. Thus a more satisfactory administrative procedure was needed for malaria control in rural districts.

The state health departments next undertook to develop and demonstrate some satisfactory method of control of rural malaria. During 1925 thirty-four separate county malaria projects in twelve states were given financial assistance by the Board. An administrative plan of control has been gradually evolving which offers substantial promise that malaria may be controlled in many rural areas without prohibitive cost.

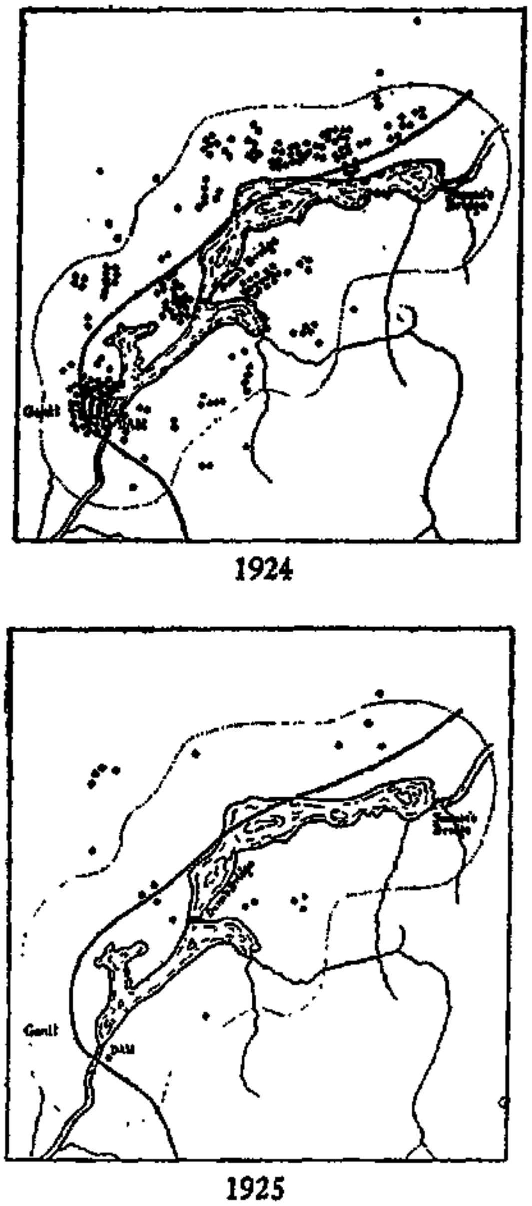


Fig. 26.—Malaria in the Gantt area in Alabama in 1924 and 1925. Each dot represents one case of malaria; the dotted line is at a distance of one mile from the pond whose waters were impounded. Few cases occurred beyond this line. In 1924 control was by the use of quinine only and there were 238 cases of malaria. In 1925 there was also control of the breeding of *A. quadrimaculatus* in the pond, and the number of cases dropped to twenty-one.

The unit of control in this plan is the county and the plan requires a full-time county health officer and also a sanitary inspector, both of whom are familiar with the life history of *A. quadrimaculatus*. It also necessitates a state malariologist who can orient the work of the county health unit and give advice as to the details to be followed in the control of any specific problem. The state sanitary engineer can also be of great service in advising with regard to drainage schemes.

The plan of procedure that has proved most satisfactory in the counties thus far studied is as follows:

1. Location of the cases of malaria in the county. Each of the cases of malaria reported to the health officer is visited and the diagnosis confirmed. The important fact to be determined is the source of the infection. Preliminary surveys of many counties in the Southern States have shown that malaria is not widely and evenly distributed, but appears in these counties in separate endemic foci, with the *A. quadrimaculatus* breeding-place as the geographic center of the focus, and that each area of potential malaria has a radius of about one and one-half miles from the *A. quadrimaculatus* breeding-place.

2. The Anopheles breeding-places which lie within one and one-half miles of the actual cases of malaria are determined by dipping for larvae and making catches of adult mosquitoes in their

habitual resting-places. The larvae may be differentiated on the spot by the field man. The state of Georgia prefers that the larvae be mailed in a suitable container to the laboratory of the State Board of Health where the identification can be made by using the differential key of Paul F. Russell.

Once the endemic focus of the malaria has been determined and the breeding-place of the mosquito which is transmitting the disease has been found, the problem is greatly simplified, for efforts can be concentrated on the control of the breeding-places of this mosquito. Aside from the more fundamental drainage work intensive effort can be limited to the months of May to October, for this is the season of *A. quadrimaculatus* in the Southern States. By determining the focus, finding the actual breeding-place of the vector, and concentrating effort upon a limited area, the per capita cost of control in sparsely settled areas may be reduced to a more reasonable figure.

In the United States the Board has aided in field investigations, in the development of county health units that feature malaria control on a county basis, and in the establishment of the central state bureaus of malaria control, epidemiology, and sanitary engineering. It is upon these essential administrative units, local and central, that the success of control measures for rural malaria rests.

Malaria in Central America

In **Nicaragua** the sanitary engineer furnished by the Board continued to assist in malaria studies and local control measures. This engineer also gave advice regarding malaria control in **Salvador.** In **Costa Rica** an epidemiological study of malaria was carried out under the supervision of a representative of the Board. Sketch maps were prepared showing conditions bearing on the disease; children were examined for the presence of the plasmodia in their blood and for splenic enlargement; the breeding-places of Anopheles mosquitoes were sought out; and the larvae of several species of Anopheles and also the adult mosquitoes were identified. The highest splenic and parasite indices were found on the Atlantic side. Recommendations for control were submitted.

Porto Rico and Haiti

A preliminary survey of **Porto Rico,** completed in June, 1925, showed that malaria was widely and generally distributed. There are three Anopheles in Porto Rico: *A. albimanus*, *A. grabhamii*, and one discovered in 1925, *A. vestitipennis*. At the close of the study a control demonstration was undertaken in Fajardo and

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Fig. 27.—Anopheles larvae were found in the masses of aquatic vegetation of this pond in Corsica.

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Fig. 28.—Breeding-place of Anopheles mosquitoes in a sluggish Corsican brook.

the surrounding territory on the east coast. The Board furnished the services of a malariologist to direct this work and provided certain scientific equipment. All other expenses were met by the Government, which recently adopted a budget providing $50,000 annually for malaria work. The conclusion was reached that proper drainage of the low-lying cane lands and more careful use and disposal of irrigation water would greatly simplify the malaria problem.

The health survey of Haiti, already mentioned with respect to hookworm infection, included a study of malaria. People were examined by blood test and palpation of their spleens and they were also interrogated with regard to symptoms suggestive of malaria. At the same time an entomologist was studying the Anopheles mosquitoes and their breeding-places and working out a system for identifying the two species found, *A. albimanus* and *A. grabhamii*, in their larval stages. Some malaria was found in every locality examined, even in the hills. Of the two species of Anopheles found, only *A. albimanus* was considered to be important as a vector of malaria.

Control Methods Demonstrated in Brazil

The malaria field studies in which the Board has been co-operating in Brazil were begun near

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Fig. 29.—Lateral views of the two species of Anopheles found in Haiti, showing their characteristic resting postures. 1. *A. grabhamii;* 2. *A. albimanus.*

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Fig. 30.—Open ditch draining a field of sugar-cane in Porto Rico. The grassy margin is an ideal breeding-place for Anopheles mosquitoes.

Rio de Janeiro about July 1, 1922, and completed on June 30, 1925. They prepared the way for a co-operative control program which was undertaken in the state of Rio de Janeiro in January, 1925, and will extend over a four-year period. The areas of operation are towns or other circumscribed zones of fairly dense population. The work in each area is of three types, namely, (1) a survey, taking four to six weeks, (2) intensive control measures extending over an average period of eighteen months, (3) maintenance of work by the county and state. Control operations were carried on in three areas, Itaperuna, Macahé, and Mesquita. These demonstrations are expected to lead to effective malaria control by the county health services, under the supervision of the newly formed Bureau of Malaria in the State Department of Health. Oil, paris green, and drainage were relied upon for the control of mosquito breeding. A trial of the use of sawdust soaked in pitch as a larvicide met with considerable success.

In relation to the field studies, an investigation of the larvae, pupae, and adults of all common Brazilian species of Anopheles was made by F. M. Root of the School of Hygiene and Public Health of the Johns Hopkins University, working with a Brazilian entomologist, from January 15 to July 8, 1925. One species, *Anopheles* *punctimacula*, was added to the list of known Brazilian species, and the hitherto unknown larva, pupa, and breeding-place of *Chagasia fajardoi*, were discovered. Studies of the larvae and pupae of the common Brazilian species of Anopheles and some of the rarer ones gave results which will enable workers to identify the species in these early stages. *A. argyritarsis* and *A. tarsimaculata* were subdivided into several distinct species or varieties, having distinguishing characteristics. It remains to be determined which of these varieties are important vectors of malaria.

Studies were made of the epidemiology of malaria in the coastal lowlands of Brazil and also in a railroad construction camp in the mountains.

In response to many requests for specialized malaria training, there was organized in cooperation with the National Department of Health an intensive course in malariology for health officials. The course covered a period of sixteen weeks divided between lectures, field excursions, and surveys, and ended May 25, 1925. Ten students from six states were enrolled.

Control Measures in Argentina

A preliminary survey of malaria in the provinces of Tucuman, Salta, and Jujuy in the northern part of Argentina was made in 1925, by two representatives of the Board at the invitation of the Government. On the basis of the findings a plan was agreed upon under which the National Department of Hygiene of Argentina and the Board will co-operate during a period of five years in the organization and development of a bureau of studies and demonstrations in malaria control in the existing Section of Malaria Prophylaxis. After the malaria program is well under way, hookworm control may also be undertaken under the same agreement.

The towns of Medinas and Concepción in the province of Tucuman were selected for the first demonstration of malaria control. In September both towns were mapped, and blood and spleen indices were secured. On October 1, control operations began in Medinas and drainage work was pushed in order to limit the breeding of Anopheles before the rainy season was well established. Breeding-places were sought out and oil and paris green were used as larvicides. In both towns quinine was provided by Government and distributed to actual cases of malaria as a palliative measure, pending successful control of Anopheles mosquitoes. Based on the examination of 400 persons the spleen index in Medinas was 35.2 per cent and the parasite index, 11.2 per cent.

As Concepción is only about eleven kilometers from Medinas and under similar conditions, comparisons between these cities, before control work is begun in Concepción, should give a measure of the effects of the control activities in Medinas. Later when the work is well under way in Medinas, control operations will be started also in Concepción.

Adult mosquitoes were systematically captured and identified. A study was made also of the value of local fish in destroying mosquito larvae.

Studies in Italy

After the malaria survey of 1924 in Italy it seemed that the next step to be taken in the work in which the Board is co-operating with the Government was long-continued field study in a few favorable places, accompanied by demonstrations of control measures. Accordingly the principal activities of 1925 were limited to two localities, Bianconovo in Calabria and Portotorres in Sardinia. Although no striking results were expected after only a few months of control measures, the records showed that adult Anopheles mosquitoes were virtually eliminated from both towns by the end of August, although adjacent communities had unusually severe malaria. One physician of Bianconovo reported that he had practically no cases of malaria in 1925, although he had treated five per day, on the average, during the previous year.

The chief credit for this result was given to the use of paris green as a larvicide. The cost in material and labor at Bianconovo was only about $.09 per person, and at Portotorres, $.12, costs well within the reach of almost any community. These amounts do not include the cost of the accompanying investigations.

Experience showed that one employee would be able to treat the entire control area in Bianconovo within the 15-day period decided upon as the proper interval between applications of paris green. Quinine was administered to about 2,000 persons in the two towns, but was considered as primarily a palliative rather than a preventive measure.

In one experiment 1,000 mosquitoes of the species *Anopheles maculipennis* were powdered with methylene blue and released three kilometers from Portotorres. Two days later two of these mosquitoes were caught in the center of town, showing that Anopheles were flying farther than had been expected when the first plans were made. The periphery of the area of control was then placed at a distance of three kilometers from the edge of the town.

For the purpose of training men for malaria work an intensive course in pathology,

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Fig. 31.—Killing Anopheles mosquito larvae by treating the edge of a stream in the Philippine Islands with a mixture of paris green and dust. A mechanical duster was used to distribute the mixture.

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Fig. 32.—Public health picnic of a school community in Mississippi to celebrate entering the "100 per cent class." All the remediable defects of the pupils had been corrected under the influence of the county health department.

protozoology, and entomology as related to malaria was given to six physicians, — two directors of field work and four who held resident fellowships furnished by the Board.

Before the end of the year plans were under way for an experiment station for malaria control to be conducted jointly by the National Health Department, the Commune of Rome, and the Board. The Commune turned over a fine building, the Farnesina Palace, for use as a center for malaria study.

Stations in Europe for Training in Malaria Control

The marked increase of malaria in Europe since the war has made it advisable to provide field stations for training malariologists. Excellent theoretical instruction is already available. As Corsica was well adapted to the study of the epidemiology of malaria, it was selected as the site of a training station for French-speaking malariologists, and the Board made a contribution toward the operating expenses. The station was established in 1925 and is under the direction of Dr. Emile Brumpt, professor of parasitology in the University of Paris. It is organized on a plan similar to that of the Station for Field Studies in Malaria at Leesburg, Georgia. Within the year visits to Corsica were made by Professor Brumpt, Drs. Langeron, Galliard, and Larrousse,

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Fig 33.—Headquarters of the West Africa Yellow Fever Commission at Yaba, near Lagos, Nigeria. The portable houses were brought from America by the Commission.

and Professor Joyeux. A study was made of the Anopheles of Corsica and their breeding-places. Five species were found: *A. maculipennis*, *A. algeriensis*, *A. sinensis*, *A. elutus*, and *A. bifurcatus*. Previously only the species first mentioned had been recognized.

In **Poland** a systematic study of malaria is being undertaken. The health demonstration carried on in the Mokotow District of Warsaw with aid from the Board, is serving as a malaria field training station for students of the School of Public Health. Funds for the malaria work have been provided by the national public health service. Several villages are included in the area being studied.

Surveys in Palestine and Ceylon

In **Palestine** a survey of malaria conditions, which had been carried out by representatives of the Board under the direction of the Department of Health over a period of three years, was completed on June 10, 1925. Within the year a survey of the Dead Sea coast was made. Recommendations based on several earlier surveys were made use of by the Government, notably in the reorganization and repair of the Jericho irrigation system, in the further development of the Kishon drainage scheme, and in the extension of the Beisan irrigation plans. In May the country was visited by the Malaria Commission of the League of Nations, on which the Board was represented by a corresponding member of the Commission, Dr. S. T. Darling. The Government of Palestine plans to conduct control operations as a part of its rural health program and has invited the Board's assistance in this work.

At the invitation of the Government of **Ceylon**, two representatives of the Board visited the island from October 1 to November 21, making inspections with the health officials, going over the records of the extensive malaria studies which have already been made, and conferring with regard to the future control program.

Philippine Islands

The methods developed in the Philippine Islands during the malaria surveys of the previous two years were tested in control projects during 1925. Demonstrations were carried on in five localities in co-operation with the Philippine Health Service and in some instances also with sugar planters. The height of the malaria season in the regions studied coincided with the dry season and the important vectors were found to be the Anopheles mosquitoes which breed in running streams during their normal or dry-season flow. The two species held under greatest suspicion were *A. minimus* and *A. ludlowi*.

Studies of the indigenous fish failed to reveal any which were efficient in destroying mosquito larvae in the streams. *Gambusia affinis* were liberated in one stream but disappeared very soon, and it is probable that they fell prey to larger fish. An effective and inexpensive method of destroying Anopheles mosquito larvae was found, however, in the use of paris green. Some difficulty was experienced in the application of this larvicide where there was excessive growth of algae, and sometimes it was swept away by currents before the larvae could reach it, but on the whole it was surprisingly effective. It appeared that successful control would be possible in difficult areas like those studied at a per capita cost of $.35 per year.

For the purpose of preparing sanitary inspectors for malaria control work, two courses of instruction were given. The first began in March and lasted fourteen weeks. The second began in September. The number of persons in attendance was forty-five for the first course and seventy for the second.

IV

Yellow Fever Control

Watching in the Americas for Remaining Sparks

The Western Hemisphere was remarkably free from yellow fever throughout the year 1925,

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Fig. 34.—Tin tubes fitted with wire tops such as are used in the yellow fever campaign in Brazil to provide for a residue of water in containers, thus conserving the life of the larva-eating fish.

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Fig. 35.—Model tank showing how the tin tube maintains a residue of water.

and this gave encouragement to the hope that eradication from the New World would soon be an established fact. Only three cases were recorded during the year, all in Brazil.[1] Two deaths from yellow fever were reported in March in Parahyba, state of Parahyba, and one, in which the diagnosis was more doubtful, in May in Parnahyba, state of Piauhy. Epidemic conditions were last seen in May, 1924, in Brazil and in October of that year in Salvador.

In the absence of outbreaks, the campaign is settling down to the periodic checking up of the danger points and the investigation of every rumor of a case. At the best, years of such vigilance will still be necessary.

Campaign in Brazil

In Brazil, all but four of the eleven stations that have been operated were closed during the year. The belief that cleaning the big port cities would automatically end the infection in the interior has been confirmed. The way that the infection was disseminated intermittently from large cities is illustrated by past experience in the state of Bahia. The capital city, São Salvador, lies in a densely settled region of many hundred square miles, within which there is constant and heavy travel. By the continuous

[1] In April and May, 1926, an outbreak of yellow fever was reported from Parahyba in Northern Brazil. Cases also occurred in Natal, Bahia, and the interior. The outbreak in the coast cities was promptly brought under control, but cases are still being reported from the interior as this report goes to press (June, 1926).

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Fig. 36.—At the beginning of the yellow fever campaign in Brazil efforts were made to seal these containers with canvas. A remnant of the cloth is shown. Containers of this type are now equipped with a tube and supplied with fish.

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Fig. 37.—Earthenware jars kept at one habitation for the collection of rain water for use in the dry months. This lot has a capacity of over 1,000 gallons.

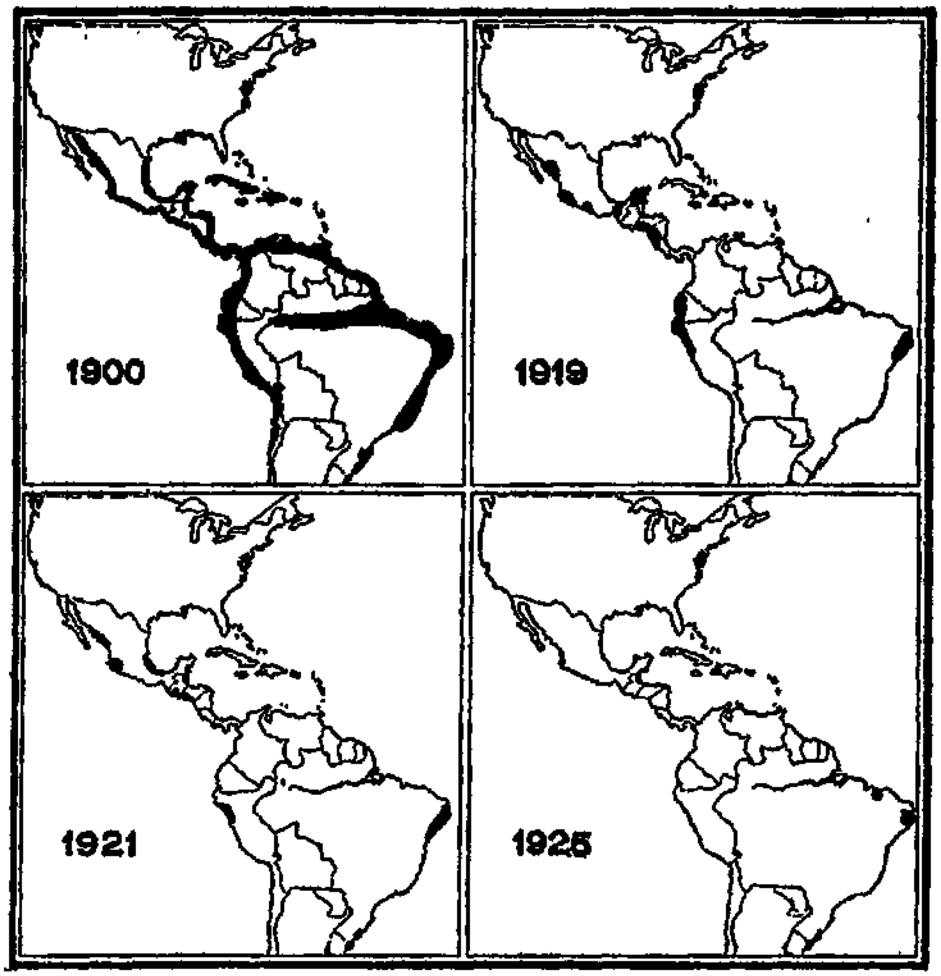

Fig. 38.—Four stages in the retreat of yellow fever from the Western Hemisphere.

presence of infection in unrecognized cases in infants and small outbreaks among foreigners this city and some of the larger interior towns had become virtually immune to epidemics of yellow fever. The flow of travel picked up this infection and carried it back into the interior where it flared up as epidemics from time to time. Thus the disease went from the cities to the rural districts and not in the reverse direction.

The recent campaign was planned to take

advantage of this principle. Work was concentrated in the coastal cities from Victoria at latitude 20° south to Pará near the equator, and also in Manaos, the key city of the Amazon region. The results appear to have justified the method, but it will be the course of wisdom to continue operations for a year or more after the last suspicious case.

Precautions in Central America and Mexico

As no cases of yellow fever had been confirmed in **Salvador** since October 22, 1924, Government terminated the co-operative yellow fever campaign on September 30, 1925, but continued

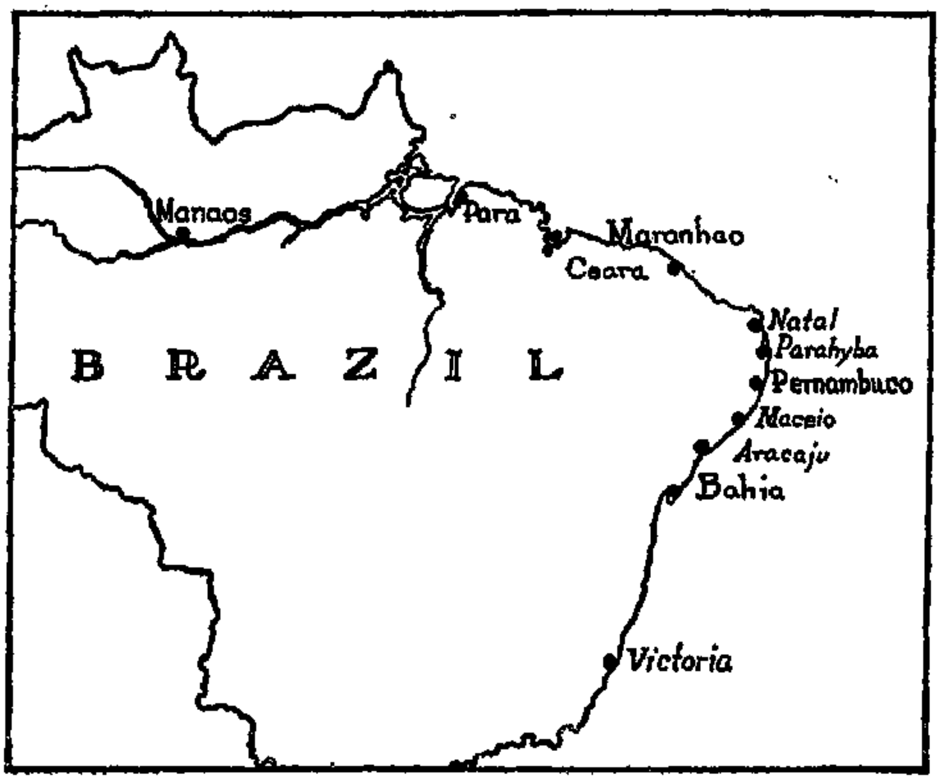

Fig. 39.—Stations at which control operations have been carried on in the yellow fever campaign in Brazil.

general antilarva measures at its own expense. The precautionary control campaigns undertaken in the neighboring countries of **Guatemala** and **Nicaragua** were brought to a close at the same time, and that in **Honduras** two months earlier. No cases had appeared in these countries, and it was decided that three suspected cases in **British Honduras** were not yellow fever. A special test of the situation in Salvador was afforded by the annual feast days in July and August, when many non-immunes came down to the capital; although in the past this was often an occasion for outbreaks of yellow fever, no suspicious reports were received last summer.

Measures directed against the larvae of *Aëdes aegypti*, the mosquito which transmits yellow fever, have been continued actively in the former yellow fever areas in **Mexico** under the National Department of Health and no cases have been confirmed since December, 1922.

The control of mosquito breeding in Tampico and in Vera Cruz during 1925 by the Mexican Federal Department of Health has been excellent. The water-supply system of Tampico has been improved, appreciably diminishing the number of water containers scattered throughout the city. General sanitary work and draining have decreased anopheline breeding, resulting in a lessened amount of malaria.

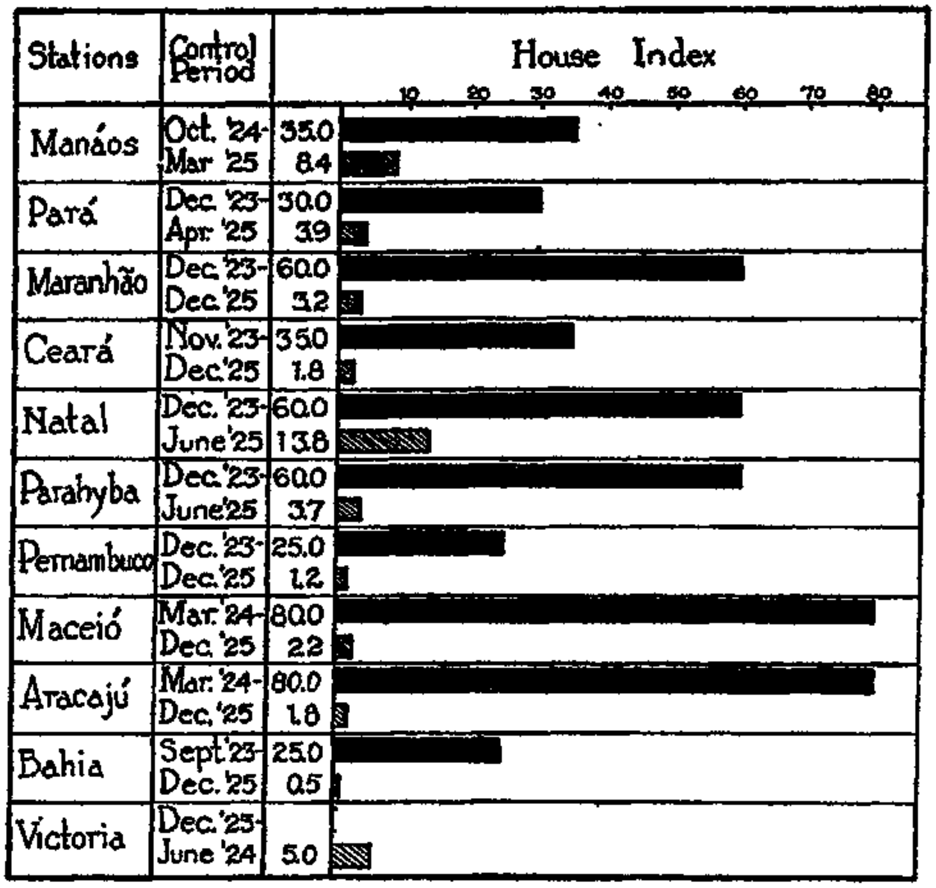

Fig. 40.—Percentage of houses in which the larvae of the yellow fever mosquito, *Aëdes aegypti*, were found at the beginning and at the end of control periods in the yellow fever campaign in Brazil.

Full-time health officers and organizations have been provided for in Tampico and in Vera Cruz. The Mexican Government has not merely maintained the antimosquito service developed in these port cities during the yellow fever campaign but has extended it to include measures against malaria.

At the close of the campaigns M. E. Connor, director of the Board's yellow fever activities in Central America and Mexico, made a survey of the whole region, which will be repeated in the coming year. Meanwhile, a trained inspector is keeping watch of mortality and morbidity data and is prepared to investigate any rumors of suspicious cases of infection. With Salvador clean, the neighboring countries lose their importance from a yellow fever standpoint, since Salvador was probably the seed-bed of infection for Central America, and possibly for Western Mexico.

No Yellow Fever from Peru to the Guianas

A severe epidemic of malaria in the department of Piura, **Peru**, due to phenomenal rains, was investigated by the Peruvian Department of Health and by Connor, in view of reports that the epidemic was yellow fever. It was ascertained that Peru's freedom from infection since August, 1921, was still unbroken. Connor visited **Ecuador** also and reported no indication of infection there.

A thorough survey of **Venezuela** during the first five months of 1925 was undertaken by Henry Hanson following the end of the campaign in Colombia, and the absence of yellow fever was confirmed. The results of these inspections, together with a visit by Connor and O. L. Pothier to the **Guianas** the previous summer, have strengthened the hope that the Western Hemisphere may be declared free from yellow fever when the last suspicion of cases in the interior of Brazil has disappeared.

Studies under Way in West Africa

By the close of 1924, the infection had been brought under sufficient control in the Western Hemisphere to make it possible to release men and funds for work on the other side of the Atlantic. In May, 1925, Henry Beeuwkes, director of the new work, sailed from New York. After satisfactory conferences with the colonial authorities in London and in Paris, he proceeded to Nigeria where he established the headquarters of the Commission. By the end of 1925, he had a staff consisting of a laboratory pathologist trained under Dr. Noguchi, three physicians experienced in yellow fever control, an entomologist, an experienced sanitary inspector, an office assistant, and a laboratory technician. Five houses for the headquarters establishment had been imported from the United States and erected on grounds donated by Government near the Medical Research Institute outside Lagos.

The problem of first importance in West Africa is to establish the identity of the yellow fever of Africa and America. Attempts will be made to isolate the causative organism, *Leptospira icteroides*. Pfeiffer examinations of blood sera from convalescents and histological examinations of tissues from fatal cases will also help to clear up any conflict of opinion regarding the nature of the cases. Furthermore, it will be necessary to define the extent and epidemiological characteristics of the infection. Surveys for this

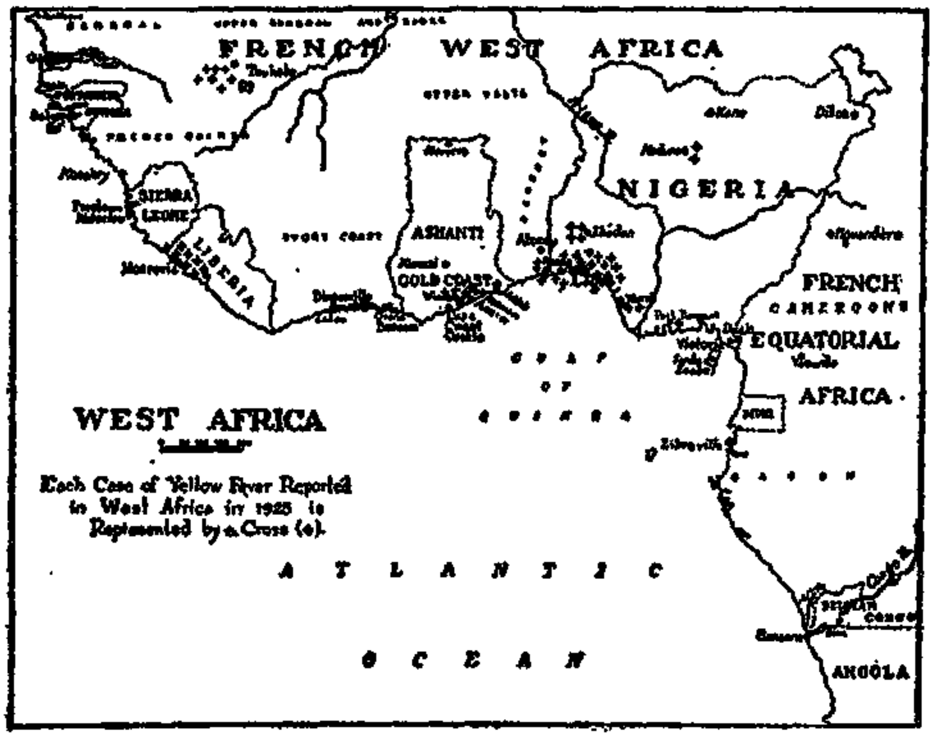

Fig. 41.—Yellow fever in West Africa in 1925. Each cross represents one case. The headquarters of the Yellow Fever Commission is near Lagos in Nigeria.

purpose have already been commenced in the Gold Coast and in two sections of Nigeria. Africa is undoubtedly the most difficult territory in which the yellow fever force has worked. Native huts are often totally dark within and it is not unusual for the occupants to bar the door and disappear when an inspector approaches. Furthermore, it is impossible to get reliable histories of illness among the natives. The African studies promise to be at once the most interesting and most challenging in the history of the yellow fever campaign.

When, ten years or so ago, the members and officers of the International Health Board surveyed the yellow fever situation, they had under suspicion an area comprising the Western Hemisphere from Mexico south to Central Brazil and the West Coast of Africa from Senegal to Angola. This zone threatened the Orient from both west and east, the chief danger being from Africa, as quarantine restrictions at the Panama Canal lessened the chance of spread across the Pacific. It is a matter of great importance, therefore, that the study of yellow fever in West Africa has now got under way.

Passing of Three Veterans

During the year 1925 occurred the deaths of three men who have played important parts in yellow fever control. Dr. Henry Rose Carter, a member of the Board's Yellow Fever Council, who was revered as dean of the yellow fever service, died on September 14, 1925. He spent his last years, for the most part bedridden, in writing a history of yellow fever of which three

SAMUEL TAYLOR DARLING

Samuel Taylor Darling, a member of the staff of the International Health Board for ten years, was killed in a motor accident near Beirut, Syria, on May 21, 1925, while participating in a malaria survey of Syria, which was being made by the Malaria Commission of the League of Nations of which he was a corresponding member.

Dr. Darling was born in Harrison, New Jersey, April 6, 1872. In 1903 he took his degree in Medicine at the College of Physicians and Surgeons in Baltimore. From 1906 to 1915 he held the post of chief of laboratories of the Isthmian Canal Commission, Panama Canal Zone. In 1913 he accompanied General Gorgas on a mission to South Africa to investigate the cause of the high mortality among workers in the diamond mines of the Transvaal and Rhodesia.

In 1915 he was appointed to the staff of the International Health Board, and for the next three years served as head of a medical commission of the Board which carried out a study of the causes of anemia among the people of Malaya, Java, and Fiji. Among the more significant facts revealed by this investigation were the relative position of hookworm disease among the causes of tropical anemia, the importance of measuring the degree of hookworm infestation by worm counts, and the value of mass treatment for hookworm disease.

During the years 1918 to 1920 he served as professor of hygiene and director of laboratories of hygiene in the Medical School of São Paulo, Brazil. Here he established a well-equipped laboratory for teaching and research and carried out extensive studies on hookworm disease.

In 1921 he was forced by illness to return to the United States, and he became a fellow by courtesy of the School of Hygiene and Public Health of the Johns Hopkins University. In 1922 he was made director of the International Health Board's field laboratory for research in malaria, located at Leesburg, Georgia, a post which he held at the time of his death. During the comparatively short period covered by his work there he opened up many new and profitable fields for research. By identifying and studying the particular species of Anopheles mainly concerned in the spread of malaria in the region, by utilizing the spleen index in children to measure the degree of infectivity, and in other ways, he brought more precise and effective methods to malaria control and inspired a note of hopefulness.

Dr. Darling possessed in eminent degree the qualities of the successful investigator—joy in the exploration of nature and the search for truth, command of methods and ingenuity in technique, knowledge of the literature of his subject, the scientific imagination and analytic type of mind. His own example, his attractive personal qualities, and his generosity secured the enthusiastic loyalty and devotion of his assistants and fellow workers.

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THE WELLBEING OF MANKIND THROUGHOUT THE WORLD

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Samuel Taylor Darling

HENRY ROSE CARTER

Henry Rose Carter, assistant surgeon general of the United States Public Health Service and member of the International Health Board's Yellow Fever Council, died at his home in Washington, September 14, 1925, following a long illness. Dr. Carter was the originator of the modern quarantine system and one of the great pioneers in yellow fever and malaria control. His discovery of the period of extrinsic incubation of yellow fever places him with Reed and Gorgas in the distinguished group of scientists and sanitarians who have made the most significant contributions to our knowledge of this disease and the methods of combating it. Walter Reed said of Carter, "His work did more to impress me with the importance of an intermediate host in yellow fever than everything else put together."

Dr. Carter was born in Caroline County, Virginia, August 25, 1852. In 1873 he was graduated from the University of Virginia as a civil engineer, and in 1879 he received his medical degree at the University of Maryland School of Medicine. In May of the latter year he entered the Marine Hospital Service (now the United States Public Health Service) as assistant surgeon.

In January, 1888, he was detailed to the federal quarantine station on Ship Island in the Gulf of Mexico. During his service there and later at other posts he succeeded in securing the adoption of uniform methods of fumigation at the various state and federal quarantine stations and the inspection and disinfection of vessels at the ports of departure.

In January, 1899, he went to Cuba as chief quarantine officer. In 1904 he was appointed to a similar post in the Panama Canal Zone. At both of these places he organized the quarantine services. He was one of the small group of men who began the fight against yellow fever in Panama in 1904. From 1905 to 1909 he served as director of hospitals in the Canal Zone. In 1915, in recognition of his distinguished work in the field of sanitation, he was commissioned as assistant surgeon general at large by a special act of Congress.

For ten years Dr. Carter was closely identified with the campaigns which the International Health Board has waged for the eradication of yellow fever. In 1915 he served as a member of the Board's Yellow Fever Commission headed by General Gorgas. From 1920 until his death he was a member of its Yellow Fever Council. Because of his intimate acquaintance with the yellow fever work of the past three decades and his position as the leading authority on the subject, he was asked by the Board to prepare a history of the disease, and to this work he devoted most of his time during his last years.

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Henry Rose Carter

essential chapters were completed. Dr. Juan Guiteras of Cuba, a former member of the Yellow Fever Council and a veteran in the work, died on October 28, 1925. He had rendered valuable service up to his retirement three years before. Dr. Samuel Taylor Darling died May 21, 1925. Because of his early experience with the disease in Panama he had been of great value as consultant pathologist in connection with the diagnosis of doubtful cases.

V

Rural Health Organization

County Health Services in the United States

An important advance in public health work in the United States during the past ten years has been the development in rural health service. The success of organized local health administration with a moderate amount of central aid and supervision supports the belief that public health must find its main strength in the local communities, even under rural conditions.

The administrative unit which is being increasingly adopted for rural health work is the county, except in those parts of the country where the governmental unit is the township. In the early stages of county health work the activities centered about general sanitation, but the scope of the work has been gradually extended to include a full program of epidemiology, infant and child hygiene, school hygiene, and laboratory service. Where special problems exist, such as malaria, typhoid fever, trachoma, hookworm disease, or goiter, special attention is being given to these subjects.

Growth of the Rural Health Movement

The appropriations for the support of county health units by state, county, and town have gradually grown. The standard of the personnel employed has been raised and the number of workers has been increased so that the health of the public in the rural areas is beginning to receive adequate protection.

As early as 1910 there was a definite trend toward organization for rural sanitation, but up to the close of 1916 only fourteen full-time county health units were functioning in the United States. At the close of 1925, there were 299 full-time county health units in operation in thirty-three states, and 80 per cent of these had been established in the preceding six years. The establishment of the work in about eight additional states will be contingent upon the passage of state laws which will permit counties to make appropriations for health purposes. Pennsylvania adopted permissive legislation in 1925.

There has been a rapid expansion in county health work in 1925 in several states, notably in Mississippi, Oklahoma, and Missouri. In certain states, such as Ohio, North Carolina, and Alabama, the period of rapid expansion has passed and the state boards of health are devoting their energies to strengthening the health units already organized, to the improvement of the service rendered, and to the standardization of procedure. In North Carolina, Alabama, and Ohio over 50 per cent of the total population is served by full-time county health units.

Supervision and Aid from the State

The Board's participation in a county health program is not considered except after an official invitation has been received from the State Board of Health, and the state health officials have expressed their willingness to assume full responsibility for the program, including the securing of substantial state and local financial support, the selection of competent personnel, the adherence to the full-time principle, and the disbursement of the funds. Although the representatives of the Board may, upon request, co-operate with the state health officials in developing initial local interest and support, the Board's official contact with the county work is not directly with the county government or

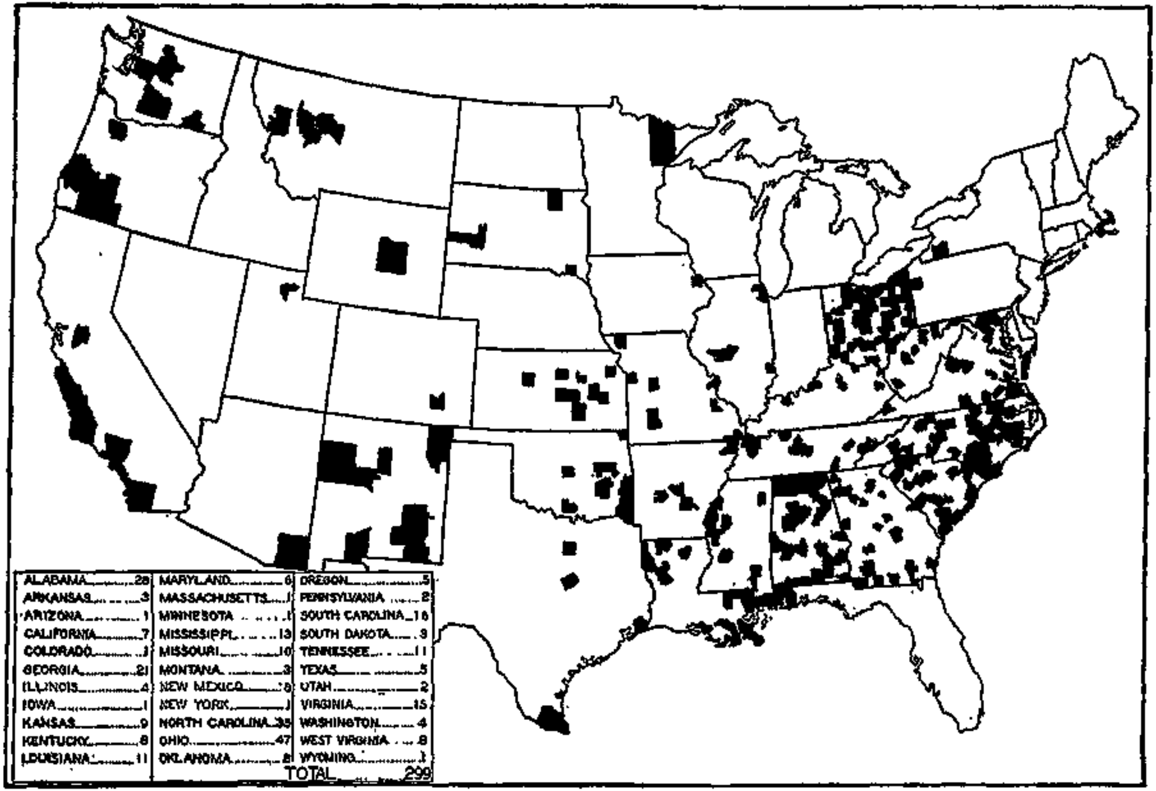

Fig. 44.—Counties in the United States having full-time health departments at the close of 1925.

staff, but with and through the State Board of Health or its officials.

The Board, since 1916, has contributed to the organization of seventy county health units. In 1925, the Board aided ninety-two units in twenty-three states. It also gave assistance to central supervision of county health work in 128 counties in fifteen states, and aided in the training of twenty-eight men representing sixteen states.

Supervision of the county health activities is the responsibility of the state health officer or his deputy, who is usually designated as state director of county health work. In initiating county health work in any state, a state director usually undertakes to supervise only three to six counties, but as the units become established and local personnel trained, one director can supervise from ten to fifteen units. The State Board of Health aids also by supplying certain kinds of expert service which it is unnecessary or impractical for each county to provide for itself.

Cost of Rural Health Units

The counties that have been selected for county health unit activities as a rule have been above the average in wealth, population, schools, roads, and in progressive spirit, and have been willing in conjunction with the state to appropriate

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Fig. 45.—Staff of a typical county health department in the United States. It includes a trained health officer, a public health nurse, a sanitary inspector, and a secretary.

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Fig. 46.—Baby clinic of a county health department in Kentucky.

from twenty-five to fifty cents per capita, or approximately a half-mill tax on the assessed value of the property of the county, for the support of the work.

The cost of health unit work varies generally from $6,000 to $20,000 annually, depending upon the population and resources of the county. The yearly cost of a unit of the size most often adopted is $10,000. Of this, the county usually provides at least 50 per cent in the beginning. The state supplies a variable amount, usually about one-fourth of the total and its appropriation remains more or less stationary. The remainder may be made up by contributions from other agencies. The maximum amount contributed by the Board to a single county is $2,500. The amount of its aid to a county unit as a rule does not exceed that provided by the state or half that given by the county. This aid is expected to diminish yearly, and the county appropriation is expected to show a corresponding increase as the work becomes established.

Trained Personnel Essential

The essential factor for successful work is a well-trained local personnel. At the outset of the development of county health work trained health officers were not always available and in some instances, where an untrained health

ORGANIZATION AND ACTIVITIES OF A TYPICAL COUNTY HEALTH UNIT IN A RURAL COMMUNITY
POPULATION 25,000, ANNUAL BUDGET $10,000

STATE HEALTH OFFICER

STATE DIRECTOR OF COUNTY HEALTH WORK

COUNTY HEALTH OFFICER

Duties

1. Direction of the Work of the Unit
2. Health Education—Lectures, Publicity Work, etc.
3. Epidemiology
4. School Hygiene—Physical Examination of School Children
5. Examination of Children in Infant Hygiene and Pre-School Clinics
6. Vaccination for Smallpox, Typhoid, etc.

SECRETARY

Duties

1. Health Education—Distribution of Pamphlets, Letters, etc.
2. Mortality Statistics and Morbidity Records
3. Correspondence, Records, Spot Maps of Contagious Diseases, Graphs
4. Distribution of Antitoxin for Indigents, in Charge of All Biologicals
5. In Charge of Laboratory Containers for Distribution to Physicians

NURSE

Duties

1. Health Education—Lectures, Mothers' Conferences, etc.
2. Prenatal and Maternity Work
3. Supervision of Midwives
4. Infant Hygiene Clinics
5. Pre-School Age Work
6. School Hygiene—Aid in Physical Examination, Stimulation of Correction of Defects
7. Tuberculosis—Regular Visits to Cases under Supervision

SANITARY INSPECTOR

Duties

1. Health Education—Motion Pictures, Stereopticon, etc.
2. Quarantine and Isolation
3. Inspection of Hotels, Dairies, Meat Markets, Public Buildings
4. Sanitary Toilet Installation and Supervision
5. Abatement of Nuisances
6. Mosquito Control Work
7. Inspection of Public and Private Water-Supply, Collection of Water Samples

officer was employed, county health units that should have been successful made little progress.

The personnel of the typical county health unit varies with the population, the budget, and the nature of the problems to be met. The director is expected to be a full-time physician having special public health training, and under him are one nurse for each 10,000 of population, one sanitary inspector for each 20,000 of population, and one office assistant. Other personnel may be added as resources and the nature of the problems demand.

A satisfactory solution has not yet been found for the problem of supplying adequate health service to the county which has a small, widely scattered population, or whose resources are so limited that a county health organization cannot be supported on the usual basis. The weak county may merge its resources for health service with those of a strong county or other weak counties, but this structure is less stable than a small organization financed by the county as the unit. An exceptionally large subsidy from the state may simplify the problem.

County Health Units in Brazil

A number of countries are recognizing the necessity for local rural health service and some are trying out schemes similar to the county health unit of the United States. In 1925, the Board continued to co-operate in Brazil in the operation of five county health units in the state of Minas Geraes and four units in the state of São Paulo. In the latter state four additional posts were installed during the year. In the state of Bahia personnel was lent to help in the establishment of two units.

An idea of the total volume of work done by the Brazilian county health units during 1925 can be gained from a few items in their reports. The five units of Minas Geraes made 23,292 sanitary inspections, 23,395 laboratory examinations, 14,540 hookworm treatments, 53,121 treatments for venereal disease, and 62,037 vaccinations against smallpox. Under their influence 123 houses were connected with the sewer, and 448 latrines were built. The eight units of São Paulo made 25,161 sanitary inspections and 23,464 laboratory examinations, of which 85 per cent were for intestinal parasites. Of the treatments given, 24,338 were for hookworm disease, 46,271 for trachoma, and 1,890 for venereal diseases. The smallpox vaccinations numbered 12,768, and those for typhoid fever, 3,148. The units brought about the connection of 559 houses with the sewers and the building of 1,331 latrines. In São Paulo the former Section of County Hygiene became an official department of the State Sanitary Service.

Rural Health Work in Europe

During the past year the Board has, to a considerable extent, transferred its assistance from central governmental health agencies to local health services. A rural health service was started in the district of Hartberg, **Austria**, on July 1, with assistance from the Board. The director of this demonstration had previously received training under a fellowship of the Board. Before the end of the year the organization, besides carrying on educational work, was operating a tuberculosis dispensary and a child welfare station. Training was being provided for four future visiting nurses.

The rural hygiene demonstration in the district of Kvasice in Moravia, **Czechoslovakia**, was continued under the auspices of the Division for Study and Reform of Health Activities in the Ministry of Health. The bureau is being aided by the Board. Positive results of the demonstration up to the end of 1925 included the almost complete eradication of typhoid fever from this community which had long suffered from endemic typhoid fever, the conclusion of an arrangement for securing a new water-supply, and the creation of a public health center in charge

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Fig. 47.—The graduation of the first class from the School of Nursing of the National Department of Health of Brazil.

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Fig. 48.—Headquarters of the county health unit at Sertãozinho, Brazil.

of a public health nurse. These activities will be transferred entirely to the local people in 1926 and the health authorities are planning for several new demonstrations in both rural and urban communities.

In **Poland** two local health services were aided. One is the Mokotow sanitary district in the city of Warsaw, with both urban and rural features. As the School of Public Health is within its borders, this demonstration of public health work furnishes the students with opportunity for field training in malaria control and other phases of public health. A public health center has been established. Here are to be found the offices of the local health officer and complete services for the prevention of tuberculosis and venereal diseases. There are also services for the care of pregnant women, infants, and children of all ages. The site of the other demonstration is an agricultural area, about forty miles from Warsaw, the Skierniewice District. It also is available as a field training area for the School of Public Health in Warsaw. The district health officer had studied under a fellowship from the Board. The program includes the creation of a chief health center in the town of Skierniewice and smaller centers in the important villages. In 1925 the chief health center was established and work is now being

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Fig. 49.—Harvard Public Health Club, an organization of students and faculty of the Harvard School of Public Health.

developed in the villages. At the chief health center there are now functioning an infant welfare and milk station, a clinic for school children, and dispensaries for trachoma and tuberculosis.

The health service which was initiated in 1924 in the Department of Hérault in France was continued with the Board's co-operation. The chief advance during 1925 has been the creation of a central public health office in Montpellier. This is now housing all services connected with the central administration. A departmental laboratory has been opened at the central office and several smaller ones are being established at other centers. Public health nursing and communicable disease control have progressed satisfactorily. The statistical and public health education services have also been developed. The Department is now being visited by the French health officials and they are much interested in studying its organization.

Philippine Islands

At the invitation of the Government of the Philippine Islands, a member of the Board's staff made a study of rural health conditions, as exemplified in the Bulacan province. In addition he co-operated in a demonstration of school health work and, in one village, in a campaign for better sanitation. At the end of the year work was temporarily discontinued.

VI

Aid to State and National Health Organizations

Essential Bureaus of State Boards of Health

In the **United States of America** there are many state boards of health which have established sufficient bureaus or divisions to exercise most of the functions of a state health service. Some, however, have not yet been able to supply all the kinds of service that are fundamental. In helping to strengthen central divisions of state health organizations, the Board has limited its aid largely to the establishment or extension of four bureaus which would seem essential to every state board of health—vital statistics, public health laboratories, epidemiology, and sanitary engineering.

The aid to these bureaus is applied to new development, and not to the maintenance of existing machinery. Although the Board's representatives may offer suggestions when requested, they take no active part in administration of the funds granted, requesting always that the public officials formulate the plans, shape the policies, select the personnel, and direct the work. If after a fair trial the activity toward which the Board has given aid proves effective, the officials are expected to secure from the public treasury the necessary funds for maintenance. The Board's participation is temporary and limited to demonstration stages of new projects. Its object is to stimulate essential growth, encourage the employment of trained personnel, and increase the efficiency and financial independence of official health agencies.

Vital Statistics

The bureau of vital statistics is the barometer of the state health department. Without accurate mortality and morbidity records, no effective estimate can be made of the value or futility of public health effort.

It has been the aim of every state health organization to gain admission to the United States registration areas for births and deaths. This has been particularly difficult for sparsely settled states, and also for those having a large negro population. Nevertheless, the registration area has grown year by year until in 1925 only eight states were outside the registration area for deaths, and only fifteen for births. The Board aided the vital statistics bureaus of five states during 1925—Alabama, Mississippi, Montana, Tennessee, and West Virginia. This has made it possible for the bureaus to add to their personnel, and the result has in each case been increased effectiveness.

Sanitary Engineering

The supervision of public water-supplies and sewage disposal is one of the most effective ways to prevent sickness and to reduce the death-rate. The rapid growth in the number and size of towns has required an ever-increasing amount of sanitary engineering service and supervision. Water systems, sewer systems, housing regulations, the disposal of industrial wastes, have made it necessary to increase and strengthen engineering staffs. Some states have special sanitary engineering problems such as the control of oyster pollution, land drainage for malaria control, abatement of mosquito nuisances, and the control of automobile tourist camps.

All but six of the states now have bureaus of sanitary engineering. The Board, in 1925, aided five states—Colorado, Connecticut, Idaho, Montana, and Utah—in establishing bureaus of sanitary engineering on a full-time basis, and one state, Maine, was aided in holding its bureau intact and enlarging the work. In addition, nine southern states were aided in increasing their engineering staffs for malaria control. These states were Alabama, Arkansas, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Texas, and Virginia.

Epidemiology

Most of the state boards of health were established primarily to combat epidemics of disease. An outbreak of some specific disease, such as yellow fever, smallpox, plague, or cholera, aroused public sentiment and created a demand for protection. The tendency has been to concentrate on a single communicable disease, such as tuberculosis, venereal disease, or malaria, and some states have developed separate bureaus of control for specific diseases. Only a few states have an adequate epidemiological service. The general and logical tendency now is to consolidate various bureaus for specific diseases under one general bureau of epidemiology or communicable disease. During 1925 the Board aided six states—Alabama, Kansas, Rhode Island, Tennessee, Utah, and Virginia—in establishing bureaus of epidemiology or in putting this service upon a creditable basis.

The aid which has been given to the establishment or improvement of state public health laboratories will be discussed in Section VIII.

Advisory Boards and Bureaus of Sanitary Reform

In several countries of Europe temporary advisory boards or bureaus have been created in the national health services to study the public health organization and bring about improvements through recommendations or demonstrations. During 1925 the Board continued to aid such an organization in Czechoslovakia and assisted in establishing others in France, Hungary, and Poland.

In **Czechoslovakia** the organization is known as the Division for Study and Reform of Public Health Activities, and it is part of the Ministry of Public Health and Physical Welfare. Its

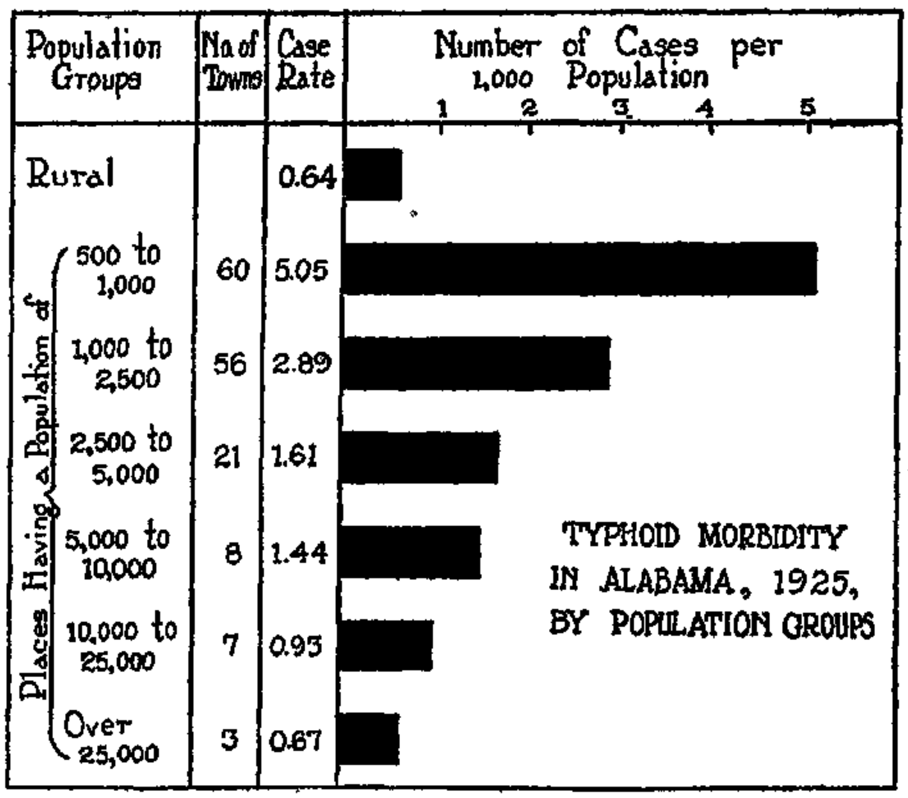

Fig. 50.—Typhoid morbidity in Alabama in 1925, classified according to density of population by the Bureau of Epidemiology of the State Board of Health. The villages and small towns have the most typhoid fever; the strictly rural regions and the large cities have the least.

activities during 1925 included popular health education, rural hygiene demonstrations at Kvasice and the districts of Kladno and Lany, and studies of nutrition accompanied by popular education on this subject. Further work was done on the proposed unified health law for the entire Republic. A survey of the lupus situation in Czechoslovakia was begun and almost completed during the year. Fifteen hundred cases of the disease were located. The purpose of this study was to determine the incidence and distribution of the disease, so that proper steps could be taken for the care of lupus patients. Studies with regard to the epidemiology of scarlet fever and typhoid fever were begun. These studies are being carried out on a rather large scale, and it is proposed to use them as a foundation for systematic studies which will be conducted regularly in the epidemiological subdivision of the State Public Health Institute. Another investigator began during the year a survey of child health care in the entire Republic. The Division also created a special section for co-operation with the Health Section of the League of Nations. Plans for the development of additional public health demonstrations in different parts of the Republic were developed during the year.

A Bureau of Sanitary Reform was created in

Hungary on June 9, 1925, by decree of the Ministry of Public Welfare and Labor, but it had already been functioning since the first of the year. The Bureau studied the general health organization of Hungary, and recommended reducing the number of health districts, so that full-time health officers would be possible. Believing that it was necessary to win the confidence and approval of the people of Hungary, a regular campaign of public health education was established. This included a country-wide press publicity campaign; a revival of public health associations; the publication of a weekly health bulletin, especially for newspapers; the preparation of popular health lectures illustrated with lantern slides or films; and the distribution of pamphlets on public health subjects.

The Bureau of Sanitary Reform has collaborated with the Central Bureau of Statistics, and information with regard to births, deaths, infant mortality, and tuberculosis mortality has been prepared, showing the situation over a period of years for each community in the country. Plans have been made so that in the future this information will be brought up to date yearly, and the public health authorities will have available the information for each unit of population. A special study of the tuberculosis situation in Hungary has been started, and it is planned that the data acquired will be used as a basis for the development of the national tuberculosis program. Investigation of the health conditions in factories was undertaken for the purpose of obtaining data which later would be used in the preparation of a new law on industrial hygiene. An extensive study with regard to the Dick test was undertaken. Seventeen thousand such tests were made and a program was undertaken for the immunization of children susceptible to scarlet fever. The Bureau also acted as the point of contact between the Health Section of the League of Nations and the Ministry of Public Welfare and Labor.

In **Poland** the Minister of the Interior organized an Advisory Board which is attached to the central health services. The work of this Board during 1925 included a study of the public health laws of different parts of Poland, looking toward a development of a single public health law which would be applicable to the entire Republic. The prevalence of trachoma resulted in the Advisory Board's undertaking a special investigation of this important disease. The study has already led the public health authorities to adopt a much broader program against trachoma, and marked increases in the appropriations for this purpose have been made. It

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Fig. 51.—The Ubiquiteers, the student organization of the School of Hygiene and Public Health of the Johns Hopkins University. Fourteen countries are represented by the group in the picture

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is estimated that between 10 per cent and 15 per cent of Polish school children are suffering from trachoma. New dispensaries are now being established and the number of beds for trachoma patients is being increased. An epidemiological investigation of typhoid fever has been begun.

The Advisory Board also decided to carry on a tuberculosis survey. The city of Bialystok was chosen for this purpose. The object of this study is not merely to assist the city of Bialystok in determining its tuberculosis prevalence and working out a program of control of this disease, but also to make a demonstration of the methods of tuberculosis surveys and the development of tuberculosis programs throughout Poland.

In **France** the National Office of Social Hygiene was organized in January, 1925 in the Ministry of Labor, Hygiene, and Social Welfare. This Office, unlike the Board referred to above, is of a permanent character. Its chief function is to develop a public health policy in France, and it has begun a study of both public and private health organizations in the different French departments. Thirty-two departments have already been surveyed and forty-six others are in process of being studied. On the completion of this survey a general report with regard to the

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Fig. 52.—School of Hygiene and Public Health of the Johns Hopkins University. This new building was occupied at the beginning of the fall trimester of 1925.

public health in France is to be prepared by the National Office. There is a marked increase in interest in public health in France, and the Office is becoming the center for the dissemination of technical advice to departments and communities which wish to develop their public health work. The General Statistical Service of France, at the request of the Office, is making a statistical study with special reference to causes of death, and furthermore the Office is studying a plan looking toward a more exact declaration on the part of physicians of the causes of death. The Office is also serving as co-ordinating agent of public and private health agencies and has established a very close liaison with national health societies. This should prevent duplication of work and secure unification of effort. A central nursing bureau has been attached to the Office. To this bureau are delegated all questions concerning nursing schools, the organization of a central register for nurses, the active recruiting for pupil nurses, and co-operation with the Office in the development of public health nursing programs in its departments.

Completion of Aid in Tuberculosis Control in France

During 1925, the Board completed its work under the agreement to assist the Comité

National de Défense contre la Tuberculose, which had taken over activities of the Commission for the Prevention of Tuberculosis. The Comité is co-operating closely with the departments and assisting them to develop their tuberculosis programs. One feature of the work of the Comité was the introduction into France during 1925 of the tuberculosis Christmas seal as a method for securing funds for national and local antituberculosis activities. A demonstration was made in the department of Meurthe-et-Moselle and was extremely successful. Nearly three million seals were sold. In 1926 it is planned to organize seal sales in other departments and ultimately it is hoped this activity will be nation-wide. By the end of 1925 France had achieved a constructive tuberculosis program, 600 tuberculosis dispensaries, 30,000 hospital beds for tuberculosis patients, and 700 tuberculosis nurses.

VII

Promoting Public Health Education

Summary of the Year's Activities

The advance of public health can be rapid and effective only if specially trained men are available for the important posts in the governmental health services. The supply of persons fully qualified to direct a health department or take charge of one of its main divisions falls so far short of the need that the Board has devoted a considerable portion of its resources to the education of present and future health workers.

The Board participated in public health education in 1925 principally in six ways. The first was by giving aid to schools or institutes of hygiene or toward the teaching of hygiene in other educational institutions. The Board's contribution consisted of payments for land, buildings, equipment, salaries, or endowment. Schools of public health were aided in Toronto, Boston, London, Warsaw, and Zagreb; institutes of public health in São Paulo, Prague, Copenhagen, Oslo, Budapest, and Belgrade; teaching of public health in medical schools in Boston and Bahia; a college of tropical agriculture in Trinidad.

The second method was by furnishing health officials with opportunities for additional training and observation. This was often done by making it possible for them to visit countries or states other than their own to observe the public health measures which were being applied.

The third method was the training of health workers by co-operating in the support of conferences or special courses of study.

The fourth method was co-operation in the maintenance of field training stations where observations may be made and useful experience gained. Nine such stations were aided in the United States, Brazil, France (Corsica), Czechoslovakia, and Poland.

Co-operation in the training of public health nurses was the fifth method. Brazil and France were given such assistance.

The sixth and last method was the granting of fellowships for the purpose of training men to fill important public health positions under their governments or to prepare them for teaching public health. Such fellowships were granted to 147 persons. In addition approximately fifty resident fellowships were granted in Hungary, Italy, and Yugoslavia for study within the candidates' own countries.

Aid to Schools of Hygiene

A pledge was made by the Board to contribute $650,000 toward the cost of building, equipping, and endowing a school of hygiene and public health in the University of Toronto. Before the end of the year work had been begun on the foundations. The new school building will provide accommodation for the Department of Hygiene and Preventive Medicine, the Connaught Laboratories, and the Department of

Public Health Nursing. Payments were continued toward the operating expenses of the Harvard School of Public Health in Boston.

Teaching Public Health in Medical and Other Schools

The teaching of preventive medicine and public health has been promoted in several medical schools. The services of the Board's representative in **China** have been lent to the Peking Union Medical College. In addition to his duties as head of the Department of Hygiene and Public Health he is serving as consultant to the Public Health Demonstration established in one ward of Peking by the College and the Central Epidemic Prevention Bureau under the auspices of the Metropolitan Police Department. He was consulted also in the development of plans for the Department of Public Health of the Peking Metropolitan Area. This Department was created in August and serves a region which excludes Peking but embraces twenty counties with a total population of 4,000,000 people.

Assistance was given to the development of a program for teaching preventive medicine in all departments of the Harvard Medical School in **Boston**. Payments were commenced under an arrangement by which the Board is to support a chair of sanitation and tropical hygiene for a period of years in the Imperial College of Tropical Agriculture at St. Augustine, **Trinidad.** Laboratory equipment for use in teaching was purchased for the Department of Hygiene and Legal Medicine in the Faculty of Medicine at Bahia, **Brazil.**

Institutes of Hygiene

The Institute of Hygiene at **São Paulo** was officially taken over by the state of São Paulo on January 1, 1925. For seven years the Board had been co-operating in the establishment of this institution. A pledge was made to contribute toward the erection and equipment of a building for the institute near the new medical school at São Paulo.

The State Public Health Institute at **Prague,** toward which the Board has contributed, was opened on November 5 and the first four divisions were put into operation. These divisions produce sera and vaccines and make bacteriological examinations. It is expected that the rest of the institute will be completed within the next three years.

A grant was made toward additional buildings and equipment for the State Serum Institute at **Copenhagen.** This institute serves as a public health laboratory for all Denmark and in the future is to play an important rôle in the training of public health personnel. Before the end of the year construction was well under way. Payments were continued toward the erection and equipment of the building of the School of Hygiene and Tropical Medicine in **London**, and also toward the current operating expenses of the school while the new building is under construction. Assistance was given toward the establishment of an institute of hygiene in **Budapest.** Construction of the buildings began in October.

A pledge was made to contribute toward the development of the State Serum Institute at **Oslo.** This institution will serve Norway in the same manner as the Institute in Copenhagen serves Denmark. At the School of Public Health in **Warsaw** the Board provided the salary and travel expenses of a biochemist. Government provided funds for the completion of the building for this School which is one of the four departments of the Institute of Public Health. The School has been functioning in the unfinished building. Funds were donated to the Government of Yugoslavia for the equipment of the Central Epidemiological Institute at **Belgrade.** The Institute will provide laboratory service, direct other public health laboratories, and undertake communicable disease control. In addition it will be used as a training center for personnel for the health services. The Government of Yugoslavia also received from the Board a contribution toward the building and equipment of a school of public health at **Zagreb.**

Training for Health Officials in the United States

Courses in public health have been developed at several of the large universities of the United States, but it must be admitted that sufficient numbers of men of high type have not, as yet, been attracted to this field of work. The situation is anomalous in that there is a great demand for public health administrators, with an inadequate supply of trained men, and with no prospect of immediate change in the situation.

To meet this temporary but very real need the Board has granted fellowships in public health to state appointees. These men are given one year of training at an accredited school of public health. A fellowship is granted on the recommendation of the State Board of Health with the understanding that the appointee will be given real administrative responsibility after he has completed his period of training. During the past five years, fifty-seven fellowships have been granted to candidates from twenty-three different states. As a rule these men had already shown their aptitude for public health work before they received their appointments, and the increased energy and initiative which they have demonstrated after their return to state work, following their public health training, have been gratifying. Virtually all of the men are now occupying important administrative positions in various parts of the United States.

Field Training Station in Alabama

County health work in the United States has shown a more rapid development than any other phase of public health activity, and the demand for directors of county health units has greatly exceeded the supply. It has been customary to select for these positions recent medical graduates well trained in medical science, with the hope that they would develop into good public health administrators. In some instances this hope has not been fully realized, not because of lack of ability in the director, but because of lack of training.

This condition has been met in part by the Alabama State Board of Health and the International Health Board through the establishment of a field training station at Andalusia in Covington County. During the year the station was transferred to the quarters of the State Board of Health in Montgomery. This station was established primarily for the field training of

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Fig. 53.—Students' laboratory of bacteriology in the School of Hygiene and Public Health, the Johns Hopkins University.

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Fig. 54.—Laboratory of statistics in the School of Hygiene and Public Health.

staff members of the Board, but, beginning in 1924, at the request of state health officers, some of their newly appointed county health officers were given one to three months' field training before they undertook their new work. It is obvious that this is a temporary measure, for one to three months in the field can give these men only a superficial insight into the general principles of public health. It is very much better, however, than no training at all, and has enabled these men to organize their new work with fewer mistakes and greater promise of success than formerly. The plan works quite satisfactorily if the newly appointed county health officer has subsequent capable supervision by a well-trained state director of county health work.

The Andalusia field training station was established in October, 1922. During the first year very few state appointees were given training. During the years 1924 and 1925 thirty-five prospective county health officers were given preliminary field training at the station. These men are now distributed in seventeen different states and in most instances are doing successful work.

Correspondence Courses and State Health Conferences

Another temporary measure to supplement the training of county health officers has been the

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Fig. 55.—Library of the School of Hygiene and Public Health of the Johns Hopkins University.

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Fig. 56.—Laboratory of Medical Zoology, School of Hygiene and Public Health.

establishment of correspondence courses and health institutes. In Ohio the Board has aided a very successful and extensive correspondence course for county health officers which was established in January, 1922. A comprehensive outline is given the men with a definite program of collateral reading and a series of written examinations. One hundred and sixty-six health officers have enrolled in the course and forty-three have completed the full two years' work and have been given certificates.

Mississippi, Ohio, and Virginia have conducted health institutes for health workers, in which all assemble for a few days of intensive training under capable leadership.

This development in public health education is being reflected by an improvement in the quantity but more particularly in the quality of public health work. Those county health organizations have been exceptionally stable which have been directed from the beginning by promising county health officers who have had preliminary field training. The tendency is growing among state health officers to postpone the final organization of new county health units until suitable directors having some special training are available. In Alabama, and in Virginia during 1925, county health nurses and sanitary inspectors have also been given preliminary field training by the state before being assigned to their new work.

Travel Aid to Health Officials

A free interchange of ideas between health officers has proved of great aid to the individual executives in solving their problems. Many times a state health officer becomes somewhat perplexed because of the complexities of his problems and the apparent impossibility of meeting all the needs he is called upon to fill. But there are executives of other states who have had some of the same difficulties and have succeeded in solving them. A visit by a state health officer to health officials of other states will often clarify a difficulty that has proved most troublesome or perhaps furnish suggestions that will enable him to reshape his organization or modify his plans so as to meet the situation.

In many instances, in the United States, state budgets do not contain funds for travel of executives outside their own state. To meet this need, during 1925, the International Health Board granted requests for travel aid to ten officials, either heads of state health departments or directors of their bureaus, to visit other state health organizations in order to observe methods of procedure and to improve their own organization. The executives have regarded these visits as of great aid to them in advancing their work.

Travel of European Health Officers

Opportunities for travel and observation of health activities in Europe were given to twelve European health officials representing the following eight countries: Austria, Bulgaria, Czechoslovakia, France, Hungary, Italy, Poland, and Yugoslavia. Most of these officials were administrators interested in the broad field of public health, but some were investigating special fields. Two were looking into malaria control methods, and one was investigating the following: tuberculosis control, public health laboratories, and the architecture of institutes of hygiene.

Visiting Health Officials

For some years it has been the Board's policy to invite outstanding health authorities to visit the United States and other countries to observe public health activities. The benefits from the resulting exchange of ideas accrue to the health officers visited as well as to those coming from abroad. In 1925 eleven representatives of seven countries made tours of health agencies in the United States as guests of the Board. Four of the visitors came as a commission from the province of Quebec, six were individual health officers from four countries—Denmark, Irish Free State, Ceylon, and Porto Rico—and one was a teacher of public health from Trinidad.

Field Training Centers

The activities and purposes of the field training stations assisted or supported by the Board have already been set forth in this report and will only be summarized here. They have proved invaluable in giving actual or prospective health workers an intimate and practical knowledge of their chosen work. A field training station for health officers was assisted in **Alabama,** and a malaria field station was maintained in **Leesburg,** Georgia. The Board co-operated in establishing a malaria field station in **Corsica,** and in the Mokotow and Skierniewice districts in **Poland.** In **Brazil** and in the **Philippine Islands** field courses in malaria control were given with co-operation from the Board, and in **Siam,** the Board's representative helped arrange courses in public health and hookworm control.

Public Health Nursing

The value of the public health nurse is becoming more and more appreciated. She has become indispensable in many phases of local health work and her activities are a potent force in winning popular confidence in the health organization. With the development of rural health work, the demand for public health nurses is rapidly increasing.

The usual training of a nurse does not fit her adequately for public health nursing, any more than a course in medicine is sufficient preparation for the position of health officer. Realizing this, the Board has given assistance to projects for training public health nurses.

In **Brazil** the Board is continuing to co-operate with the National Department of Health in developing a public health nursing service and maintaining a school of nursing in the Hospital Gerál de Assistencia. An appropriation was made for remodeling and equipping a building to be used as a nurses' home and also for building at the hospital a pavilion for the nurses in training with classrooms, laboratories, and lecture hall.

Among the outstanding events of the year in the development of nursing in Brazil were the graduation of the first class from the School of Nursing, the addition of a Brazilian graduate nurse to the teaching staff, the replacement of a number of health visitors by fully trained public health nurses, and a demonstration of public health nursing during the smallpox epidemic. A course in public health nursing was commenced on April 1. Five Brazilian graduate nurses were given fellowships for study in the United States, the purpose being to train them so that they can assume leadership in the profession of nursing in Brazil.

In **France** the Board continued to support a Bureau of Public Health Visiting, which had originated as a part of the work of the Commission for the Prevention of Tuberculosis in France. Subventions were given by the Bureau to several schools of nursing, resident scholarships were awarded to undergraduate nurses, the travel expenses incidental to the inspection of nurse training schools were defrayed and the activities of public health visitors were supervised. Most of the functions of this bureau were taken over during the year by the newly established Central Bureau of Nurses of the National Office of Social Hygiene. An agreement was entered into by which the Board will contribute toward the expenses of this Central Bureau of Nurses for a period of five years.

Fellowships

Not infrequently a government has need for a man to take charge of an important part of its public health program, but is unable to find anyone with the required special knowledge. Under such circumstances the Board is inclined to award a fellowship to some promising resident of the country, provided that government recommends him and assures him an important public health post on his return from his studies. The Board's interest is in the position to be filled and the public which will be served rather than in the individual awarded a fellowship. Fellowships are granted for not more than one year, but some are renewed.

In 1925 the Board awarded a total of 147 fellowships. Of these, fifty-eight were allotted in the Americas, including twenty-nine in the United States; seventy-one went to Europeans, and eighteen to the East. In addition to these fellowships, fifty resident fellowships were awarded for study within the student's own country. Eleven of these fellowships were allotted to Hungary, four to Italy, and thirty-five to Yugoslavia. The tabulation on pages 270–272 shows essential data regarding the persons holding fellowships in 1925.

VIII

Public Health Laboratory Service

Importance of the Laboratory

A public health laboratory is a necessary part of a modern health department. It helps physician and health officer to recognize many communicable diseases with greater certainty—

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Fig. 57.—Building being erected at Budapest to house the State Institute of Hygiene of Hungary.

an essential matter in disease control. It also serves the health officials in their epidemiological investigations and makes scientific disease prevention possible. Laboratories are so important to public health organizations that the Board has assisted in their establishment or development in many countries. Mention has already been made of institutes of public health which were started or strengthened with the Board's assistance in 1925. Public health laboratory work is one of the chief functions of each. Aid was given also in the development of public health laboratory service in twelve states of the United States and in Costa Rica, Nicaragua, Salvador, Guatemala, China, and the Philippine Islands.

Laboratories in Central America

In **Costa Rica** a laboratory was established in the National Health Department with the Board's assistance. It began to function on April 1, 1925, and in the first six months it had received specimens from approximately 75 per cent of all the practicing physicians of the country. On October 1 a representative of the Board, who had supervised the organization of the laboratory, was withdrawn and a director who had studied under a fellowship of the Board took complete charge. By the end of the year the laboratory had made 13,194 examinations.

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Fig. 58.—Some of the buildings of the State Public Health Institute of Czechoslovakia in Prague.

The laboratory which is being maintained in **Nicaragua** with the help of the Board and under the supervision of its representative became the Section of Laboratories and Research in the new National Health Department. The central laboratory was situated in Managua and branches were maintained in Matagalpa, Granada, Leon, Rivas, Chinandega, and Corinto. Within the year the central laboratory and its branches made 41,547 examinations. Of these, 14,548 were made in the central laboratory. In **Salvador** the laboratory previously established with the Board's help is being maintained solely by Government, but the Board's representative in Nicaragua is available for consultation with regard to the development of the laboratory service.

In **Guatemala** the Board continued to contribute toward the support of a small diagnostic laboratory. Nearly every physician in the city of Guatemala is making use of it.

Assisting Laboratories in the East

The Board's representative in **China** served during the year as a member of the International Committee of the Central Epidemic Prevention Bureau. The principal work of the Bureau in 1925 was the manufacture of biological products at its laboratory in the Temple of Heaven.

In the **Philippine Islands** the Board furnished the services of an acting chief of the laboratories of the Biological Division of the Bureau of Science. He was active in making public health laboratory investigations and in popularizing the use of the laboratory by physicians. His two-year assignment ended in May, 1925.

Public Health Laboratories in the United States

Every state in the United States has attempted to provide public health laboratory service. In some states the service is extensive and of a high grade. In the states of Michigan, New York, Massachusetts, and North Carolina for example, not only is there an extensive diagnostic service, but biological products are manufactured by the state and distributed at cost or free of charge. In a few states the work is conducted by medical schools or other educational institutions, but under this arrangement the services rendered do not as a rule prove so satisfactory as when the laboratory is a bureau of the state health service and has its central laboratory close to the headquarters of the other bureaus with which it cooperates.

During 1925 the Board aided in enlarging or reorganizing the central laboratories of ten states: Arkansas, Connecticut, Maine, Missouri, Montana, Oregon, South Carolina, Tennessee, Texas, and Utah; and toward the establishment of branch laboratories in three states, Alabama, Virginia, and Tennessee. In states with large areas the establishment of the branch laboratories has been remarkably successful in extending the amount of service rendered and making it more evenly available throughout the area served. In certain specific tests, as for the diagnosis of diphtheria, the branch laboratory has given invaluable aid to the rural physician who was formerly far from the central laboratory. The ideal of the branch laboratory system is to locate the branches in strategic points and in sufficient number so that no physician in the state will be more than five hours by train from laboratory service.

IX

Co-operation with the League of Nations

International Conference of Health Officials

During the year 1925 the Board continued to co-operate with the Health Section of the League of Nations through contributions toward the international interchange of public health personnel, and the epidemiological and public health intelligence service.

The program for international interchanges was started in 1922, and up to November, 1925, 388 health officials from forty-eight different countries had participated. These interchanges consist of courses of travel studies lasting about seven weeks and include lectures by the technical experts and responsible health officials of the countries visited, and also inspection trips. They are held in widely separated parts of the world and are attended by representatives from many countries.

Within the year, four such general collective interchanges were held in Great Britain, Belgium, Yugoslavia, and Japan, and a fifth was arranged for a special group from Latin-America. This last-mentioned group made a tour which included visits to Cuba, the United States, Canada, and certain European countries. In addition to these five courses of travel study there were two specialist interchanges, one for factory sanitary inspectors and the other for port medical officers on the Mediterranean Sea. Individual missions were provided for health officials from thirteen countries.

The interchange in England was held in February and March and was attended by fifteen representatives of thirteen countries. The one in Belgium took place in May and June, and fourteen countries were represented. At the interchange in Yugoslavia in May, June, and July, there were sixteen participants from thirteen countries. The fourth collective interchange took place in Japan from

October to December and was attended by seventeen medical officers of fourteen countries of the East. In the study-tour for Latin-American health officials ten countries were represented.

The specialist interchange in industrial hygiene took place from March to May and was attended by inspectors of labor conditions from nine countries. They visited Belgium, France, Great Britain, and the Netherlands. The interchange for port health officers of the Mediterranean brought together representatives of nine countries. They made a tour of Mediterranean ports from November to December.

Epidemiological Intelligence Service

The Board continued its contributions toward the Epidemiological and Public Health Intelligence Service in accordance with its five-year agreement. The service collected and published current epidemiological information from all European countries except Albania and Portugal, from all North America and Australasia, and from practically all countries in Asia and Africa which issue such data. Special epidemiological and statistical investigations by individuals were completed and reports were prepared on the organization and work of the health services of various European countries. Handbooks on statistical services, monographs on health organization, and special studies were published. Groups of experts continued to study methods of improving the comparability of international medical statistics and of standardizing statistical classification.

In April an interchange of vital statisticians was held under the auspices of the Epidemiological Intelligence Service. It was the third of these meetings for the study of medical statistics. Representatives from thirteen countries participated. The main subject under consideration was the classification of causes of death. Statistical offices in Denmark, Sweden, Norway, Scotland, England, the Netherlands, and Switzerland were visited.

Far Eastern Bureau

The outstanding event of 1925 in the development of the Epidemiological Intelligence Bureau was the establishment of an office in Singapore, to be known as the Far Eastern Intelligence Bureau. A preliminary conference, held in February in Singapore, was attended by representatives of twelve Eastern governments. The bureau came officially into existence on March 1. Reports are telegraphed from the bureau each week. They contain information with regard to health conditions in forty-seven ports of the East. A monthly report also is published.

Publications

During the year 1925 staff members and others directly associated with projects in which the Board participated made the following contributions to public health literature, most of them in the form of articles published in medical journals that are widely circulated among persons interested in medical and public health topics:

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SWEET, W. C. Notes on methods of diagnosing hookworm infection and egg-counting methods. *American Journal of Hygiene*, July, 1925, v. 5, pp. 497–507.

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Fellowships Operative During 1925

Key to Subjects Studied

1. Public health administration
2. Public health laboratory service
3. Sanitary engineering
4. Vital statistics
5. Epidemiology
6. Public health nursing
7. Child hygiene
8. School hygiene
9. Industrial hygiene
10. Tuberculosis
11. Oral hygiene
12. Mental hygiene
13. Malaria
14. Venereal diseases

Traveling Fellowships

Brazil 14

Araujo, H. C. S., M.D. [1]
Barreto, J. de B., M.D. [1, 9]
Castro, Z. L. [6]
DeMello, E. J., M.D. [1]
Fontenelle, J. P., M.D. [1, 5]
Fraenkel, Edith [6]
Gonzaga, A. G., M.D. [1, 6, 7]
Lessa, G. de S., M.D. [1, 7]
Rangel, E., M.D. [4]
Reys, L. M. M. [6]
Ribeiro, M. do C. [6]
Salinas, O. C. [6]
Thenn, L. A. de B. [6]
Torres, O., M.D. [3]

Bulgaria 9

Abadjieff, B., M.D. [2]
Balkansky, I. G., M.D. [1]
Drensky, K., M.D. [1, 13]
Guntcheff, S., M.D. [7]
Koitcheff, N., M.D. [4]
Michailoff, A., M.D. [2]
Radkoff, R., M.D. [10, 14]
Russeff, C., M.D. [1, 14]
Stamoff, D., M.D. [1]

Canada 8

Best, C. H., B.A., M.A., M.B. [2]
Cyr, R., B.A., C.E. [3]
Eagles, G. H., M.D. [2]
Graham, A. H., M.D. [1]
Laurin, Z., B.A., M.D. [2]
Middleton, F. C., M.B. [1]
Parrot, P., M.D. [5]
Raymond, I. [6]

Ceylon 4

Godlieb, E. S., L.R.C.P., L.R.F. P.S., D.T.M. [1]
Kelaart, H. N., L.M.S. [1]
Rustomjee, K. J., M.R.C.B., L.R.C.P. [13]
Wickremesinghe, W. G., L.M.S. [1]

China 2

Dzen, M. Y., M.B. [2]
Wu, Lien Teh, A.B., M.A., M.B., B.C., M.D. [1]

Colombia 1

Concha, R. [4]

Costa Rica 1

Guerrero, J. [4]

Czechoslovakia 7

Basar, S., M.D. [2]
Becka, J., M.D. [2]
Drbohlav, J., M.D., D.P.H. [2]
Hruska, F. [2]
Netusil, F. J., M.D. [4]
Pribyl, J., M.D. [11]
Vanicek, F., M.D. [3, 10]

Denmark 1

Larsen, S. A., M.D. [2]

The Netherlands 1

Walch, E. W., M.D., D.P.H. [1]

Hungary 13

Aszodi, Z., M.D. [2]
Czaran, P. [8]
Ernst, Z., M.D. [3]
Follman, J., M.D. [1]
Gaal, A. C., M.D. [1, 5]
Gortvay, G., M.D., C.P.H. [9]
Hevizy, T., M.D. [1]
Karacsony, G., M.D. [1]
Kiss, L., M.D. [1]
Lovrekovich, S., M.D. [3]
Nagy, A., M.D. [2]
Stasiak, A., M.D. [2]
Tomcsik, J., M.D. [3]

India 2

Mehta, A. R., B.Sc., M.B.B.S., D.P.H., D.T.M. [2]
Sokhey, S. S., B.Sc., M.A., M.B.B.S., D.T.M. [2]

Irish Free State 4

Carroll, J. D., B.Sc., M.B., B.Ch., B.A.O. [1]
Condy, R., M.B., B.Ch., B.A.O., D.P.H. [1]
Dennehy, J. J., M.B., B.Ch., D.P.H. [1]
Harbison, J. A., M.B., B.Ch., B.A.O., D.P.H., M.D. [1]

Italy 1

Marginesu, P., M.D. [3, 13]

Mexico 1

Zozaya, J., S.B., M.D. [2]

Nicaragua 1

Perez, J., B.Sc., M.D. [2]

Palestine 1

Rahmeh, H. A., M.D. [1]

Panama 1

Paredes, G. G., M.D. [2]

Philippines 3

Gomez, F., A.B., M.D. [3]
Militar, R. [6]
Vergara, J. J., A.B., M.D. [12]

Poland 15

Babecki, W. G., M.D., D.P.H. [1, 8]
Bohuszewicz, Z. [9]
Kacprzak, M., M.D., D.P.H. [1, 4, 6]
Karwowski, C. M. A., M.D. [1, 8]
Lewy, Stefan, M.D. [1]
Lubczynski, J., M.D., D.P.H. [7]
Nowakowski, B.A., M.D. [1, 6]
Pietraszewski, S., M.D. [1, 6]
Przylecki, H. [3]
Rudolf, Z., C.E. [8]
Ruszkowski, M., Ph.D. [9]
Ryder, K., M.D., D.P.H. [1, 7]
Sierakowski, S. W., M.D. [2]
Szniolis, A.B. [8]
Tubiasz, S., M.D. [1]

Porto Rico 1

Morales, E. G., M.D. [1]

Salvador 1

Osegueda, F. J. [2]

Siam 6

Boriraksh, P., M.D. [1]
Payabal, L. B., M.D. [1]
Redfield, J. R. L., M.D. [1]
Vallabhakorn, M. C., M.D. [1]
Vidhikar, L. V., M.D. [1]
Vitivetya, L. C., M.D. [1]

Spain 1

Pascua, M., M.B., M.D. [4]

United States 29

Baity, H. G., A.B., B.S. [3]
Beck, M. D., M.A. [3]
Benning, C. H., M.D. [1]
Crouch, J. H., M.D. [1]
De Porte, J. V., A.B., A.M., Ph.D. [4]
Enneis, W. H., M.D. [1]
Freese, H. L. [2, 6]
Hays, H. R., M.D. [1]
Hazel, O. G., Ph.G., B.Sc., Ph.C. [2]
Jones, D. R., Ph.C., B.S., M.D. [1]
Kane, J. P., M.D. [1]
Kitchens, F. E., M.D., B.S. [1, 6]
LaForge, E. M. [6]
Lanpher, H. A., M.D. [1, 6]
McMurry, E. N. [4]
Montgomery, F. C. [6]
Morrison, A. R. [6]

Morton, R. J., A.B., M.S. [8]
Oilar, A., M.D. [1, 5]
Saphro, E. M., B.A., M.D. [1, 6, 7]
Stewart, H. C., B.S., M.D. [1]
Straut, A. H., B.S., M.A. [3]
Sunkes, E. J., B.S., M.S. [2]
Tao, S. M., B.A. [3]
Tewksbury, R. B., S.B., C.P.H., D.Sc. [1, 4]
Welling, W. C., B.A. [4]
Whitfield, R. N., M.D. [4]
Williams, L. L., M.D. [1]
Winchester, M. E., M.D. [1]

Yugoslavia 17

Berlot, J. A., M.D. [2]
Mersolj, V., M.D. [1, 6]
Miletic, R., M.D. [5]
Militchevitch, A. P., B.Sc. in C.E. [9]
Pavlovic, D. A., M.D. [5]
Petrik, M., Engineering diploma
Popovitch, J., M.D. [1]
Rankov, M., M.D. [2, 5]
Rasuhin, J., M.D. [4]
Ristovic, D., M.D. [7]
Rogina, B. [3]
Saulic, S., M.D. [1]
Savic, V., M.D. [10]
Simec, A., M.D. [1]
Simic, C. P. [2, 13]
Stanarevic, D., M.D. [2]
Yovanovitch, M., M.D. [3]

League of Nations 2

Kusama, H., M.D. [1]
Pantaleoni, M., M.D. [1, 13]

Resident Fellowships

Hungary	11
Italy	4
Yugoslavia	35
Total	50

STATISTICAL TABLES

TABLE I

NOTES ON TABLE 1

1. Table 1 on the following pages presents a concise statistical summary —by the main geographical divisions of the work, by states and countries, and by years—of the persons examined and treated in the world-wide campaign for the relief and control of hookworm disease aided by the International Health Board. It shows that in the sixteen years from 1910 to 1925, inclusive, a total of 5,161,668 persons have been examined in forty[1] different states and countries, of whom 3,053,442, or 59.2 per cent, were found infected. A total of 5,110,359 persons were given at least one treatment; while 2,687,640, or 52.6 per cent, received two or more treatments.

2. Differences between figures which appear in this report and in the 1921 and earlier reports arise (1) from the fact that Table 1 must be prepared for publication each year before final statistical data are received from all areas, and (2) from the further fact that in areas where mass treatment has been followed in previous years the number of persons examined and found infected was estimated on the basis of the findings for those actually examined in preliminary surveys. In the following table the figures represent only those actually examined. It follows, therefore, that for some countries the number of persons treated is in excess of the number of those examined and found infected.

3. The figures in this table do not in all cases represent the exact numbers examined and treated in each country during the calendar year. The statistics show, rather, the total number of persons examined and treated in the areas in which the work was completed and for which final reports were made to the Board during each calendar year. In other words, some of the work reported in this table for each year was actually done in the preceding year but not reported until the campaign in the sub-area was definitely completed.

4. Two treatments of a standard remedy remove, on the average, from 88 to 95 per cent of the worms harbored, depending upon the drug used and the method of administration; and it is seldom that they leave more than ten worms in the intestine. Thus, though some persons may remain lightly infected after two treatments, this number is nevertheless

[1] See footnote 1, page 288.

adequate to establish what may be termed a "practical" cure. One treatment, similarly, removes from 75 to 90 per cent of the worms.

5. Though the figures have been itemized by states and countries and by years, this has not been done primarily to invite comparison of the results for one state with those for another, or of one year's work with that of another. Too many variable factors affect the results for such comparisons to be entirely valid. For instance, among other reasons, the variations or fluctuations may be due to the density of population or severity of infection in the areas of operation, to size of working staff, or to differences in the plan of work pursued. In other instances, as in British Guiana in 1919 and Dutch Guiana in 1921, the figures may represent results for only a few months instead of a complete year.

6. The table includes the results of the early dispensary effort aided by the Rockefeller Sanitary Commission in the Southern States. These figures are not itemized by years, but are reported, under the respective states, as the total for the years 1910 to 1914, inclusive. Some of the work for 1914, separately indicated, was aided by the International Health Board. Since 1915, when work by the dispensary plan ceased in these states, the chief effort against hookworm disease has been directed toward the building and use of latrines. Therefore the aggregate figures for examination and treatment are not so large as in previous years, nor do they represent in all cases such thoroughgoing effort in the curative phase of the work.

7. In a number of countries operations were suspended during the war and resumed after its close; in others there have been temporary periods of suspension due to industrial depression, lack of trained directors, or similar causes.

8. Only the results of campaigns aided directly by the International Health Board or Rockefeller Sanitary Commission are included. In a number of countries, as in Brazil, government or voluntary agencies are conducting extensive independent campaigns against the disease, the results of which, if they could be included, would substantially increase the aggregate examinations and treatments.

TABLE 1: *Persons Examined and Treated for Hookworm Disease*, 1910 to 1925, *inclusive, in World-Wide Campaign Aided by International Health Board. Figures by main geographical divisions of work, by states and countries, and by years*

Division, Country, and State	Persons Examined	Persons Found Infected		Persons Given at Least One Treatment	Persons Given Two or More Treatments	
		Number	Per Cent		Number	Per Cent*
ALL COUNTRIES						
All years	**5,161,668**	**3,053,442**	**59.2**	**5,110,359**	**2,687,640**	**52.6**
1910–1914	1,179,406	458,606	38.9	441,408	213,488	48.4
1914	35,100	17,791	50.8	16,106	11,925	74.0
1915	162,835	93,480	57.4	86,242	60,340	70.0
1916	223,976	133,744	59.7	126,834	93,302	73.6
1917	295,103	183,949	62.3	168,429	137,563	81.7
1918	343,867	217,023	63.1	216,757	164,815	76.0
1919	295,883	175,440	59.4	238,352	199,115	83.5
1920	385,410	219,243	56.9	309,411	241,689	78.1
1921	553,861	337,246	60.9	457,237	231,180	50.6
1922	667,535	456,793	68.4	685,146	429,120	62.6
1923	402,106	313,898	78.0	732,371	283,697	38.7
1924	377,625	271,642	71.9	672,676	246,242	36.6
1925	238,961	174,587	73.1	959,390	375,165	32.1
DIVISIONS						
SOUTHERN STATES						
All years	**1,413,000**	**518,668**	**36.7**	**498,333**	**239,921**	**49.0**
1910–1914	1,179,406	458,606	38.9	441,408	213,488	48.4
1914	9,211	2,434	26.4	2,264	653	28.8
1915	18,145	3,961	21.8	3,779	931	24.6
1916	22,169	4,569	20.6	4,544	2,939	64.7
1917	37,299	7,834	21.0	7,596	6,293	82.8
1918	44,241	8,074	18.3	7,636	4,681	61.3
1919	26,282	10,266	39.1	9,391	6,689	71.2
1920	44,644	12,732	28.5	12,528	1,554	12.4
1921	31,603	10,192	32.3	9,187	2,693	29.3

WEST INDIES						
All years	**563,292**	**376,300**	**66.8**	**381,858**	**341,989**	**89.6**
1915	61,604	36,568	59.4	33,648	24,559	73.0
1916	62,642	36,582	58.4	33,077	28,811	87.1
1917	75,779	46,051	60.8	42,739	40,738	95.3
1918	31,314	23,636	75.5	22,057	20,604	93.4
1919	20,350	14,537	71.4	13,534	12,962	95.8
1920	28,890	16,067	55.6	15,274	14,395	94.2
1921	27,402	15,712	63.6	14,443	13,882	96.1
1922	74,311	57,333	77.2	53,656	51,502	96.0
1923	53,707	41,378	77.0	37,480	35,463	94.6
1924	67,289	44,947	66.8	48,696	42,045	86.3
1925	60,004	43,489	72.5	67,254	57,028	84.8
CENTRAL AMERICA						
All years	**1,485,486**	**937,145**	**63.1**	**973,125**	**684,307**	**70.3**
1914	5,321	2,907	54.6	2,562	578	22.6
1915	83,086	52,951	63.7	48,815	34,850	72.0
1916	131,520	85,235	64.8	82,461	57,534	69.8
1917	127,652	77,585	60.8	71,809	47,204	65.7
1918	173,931	109,193	62.8	95,539	71,316	74.6
1919	175,201	98,857	56.4	86,079	70,061	81.4
1920	148,714	82,272	55.3	70,470	51,016	72.4
1921	138,222	85,444	61.8	71,796	55,634	77.5
1922	172,942	120,943	69.9	103,807	81,985	79.0
1923	133,512	95,889	71.8	143,741	77,127	53.9
1924	103,582	65,123	62.9	78,414	58,054	74.0
1925	91,803	60,746	66.2	117,632	78,948	67.1
SOUTH AMERICA						
All years	**921,689**	**751,211**	**81.5**	**1,366,422**	**922,539**	**67.5**
1918	10,490	6,922	66.0	5,894	4,208	71.4
1919	52,775	35,780	67.8	31,233	21,456	68.7
1920	98,956	73,286	75.6	73,901	61,276	82.9
1921	171,764	140,069	81.5	194,598	126,239	64.9
1922	289,322	243,136	84.0	335,347	223,074	66.5
1923	150,572	130,359	86.6	207,233	137,061	66.1
1924	123,299	99,150	80.4	209,808	139,603	66.5
1925	24,511	22,509	91.8	308,408	209,622	68.0

TABLE 1—*Continued*

Division, Country, and State	Persons Examined	Persons Found Infected		Persons Given at Least One Treatment	Persons Given Two or More Treatments	
		Number	Per Cent		Number	Per Cent*
THE EAST						
All years	**778,201**	**470,118**	**60.4**	**1,890,621**	**498,885**	**26.4**
1914	20,568	12,450	60.5	11,280	10,694	94.8
1916	7,645	7,358	96.3	6,752	4,018	59.5
1917	54,373	52,479	96.5	46,285	43,328	93.6
1918	83,891	69,198	82.5	85,631	64,006	74.7
1919	21,275	16,000	75.0	98,115	87,947	89.6
1920	64,206	34,886	54.3	137,238	113,448	82.7
1921	184,870	85,829	46.4	167,213	32,732	19.6
1922	130,960	35,381	27.0	192,336	72,559	37.7
1923	64,315	46,272	71.9	343,917	34,046	9.9
1924	83,455	62,422	74.8	335,758	6,540	2.0
1925	62,643	47,843	76.4	466,091	29,567	6.3
SOUTHERN STATES						
Alabama						
All years	**86,995**	**48,852**	**56.2**	**48,114**	**13,370**	**27.8**
1910–1914	74,473	43,718	58.7	43,520	9,857	22.6
1917†	564	47	8.3	47	42	89.3
1918†	675	79	11.7	79	79	100.0
1919	102	17	16.7	17	15	88.2
1920	4,574	1,335	29.2	1,334	1,227	92.0
1921	6,607	3,656	55.3	3,117	2,150	69.0
Arkansas						
All years	**48,483**	**8,866**	**18.3**	**6,705**	**1,614**	**24.1**
1910–1914	47,983	8,863	18.5	6,702	1,614	24.1
1918†	500	3	.6	3	....	....

Georgia						
All years	**75,341**	**46,058**	**61.1**	**45,552**	**14,251**	**31.8**
1910–1914	73,518	45,564	62.0	45,095	14,023	32.2
1919	1,518	373	24.6	336	107	31.8
1920†	305	121	39.7	121	121	100.0
Kentucky						
All years	**134,855**	**44,404**	**32.9**	**38,611**	**872**	**2.3**
1910–1914	128,991	43,635	34.6	37,916	475	1.3
1915†	1,833	460	25.1	460	316	68.7
1920	2,541	169	6.6	116	56	48.3
1921	1,490	140	9.4	119	25	21.0
Louisiana						
All years	**74,368**	**39,342**	**52.9**	**38,556**	**14,858**	**38.5**
1910–1914	68,165	37,720	55.3	37,225	14,524	39.0
1914†	2,568	879	34.2	876	324	37.0
1918†	1,161	208	17.9	55	....	....
1921	2,474	535	21.6	400	10	2.5
Mississippi						
All years	**280,757**	**109,809**	**39.1**	**108,323**	**74,496**	**68.8**
1910–1914	184,944	75,813	41.0	74,598	58,687	78.7
1915	4,414	1,422	32.2	1,410	53	3.8
1916	3,780	1,466	38.8	1,455	1,182	81.2
1917	14,874	4,348	29.2	4,223	4,223	100.0
1918†	8,468	4,084	48.2	4,069	3,541	87.0
1919	16,036	8,479	52.9	8,471	6,461	76.3
1920	31,198	9,730	31.3	9,720	42	.4
1921	17,043	4,467	26.2	4,377	307	7.0
North Carolina						
All years	**337,179**	**112,639**	**33.4**	**106,828**	**60,264**	**56.4**
1910–1914	300,457	104,279	34.7	99,075	57,538	58.1

TABLE 1—*Continued*

Division, Country, and State	Persons Examined	Persons Found Infected		Persons Given at Least One Treatment	Persons Given Two or More Treatments	
		Number	Per Cent		Number	Per Cent*
North Carolina—Continued						
1914†	4,837	1,429	29.5	1,321	294	22.3
1915†	3,405	898	26.4	802	228	28.4
1917	9,048	2,057	22.7	1,984	1,149	57.9
1918	18,431	3,503	19.0	3,272	987	30.2
1920	728	238	32.7	142	....	....
1921	273	235	86.1	232	68	29.3
South Carolina						
All years	**101,442**	**47,696**	**47.0**	**45,812**	**22,853**	**49.9**
1910–1914	81,311	42,677	52.5	41,751	21,413	51.2
1914†	840	90	10.7	31	4	12.9
1915†	3,581	721	20.1	648	230	35.5
1916	6,665	1,991	29.9	1,980	1,206	60.9
1918†	931	24	2.6	....	....	....
1919	4,966	1,057	21.3	327	....	....
1920	2,268	989	43.6	965	....	....
1921	880	147	16.7	110	....	....
Tennessee						
All years	**81,582**	**22,310**	**27.3**	**21,680**	**16,087**	**74.2**
1910–1914	74,997	21,410	28.5	20,979	15,828	75.4
1915†	1,172	116	9.9	116	20	17.2
1916	1,217	49	4.0	48	23	47.9
1917	856	129	15.1	126	71	56.3
1918	127	3	2.4	3	2	66.7
1919	378	17	4.5	9	3	33.3
1920	608	26	4.3	17	7	41.2
1921	2,227	560	25.1	382	133	34.8

Texas						
All years	**89,482**	**19,947**	**22.5**	**19,492**	**4,861**	**24.9**
1910–1914	63,376	17,790	28.1	17,490	3,588	20.5
1916†	2,801	570	20.3	568	357	62.9
1917	7,084	1,058	14.9	1,021	662	64.8
1918	11,025	81	.7	70	51	72.9
1919	3,044	322	10.6	230	103	44.8
1920	2,115	123	5.8	112	100	89.3
1921	37	3	8.1	1	....	....
Virginia						
All years	**102,516**	**18,745**	**18.3**	**18,660**	**16,395**	**87.9**
1910–1914	81,191	17,137	21.1	17,057	15,941	93.5
1914†	966	36	3.7	36	31	86.1
1915†	3,740	344	9.2	343	84	24.5
1916	7,706	493	6.4	493	171	34.7
1917	4,873	195	4.0	195	146	74.9
1918	2,923	89	3.0	85	21	24.7
1919	238	1	.4	1	....	....
1920†	307	1	.3	1	1	100.0
1921	572	449	78.5	449	....	....
WEST INDIES						
Antigua						
Both years	**18,599**	**2,919**	**15.7**	**2,634**	**2,566**	**97.4**
1916†	7,477	2,229	29.8	2,054	2,031	98.9
1917†	11,122	690	6.2	580	535	92.2
British Guiana						
All years	**71,322**	**44,073**	**61.8**	**39,906**	**35,394**	**88.9**
1915	21,070	13,135	62.3	11,903	10,039	84.3
1916	18,498	9,808	53.0	8,263	6,225	75.3
1917	16,044	9,508	59.3	8,906	8,722	97.9
1918	11,719	8,727	74.5	8,175	7,900	96.6
1919†	3,991	2,895	72.5	2,659	2,508	94.3

TABLE 1—*Continued*

Division, Country, and State	Persons Examined	Persons Found Infected		Persons Given at Least One Treatment	Persons Given Two or More Treatments	
		Number	Per Cent		Number	Per Cent*
Dutch Guiana						
All years	**44,292**	**38,956**	**88.0**	**35,189**	**33,065**	**94.0**
1916	4,411	3,900	88.4	3,667	3,414	93.1
1917	13,159	12,045	91.5	11,133	10,664	95.8
1921	924	817	88.4	744	714	96.0
1922	11,708	11,371	97.1	10,601	10,182	96.0
1923	14,090	10,823	76.8	9,044	8,091	89.5
Grenada						
All years	**31,706**	**20,662**	**65.2**	**20,571**	**15,650**	**76.1**
1915	18,584	11,194	60.2	11,522	8,064	70.0
1916	5,312	4,226	79.6	4,147	2,950	71.1
1917	7,810	5,242	67.1	4,902	4,636	94.6
Jamaica						
All years	**62,889**	**31,426**	**50.0**	**28,966**	**27,518**	**95.0**
1919†	2,842	1,552	54.6	1,346	1,291	95.9
1920†	13,748	3,915	28.5	3,605	3,203	88.8
1921	9,807	3,085	31.5	2,754	2,635	95.7
1922†	6,740	3,281	48.7	2,996	2,859	95.4
1923†	8,467	5,736	67.7	5,358	4,864	88.0
1924	6,356	2,099	33.0	1,979	1,933	97.7
1925	14,929	11,758	78.8	10,928	10,733	98.2
Porto Rico						
All years	**111,324**	**85,795**	**77.1**	**114,004**	**102,320**	**89.8**
1922	22,413	18,504	82.6	17,223	16,957	98.5
1923	15,247	12,470	81.8	11,651	11,477	98.5
1924	28,589	23,090	80.8	28,804	27,591	95.8
1925	45,075	31,731	70.4	56,326	46,295	82.2

Saint Lucia						
All years	**48,799**	**30,598**	**63.0**	**29,384**	**24,534**	**83.6**
1915	7,924	4,436	56.0	4,106	2,177	53.0
1916	6,003	2,336	38.9	2,201	1,904	86.5
1917	4,601	3,060	66.5	2,962	2,653	89.6
1918	5,004	3,126	62.5	2,892	2,068	71.5
1919	4,350	2,597	59.7	2,547	2,364	92.8
1920	6,373	4,743	74.4	4,656	4,331	93.0
1921	3,181	2,274	71.5	2,225	2,164	97.3
1922	11,363	8,026	77.4	7,795	6,873	88.2
Saint Vincent						
All years	**21,915**	**12,758**	**58.2**	**11,905**	**11,383**	**95.6**
1915†	3,822	1,676	43.9	1,590	1,562	98.2
1916	7,494	4,062	54.2	3,748	3,653	97.5
1917	9,482	6,065	64.0	5,683	5,303	93.3
1918†	1,117	955	85.5	884	865	97.8
Trinidad						
All years	**131,005**	**98,244**	**75.0**	**89,304**	**84,732**	**94.9**
1915	10,204	6,127	60.0	4,527	2,717	60.0
1916	13,447	10,021	74.5	8,997	8,634	96.0
1917	13,561	9,441	69.6	8,573	8,225	95.9
1918	13,474	10,828	80.4	10,106	9,771	96.7
1919	9,167	7,493	81.7	6,982	6,799	97.4
1920	8,769	7,409	84.5	7,013	6,861	97.8
1921	13,490	9,536	70.7	8,720	8,369	96.0
1922	22,087	16,151	73.1	15,041	14,631	97.3
1923	15,903	12,349	77.7	11,427	11,031	96.5
1924	10,903	8,889	81.5	7,918	7,694	97.2
Tobago						
1924	21,441	10,869	50.7	9,995	4,827	48.3

TABLE 1—*Continued*

Division, Country, and State	Persons Examined	Persons Found Infected		Persons Given at Least One Treatment	Persons Given Two or More Treatments	
		Number	Per Cent		Number	Per Cent*
CENTRAL AMERICA						
Costa Rica						
All years	**391,594**	**215,934**	**55.1**	**197,620**	**144,690**	**73.2**
1915	30,297	19,401	64.0	18,816	12,152	64.6
1916	40,579	22,608	55.7	22,037	9,899	44.9
1917	48,488	29,940	61.7	28,909	19,180	66.3
1918	56,371	29,898	53.0	27,487	19,154	69.7
1919	64,371	29,872	46.4	26,551	22,798	85.9
1920	36,342	10,743	29.6	9,006	6,415	71.2
1921	37,902	18,991	50.1	15,677	12,398	79.1
1922	31,923	21,738	68.1	19,278	15,802	82.0
1923	21,528	15,715	73.0	13,619	12,350	90.7
1924	21,809	15,326	70.3	13,481	12,001	89.0
1925§	1,984	1,702	85.8	2,759	2,541	92.1
Guatemala						
All years	**313,394**	**205,685**	**65.6**	**183,418**	**161,648**	**88.1**
1915†	25,587	15,001	58.6	13,783	11,851	86.0
1916	39,596	26,665	67.3	25,961	23,618	91.0
1917†	13,670	7,198	52.7	6,777	6,552	96.7
1918†	32,861	22,299	67.9	19,950	19,057	95.5
1919	44,495	28,752	64.6	25,283	23,639	93.5
1920	21,469	12,805	58.7	11,429	10,402	91.0
1921	25,405	19,020	74.9	14,337	11,185	78.0
1922	28,673	18,310	63.9	15,651	12,822	81.9
1923	29,742	22,122	74.4	19,909	16,414	82.4
1924	26,394	16,962	64.3	15,138	12,709	84.0
1925	25,502	16,551	64.9	15,200	13,399	88.2
Honduras						
Both years	**12,191**	**6,363**	**52.2**	**49,284**	**3,164**	**6.4**
1922†	4,903	2,083	42.5	1,547	702	45.4
1923	7,288	4,280	58.7	47,737	2,462	5.2

Mexico						
Both years	**22,885**	**13,924**	**60.8**	**55,875**	**31,174**	**55.8**
1924	2,599	251	9.7	3,265	775	23.7
1925	20,286	13,673	67.4	52,610	30,399	57.8
Nicaragua						
All years	**205,063**	**138,634**	**67.6**	**142,752**	**91,661**	**64.2**
1915†	2,192	1,659	75.7	1,298	18	1.4
1916†	12,829	9,073	70.7	8,362	1,166	13.9
1917	33,781	18,422	54.5	16,950	5,652	33.3
1918	24,186	16,760	69.3	15,042	9,524	63.3
1919	12,246	5,820	47.5	4,829	2,146	44.4
1920	41,627	28,964	69.6	24,502	17,157	70.0
1921	23,183	16,312	70.4	13,940	11,265	80.8
1922	37,603	29,139	77.5	24,770	19,466	78.6
1923	7,277	5,691	78.2	13,692	10,877	79.4
1924	7,084	4,711	66.5	13,433	9,845	73.3
1925	3,055	2,083	68.2	5,934	4,545	76.6
Panama						
All years	**165,682**	**130,783**	**78.9**	**149,414**	**114,197**	**76.4**
1914†	5,321	2,907	54.6	2,562	578	22.6
1915	25,010	16,890	67.5	14,918	10,829	72.6
1916	30,094	24,193	80.4	23,747	21,340	89.9
1917	16,676	14,088	84.5	13,262	11,126	83.9
1918	16,185	13,656	84.4	11,966	9,537	79.7
1919	15,307	13,490	88.1	11,812	8,313	70.4
1920	13,104	10,050	76.7	8,353	4,009	48.0
1921	5,932	5,014	84.5	4,595	3,151	68.6
1922	18,093	16,219	89.6	13,200	9,445	71.6
1923	9,088	7,198	79.2	11,900	10,095	84.8
1924	4,200	2,308	55.0	10,989	8,783	79.9
1925	6,672	4,770	71.5	22,110	16,991	76.8
Salvador						
All years	**374,677**	**225,822**	**60.3**	**194,762**	**137,773**	**70.7**
1916†	8,422	2,696	32.0	2,354	1,511	64.2
1917	15,037	7,937	52.8	5,911	4,694	79.4

TABLE 1—*Continued*

Division, Country, and State	Persons Examined	Persons Found Infected		Persons Given at Least One Treatment	Persons Given Two or More Treatments	
		Number	Per Cent		Number	Per Cent*
Salvador—Continued						
1918	44,328	26,580	60.0	21,094	14,044	66.6
1919	38,782	20,923	54.0	17,604	13,165	74.8
1920	36,172	19,710	54.5	17,180	13,033	75.9
1921	45,800	26,107	56.9	23,247	17,635	75.9
1922	51,747	33,454	64.4	29,361	23,748	97.9
1923	58,589	40,883	69.7	36,884	24,929	67.8
1924	41,496	25,565	61.6	22,108	13,941	63.1
1925	34,304	21,967	64.0	19,019	11,073	58.2
SOUTH AMERICA						
Brazil‡						
All years	**626,733**	**476,273**	**76.0**	**701,176**	**449,364**	**64.1**
1918	10,490	6,922	66.0	5,894	4,208	71.4
1919	52,775	35,780	67.8	31,233	21,456	68.7
1920	92,093	67,243	72.2	68,207	56,923	83.5
1921	131,288	101,417	77.7	157,739	92,883	58.9
1922	221,802	181,820	82.0	274,936	172,923	62.9
1923	51,758	34,386	66.4	112,871	65,903	58.4
1924	66,527	48,705	73.2	50,296	35,068	69.7
Colombia						
All years	**294,893**	**274,905**	**93.2**	**646,763**	**463,633**	**71.7**
1920	6,863	6,043	88.1	5,694	4,353	76.4
1921	40,476	38,652	95.5	36,859	33,356	90.5
1922	67,520	61,316	90.8	60,411	50,151	83.0
1923	98,814	95,973	97.1	94,362	71,158	75.4
1924	56,772	50,445	88.9	159,512	104,535	65.5
1925	24,448	22,476	91.9	289,925	200,080	69.1
Paraguay						
1925§	63	33	52.4	18,483	9,542	51.6

THE EAST						
Australia						
All years	**248,719**	**48,256**	**19.4**	**33,249**	**15,498**	**46.7**
1920	33,129	10,954	33.1	9,124	462	5.0
1921	113,556	26,386	23.2	13,691	5,240	38.3
1922	91,923	9,247	10.1	8,879	8,255	93.0
1923	10,111	1,669	16.5	1,555	1,541	99.1
Borneo						
Both years	**15,059**	**12,428**	**82.5**	**22,039**	**18,402**	**83.5**
1921	5,325	4,556	85.6	10,568	9,951	94.2
1922	9,734	7,872	80.9	11,471	8,451	73.7
Ceylon						
All years	**126,787**	**113,705**	**89.7**	**676,707**	**415,321**	**61.4**
1916	7,645	7,358	96.3	6,752	4,018	59.5
1917	42,828	41,613	97.2	35,675	33,440	93.7
1918	26,424	25,624	97.0	50,374	47,181	93.7
1919	15,542	11,852	77.5	88,602	84,712	95.6
1920	16,961	12,814	75.5	117,337	112,089	95.5
1921	497	422	84.9	20,958	16,533	78.9
1922	7,137	5,975	83.7	93,475	52,567	56.2
1923	1,907	1,830	96.0	46,088	31,675	68.7
1924	723	519	71.8	38,969	4,355	11.2
1925	7,123	5,698	80.0	178,477	28,751	16.1
China						
Both years	**14,529**	**8,493**	**58.5**	**6,542**	**2,669**	**40.8**
1918	12,504	7,556	60.4	5,694	2,519	44.2
1919	2,025	937	46.3	848	150	17.7
Egypt						
1914	20,568	12,450	60.5	11,280	10,694	94.8

TABLE 1—*Continued*

Division, Country, and State	Persons Examined	Persons Found Infected		Persons Given at Least One Treatment	Persons Given Two or More Treatments	
		Number	Per Cent		Number	Per Cent*
Fiji						
All years	**16,154**	**11,077**	**68.6**	**133,014**	**6,197**	**4.7**
1917†	3,434	3,088	89.9	3,010	2,877	95.6
1918†	3,190	2,887	80.5	2,770	2,674	96.5
1922†	4,417	2,559	57.9	44,440	203	.5
1923	3,713	2,015	54.3	38,173	330	.9
1924	1,400	528	37.7	44,621	113	.3
Mauritius						
All years	**72,705**	**50,134**	**69.0**	**34,360**	**5,888**	**17.1**
1922	12,643	5,279	41.8	3,680	3,083	83.8
1924	42,532	31,352	73.7	19,932	2,039	10.2
1925	17,530	13,503	77.0	10,748	766	7.1
Seychelles						
All years	**23,819**	**21,004**	**88.2**	**20,251**	**19,386**	**95.7**
1917	8,111	7,778	95.9	7,600	7,011	92.3
1918	10,475	9,113	87.0	8,671	8,449	97.4
1919	3,708	3,211	86.6	3,127	3,085	98.6
1920	1,525	902	59.1	853	841	98.6
Siam						
All years	**239,861**	**192,571**	**80.3**	**953,179**	**4,830**	**.5**
1918	31,298	24,018	76.7	18,122	3,183	17.6
1919	....	....	....	5,538	....	....
1920	12,591	10,216	81.1	9,924	56	.6
1921	65,492	54,465	83.2	121,996	1,008	.8
1922	5,106	4,449	87.1	30,391	....	....
1923	48,584	40,758	83.9	258,101	500	.2
1924	38,800	30,023	77.4	232,236	33	.01
1925	37,990	28,642	75.4	276,871	50	.01

*Based on total number of persons receiving at least one treatment.
†Represents part-year effort only.
‡States of Brazil and Australia not indicated separately.
§Reports incomplete.

TABLE 2

TABLE 2: *Expenditures of the International Health Board for the*

Activity, State, and Country	July 1, 1913–Dec. 31, 1918	1919	1920	1921
Grand Total	*$2,697,511.08*	*$1,436,355.00*	*$1,658,572.61*	*$1,698,776.26*
Relief and Control of Hookworm Disease	1,460,014.91	509,091.99	621,520.98	457,409.50
County Health Work	2,677.48	2,439.25	8,182.77	167,996.90
Malaria Control	120,964.84	34,965.08	133,929.02	150,291.34
Yellow Fever Control	97,846.37	94,526.42	139,757.40	236,755.46
Tuberculosis in France	484,886.67	602,775.78	518,013.51	359,540.31
Public Health Education	36,294.26	36,701.04	68,373.54	89,092.64
Public Health Nursing	....	....	....	....
Public Health Administration	....	....	12,708.81	20,736.31
Public Health Laboratory Service	....	....	....	16,109.70
Field Staff Salaries, Expenses, etc., Not Prorated to Specific Budgets	44,494.72	21,701.87	26,074.89	38,936.95
Miscellaneous	171,140.15	55,846.90	38,539.49	38,916.59
Administration	279,191.68	78,306.67	91,472.20	122,990.56
Relief and Control of Hookworm Disease	*1,460,014.91*	*509,091.99*	*621,520.98*	*457,409.50*
United States	277,861.42	110,860.17	136,019.06	15,730.39
West Indies	325,337.33	48,457.24	61,857.73	85,541.60
Central America	372,978.51	111,684.19	98,303.98	83,920.99
Mexico	....	....	....	....
South America	145,119.93	157,555.86	206,486.22	150,344.49
The East	316,825.54	80,014.39	113,472.55	115,805.46
Europe	....	....	....	....
Miscellaneous	21,892.18	520.14	5,381.44	6,066.57
United States †	*277,861.42*	*110,860.17*	*136,019.06*	*15,730.39*
Alabama	11,501.39	5,283.74	17,256.71	....
Arkansas	5,247.00	....	....	....
Georgia	30,678.49	4,604.21	4,525.39	....
Kentucky	18,898.09	1,978.40	16,599.03	....
Louisiana	4,939.16	1,370.18	....	....
Mississippi	39,156.79	15,773.21	20,709.72	....
North Carolina	30,633.93	13,924.04	10,463.00	....

* Includes initial deposit under retirement plan.
† In September, 1917, the hookworm work in the Southern States began to be absorbed in the programs states than in others, it was not possible to announce until the end of 1920 that in all the states the all efforts directed toward the relief and control of hookworm and other soil-borne diseases.

Years 1913–1925, Inclusive, Covering All Activities

1922	1923	1924	1925	Total
$1,868,892.12	*$2,486,606.04*	*$2,699,220.89*	***$3,152,997.16***	*$17,698,931.16*
498,996.06	416,066.37	460,555.50	**393,729.47**	4,817,384.78
214,854.79	230,829.08	241,717.39	**205,396.64**	1,074,094.30
161,455.14	163,400.50	196,049.68	**185,197.89**	1,146,253.49
211,980.51	337,378.42	637,382.03	**539,067.79**	2,294,694.40
268,274.49	82,041.52	67,093.60	**14,350.04**	2,396,975.92
164,675.97	501,070.58	442,238.41	**1,033,256.99**	2,371,703.43
14,630.10	25,654.17	23,237.83	**51,106.92**	114,629.02
54,287.63	158,714.90	203,684.81	**289,184.99**	739,317.45
26,325.29	32,180.74	41,767.89	**46,456.97**	162,840.59
64,781.19	247,734.39*	121,101.32	**156,795.64**	721,620.97
17,719.15	14,684.51	28,673.81	**24,403.03**	389,923.63
170,911.80	276,850.86*	235,718.62	**214,050.79**	1,469,493.18
498,996.06	*416,066.37*	*460,555.50*	***393,729.47***	*4,817,384.78*
7,510.26	5,960.29	197.01	....	554,138.60
110,039.59	116,828.44	132,230.12	**94,059.51**	974,351.56
86,922.83	90,714.46	81,304.80	**54,166.93**	979,996.69
....	....	36,284.08	**30,525.22**	66,809.30
170,298.81	70,361.78	79,793.56	**79,269.17**	1,059,229.82
116,718.54	101,880.50	104,826.12	**105,711.42**	1,055,254.52
....	....	4,012.42	**14,260.57**	18,272.99
7,506.03	30,320.90	21,907.39	**15,736.65**	109,331.30
7,510.26	*5,960.29*	*197.01*	....	*554,138.60*
....	25.00	....	....	34,066.84
....	....	....	....	5,247.00
....	....	197.01	....	40,005.10
....	....	....	....	37,475.52
....	....	....	....	6,309.34
....	....	....	....	75,639.72
....	....	....	....	55,020.97

of the rapidly developing county departments of health. The period of transition being longer in some county health departments would henceforth assume as one of their regular functions, responsibility for

TABLE 2: *Expenditures of the International Health Board for the*

Activity, State, and Country	July 1, 1913–Dec. 31, 1918	1919	1920	1921
Relief and Control of Hookworm Disease—*Continued*				
United States—*Cont'd*				
South Carolina	$33,353.42	$14,754.86	$17,210.63	$........
Tennessee..........	30,914.51	10,201.59	13,533.22	....
Texas..............	32,680.24	22,380.20	14,723.99	....
Virginia............	26,311.69	10,012.42	14,965.17	....
Administration	8,749.79	10,577.32	6,032.20	....
County Dispensary Work in the South..	4,796.92	....	....	....
Resurveys..........	....	....	....	15,730.39
West Indies............	*325,337.33*	*48,457.24*	*61,857.73*	*85,541.60*
Antigua............	19,593.84	....	....	....
Barbados (survey) ...	1,651.31	....	....	....
British Guiana *.....	77,301.21	9,984.28	486.37	1,281.02
Cayman Islands (survey)..........	1,795.16	....	....	....
Dominica (survey) ...	....	....	....	....
Dutch Guiana *......	38,490.90	613.23	570.34	12,917.66
Grenada...........	37,364.32	....	....	....
Haiti..............	....	....	....	....
Jamaica............	3,937.85	9,832.48	18,400.09	16,949.24
Montserrat-Nevis (survey)..........	....	....	....	....
Porto Rico..........	....	....	7,823.35	18,290.86
Santo Domingo (survey)..........	....	....	1,077.07	....
St. Kitts (survey)....	....	....	....	....
St. Lucia...........	32,104.14	8,109.32	11,444.57	8,545.88
St. Vincent..........	31,761.76	....	....	....
Tobago (survey)	1,072.22	....	....	....
Trinidad............	55,507.62	15,293.43	16,016.71	17,489.50
Administration	24,757.00	4,624.50	6,039.23	10,067.44
Central America.........	*372,978.51*	*111,684.19*	*98,303.98*	*83,920.99*
British Honduras (survey)..........	4,273.47	....	....	....
Costa Rica..........	86,272.20	20,492.01	20,219.60	14,061.92
Guatemala..........	56,715.50	19,514.73	17,126.43	15,362.58
Honduras...........	....	....	....	....
Nicaragua..........	68,226.14	26,164.44	18,745.12	21,479.43
Panama............	99,232.21	18,565.05	20,061.02	23,496.22
Salvador............	49,582.89	17,162.10	14,973.80	3,520.84
Administration......	8,676.10	9,785.86	7,178.01	6,000.00

* For administrative reasons British and Dutch Guiana, although on the mainland of South America,

Years 1913–1925, Inclusive, Covering All Activities—Cont'd

1922	1923	1924	1925	Total
$........	$........	$........	$........	$65,318.91
....	....	....	....	54,649.32
....	....	....	....	69,784.43
....	....	....	....	51,289.28
....	....	....	....	25,359.31
....	....	....	....	4,796.92
7,510.26	5,935.29	....	....	29,175.94
110,039.59	*116,828.44*	*132,230.12*	*94,059.51*	*974,351.56*
2,552.67	....	....	....	22,146.51
....	....	....	....	1,651.31
248.37	....	....	....	89,301.25
....	....	....	....	1,795.16
....	89.32	2,659.78	....	2,749.10
17,786.64	19,416.68	....	....	89,795.45
....	....	....	....	37,364.32
....	....	10,762.12	18,601.44	29,363.56
23,241.56	21,280.54	27,742.83	30,845.98	152,230.57
....	....	511.06	173.28	684.34
28,450.98	30,395.06	36,417.62	33,311.12	154,688.99
....	....	....	....	1,077.07
....	1,989.24	2,624.67	....	4,613.91
9,378.80	9,182.04	11,625.68	....	90,390.43
....	....	....	....	31,761.76
....	....	....	....	1,072.22
17,590.83	23,460.87	29,200.94	....	174,559.90
10,789.74	11,014.69	10,685.42	11,127.69	89,105.71
86,922.83	*90,714.46*	*81,304.80*	*54,166.93*	*979,996.69*
....	....	....	....	4,273.47
6,355.05	4,979.63	4,877.16	9,875.42	167,132.99
18,467.99	16,246.60	16,532.26	15,839.31	175,810.40
10,802.41	14,286.73	12,902.91	....	37,992.05
15,790.55	12,980.46	12,017.01	....	175,403.15
18,675.03	29,407.59	26,938.47	22,398.17	258,773.76
8,283.79	5,271.68	....	....	98,795.10
8,548.01	7,541.77	8,031.99	6,054.03	61,815.77

are listed with the West Indies.

TABLE 2: *Expenditures of the International Health Board for the*

Activity, State, and Country	July 1, 1913–Dec. 31, 1918	1919	1920	1921
Relief and Control of Hookworm Disease—*Continued*				
Mexico	$........	$........	$........	$........
South America	*145,119.93*	*157,555.86*	*206,486.22*	*150,344.49*
Brazil	145,119.93	155,430.38	193,560.95	131,709.52
Colombia	....	2,125.48	12,925.27	18,634.97
Paraguay	....	....	....	....
Europe	....	....	....	....
Spain	....	....	....	....
The East	*316,825.54*	*80,014.39*	*113,472.55*	*115,805.46*
Uncinariasis Commission to Orient	51,483.31	....	....	....
Australia	22,708.34	15,902.95	35,417.41	39,912.29
British North Borneo	....	....	3,106.23	7,440.10
British Solomon Islands (survey)	....	....	....	1,378.85
Ceylon	90,040.35	32,497.87	33,779.28	23,689.34
China	16,382.45	12,187.58	....	....
Egypt	26,074.78	....	....	....
Fiji Islands	14,743.13	....	....	498.64
Java (survey)	327.66	....	....	....
India	....	....	7,810.00	12,496.30
Mauritius	....	....	5,688.56	....
Seychelles Islands	20,021.10	8,291.90	4,643.03	....
Siam	25,648.24	7,514.66	15,850.03	18,429.18
South Sea Islands	....	....	....	....
Straits Settlements	....	....	....	....
Administration	49,396.18	3,619.43	7,178.01	11,960.76
Miscellaneous	*21,892.18*	*520.14*	*5,381.44*	*6,066.57*
Field Studies:				
Alabama	....	....	....	....
Brazil	....	....	....	....
Ceylon	....	....	....	....
China	....	....	....	....
Porto Rico	....	....	....	3,618.33
Thymol	15,476.21	....	....	....
Research in carbon tetrachloride	....	....	....	....
Study of methods of diagnosing hookworm disease	....	43.95	....	500.00
Conferences of health officers	5,064.16	....	2,488.71	....

* Reports incomplete.

Years 1913–1925, Inclusive, Covering All Activities—Cont'd

1922	1923	1924	1925	Total
$........	$........	$36,284.08	$30,525.22	$66,809.30
170,298.81	*70,361.78*	*79,793.56*	*79,269.17*	*1,059,229.82*
148,602.50	46,592.10	47,338.46	24,192.51	892,546.35
21,696.31	22,217.48	16,241.47	28,738.01	122,578.99
....	1,552.20	16,213.63	26,338.65	44,104.48
....	....	4,012.42	14,260.57	18,272.99
....	....	4,012.42	14,260.57	18,272.99
116,718.54	*101,880.50*	*104,826.12*	*105,711.42*	*1,055,254.52*
....	....	....	....	51,483.31
35,375.57	33,745.09	18,693.99*	....	201,755.64
5,641.00	3,101.75	....	....	19,289.08
225.60	....	....	....	1,604.45
15,041.57	9,252.78	7,520.64	16,669.71	228,491.54
....	....	....	....	28,570.03
....	Cr. 8,952.64	....	....	17,122.14
10,653.55	7,594.37	7,282.03*	168.28*	40,940.00
....	....	22,752.97	22,187.78	45,268.41
9,883.53	10,275.40	8,307.39*	14,492.46*	63,265.08
7,356.43	12,235.10	3,987.01	90.16Cr	29,176.94
....	....	....	487.82	33,443.85
23,993.28	27,086.88	25,736.42	15,856.98*	160,115.67
....	....	2,513.68	2,874.19	5,387.87
....	....	....	21,300.05*	21,300.05
8,548.01	7,541.77	8,031.99	11,764.31	108,040.46
7,506.03	*30,320.90*	*21,907.39*	*15,736.65*	*109,331.30*
....	14,524.06	4,869.46	4,605.63	23,999.15
1,006.35	220.96	....	....	1,227.31
356.35	85.09	....	....	441.44
....	7,434.94	10,634.98	9,231.02	27,300.94
5,358.26	....	....	....	8,977.09
....	....	....	....	15,476.21
....	9,455.85	....	1,900.00	11,355.85
758.57	....	....	....	1,302.52
....	....	....	....	7,552.87

TABLE 2: *Expenditures of the International Health Board for the*

Activity, State, and Country	July 1, 1913–Dec. 31, 1918	1919	1920	1921
Relief and Control of Hookworm Disease—*Continued*				
Miscellaneous—*Cont'd*				
Motion Picture Film	$.......	$.......	$2,817.73	$1,584.74
Salvador:				
Portable house and office..........	945.35	476.19	75.00	....
Loss from earthquake.........	406.46	....	....	....
Dutch Guiana, care and storage of motor boat..........	....	....	....	363.00
Johns Hopkins Medical School:				
Research in carbon tetrachloride.	....	....	....	....
Experiment with pigs.	....	....	....	....
Experiment with carbon tetrachloride ..	....	....	....	....
County Health Work ..	*2,677.48*	*2,439.25*	*8,182.77*	*167,996.90*
United States	*2,677.48*	*2,439.25*	*8,182.77*	*167,996.90*
Alabama..........	....	....	....	18,231.35
Arkansas *........	....	....	....	....
California.........	....	....	....	....
Colorado..........	....	....	....	....
Florida...........	....	....	....	237.75
Georgia..........	....	....	....	4,338.17
Illinois...........	....	....	....	....
Indiana...........	....	....	....	....
Iowa.............	....	....	....	....
Kansas...........	....	....	4,494.00	6,316.99
Kentucky.........	....	....	....	16,316.41
Louisiana.........	....	....	....	5,618.28
Maryland.........	2,677.48	2,264.25	....	1,815.36
Minnesota........	....	....	....	....
Mississippi........	....	....	....	15,652.72
Missouri..........	....	....	....	600.00
New Mexico	....	....	....	10,837.52
North Carolina....	....	....	957.04	14,413.38
Oklahoma........	....	....	....	....
Oregon..........	....	....	....	....
South Carolina	....	....	....	17,651.97
South Dakota.....	....	....	....	....
Tennessee........	....	....	....	14,686.42
Texas............	....	....	....	12,944.58
Utah	....	....	....	....

* Reports incomplete.

Years 1913–1925, Inclusive, Covering All Activities—Cont'd

1922	1923	1924	1925	Total
$........	$........	$34.66	$.......	$4,437.13
26.50	Cr. 1,400.00	....	....	123.04
....	....	....	....	406.46
....	....	....	....	363.00
....	....	5,656.58	....	5,656.58
....	....	515.93	....	515.93
....	....	195.78	....	195.78
214,854.79	*230,829.08*	*241,717.39*	***205,396.64***	*1,074,094.30*
193,340.87	*199,468.01*	*187,481.35*	***176,156.53***	*937,743.16*
21,915.97	19,966.46	10,580.09	**6,111.06**	76,804.93
....	....	....	....	....
607.22	6,250.00	7,187.49	**7,500.00**	21,544.71
....	....	....	**1,875.00**	1,875.00
772.08	....	750.00	....	1,759.83
2,790.68	1,537.72	1,588.63	**1,518.08**	11,773.28
1,927.94	1,849.99	1,725.00	**1,650.00**	7,152.93
1,641.66	2,250.00	....	....	3,891.66
954.18	181.33	2,361.76	**1,625.90**	5,123.17
13,095.38	7,349.13	6,648.29	**2,908.36***	40,812.15
16,057.84	16,802.48	15,631.73	**11,321.01**	76,129.47
15,397.64	14,184.73	10,984.34	**6,009.57**	52,194.56
7,168.18	3,720.00	....	....	17,645.27
....	2,585.53	2,789.44	**625.00**	5,999.97
11,713.47	20,238.91	12,302.91	**8,143.50***	68,051.51
9,391.41	9,575.00	7,350.00	**5,155.00**	32,071.41
8,510.73	6,879.86	11,240.19	**6,516.00***	43,984.30
7,169.78	9,041.86	10,836.22	**8,981.33**	51,399.61
....	....	3,283.96	**7,983.04***	11,267.00
4,441.17	6,138.42	8,116.42	**10,307.79***	29,003.80
12,302.18	13,929.78	13,489.00	**12,848.94**	70,221.87
....	....	3,645.82	**4,583.33**	8,229.15
14,421.51	10,950.54	11,507.59	**9,126.74**	60,692.80
13,765.55	11,386.40	8,636.57	**8,347.15***	55,080.25
....	....	1,066.83	**1,950.00**	3,016.83

TABLE 2: *Expenditures of the International Health Board for the*

Activity, State, and Country	July 1, 1913–Dec. 31, 1918	1919	1920	1921
County Health Work—*Continued*				
United States—*Cont'd*				
Virginia	$........	$........	$........	$13,972.74
Washington	....	....	....	....
West Virginia	....	175.00	2,731.73	4,164.56
Wyoming	....	....	....	....
Administration	....	....	....	10,198.70
Canada:				
New Brunswick	....	....	....	....
South America:				
Brazil	....	....	....	....
Philippine Islands	....	....	....	....
Training Stations:				
Alabama	....	....	....	....
Malaria Control	*120,964.84*	*34,965.08*	*133,929.02*	*150,291.34*
Co-operative Demonstrations	*120,964.84*	*34,673.03*	*121,652.24*	*112,807.97*
United States:				
Alabama	....	....	8,906.92	7,650.06
Arkansas	20,129.83	13,505.66	7,048.90	4,777.15
California	....	....	....	....
Florida	....	....	....	....
Georgia	....	....	1,230.86	....
Illinois	....	....	....	....
Louisiana	....	....	30,699.94	23,095.51
Mississippi	100,835.01	21,167.37	27,537.43	21,185.61
Missouri	....	....	....	1,471.37
North Carolina	....	....	7,526.13	18,416.25
South Carolina	....	....	13,942.74	13,321.90
Tennessee	....	....	1,969.94	1,512.56
Texas	....	....	11,472.34	10,347.23
Virginia	....	....	5,284.84	831.65
Administration	....	....	6,032.20	10,198.68
South America:				
Argentina	....	....	....	....
Brazil	....	....	....	....
Field Studies and Experiments	....	*292.05*	*10,466.43*	*37,238.37*
United States:				
Georgia	....	....	....	....
Louisiana	....	....	....	....
Maryland	....	....	....	....
Mississippi	....	....	....	....
Foreign:				
Argentina	....	....	....	5,661.02
Austria	....	....	....	....
Brazil	....	292.05	....	....

* Reports incomplete.

Years 1913–1925, Inclusive, Covering All Activities—Cont'd

1922	1923	1924	1925	Total
$11,319.44	$11,710.39	$8,687.40	$9,456.96	$55,146.93
....	....	2,500.00	2,291.66	4,791.66
5,089.15	8,223.28	8,606.13	9,966.39	38,956.24
....	399.75	2,462.51	2,498.63	5,360.89
12,887.71	14,316.45	18,918.77	21,440.35	77,761.98
9,000.00	20,652.83	24,347.17	....	54,000.00
12,513.92	10,708.24	19,313.07	29,240.11	71,775.34
....	....	....	5,415.74	5,415.74
....	....	5,160.06	....	5,160.06
161,455.14	*163,400.50*	*196,049.68*	*185,197.89*	*1,146,253.49*
94,015.02	*79,280.50*	*107,528.50*	*96,637.02*	*767,559.12*
15,416.93	8,232.07	5,936.26	5,239.56	51,381.80
6,388.11	4,274.13	4,263.40	1,954.16	62,341.34
3,111.12	....	....	....	3,111.12
....	....	1,125.00	....	1,125.00
2,017.08	3,756.74	5,298.38	3,634.40	15,937.46
422.80	1,006.84	827.68	3,214.92*	5,472.24
17,365.78	4,519.76	4,745.81	4,643.77	85,070.57
8,901.06	12,692.71	7,539.29	7,418.62*	207,277.10
2,900.00	3,200.00	3,000.00	1,911.67	12,483.04
9,046.96	9,292.94	15,644.96	7,401.41	67,328.65
10,892.31	7,556.95	7,196.81	........*	52,910.71
3,659.65	1,963.50	5,516.22	4,541.63	19,163.50
2,307.84	5,213.64	5,007.00	1,151.09	35,499.14
6,062.08	8,981.35	10,251.00	9,436.10	40,847.02
5,523.30	8,589.87	....	5,907.04	36,251.09
....	....	....	7,641.12	7,641.12
....	....	31,176.69	32,541.53	63,718.22
67,440.12	*77,977.71*	*81,459.41*	*82,106.68*	*356,980.77*
....	15,182.09	19,299.29	9,663.77	44,145.15
....	205.17	....	....	205.17
....	2,447.88	1,432.43	....	3,880.31
....	156.34	2,719.10	....	2,875.44
....	....	....	....	5,661.02
....	....	2,102.00	2,381.99	4,483.99
22,043.09	20,429.27	....	....	42,764.41

TABLE 2: *Expenditures of the International Health Board for the*

ACTIVITY, STATE, AND COUNTRY	July 1, 1913–Dec. 31, 1918	1919	1920	1921
MALARIA CONTROL—*Continued*				
Field Studies and Experiments—*Cont'd*				
Foreign—*Cont'd*				
Ecuador........	$.......	$.......	$4,595.59	$.......
Italy..........	....	....	....	....
Nicaragua	....	....	425.66	6,662.51
Palestine........	....	....	....	....
Philippine Islands	....	....	....	....
Porto Rico......	....	....	5,445.18	24,914.84
Miscellaneous.......	....	....	*1,810.35*	*245.00*
Conference of Malaria Workers....	....	....	1,810.35	245.00
Motion picture film	....	....	....	....
Johns Hopkins School of Hygiene and Public Health	....	....	....	....
University of Chicago........	....	....	....	....
Entomological Studies in the field	....	....	....	....
YELLOW FEVER CONTROL..	*97,846.37*	*94,526.42*	*139,757.40*	*236,755.46*
Yellow Fever Commissions..........	49,590.91	44,271.12	83,717.13	....
Brazil.............	....	....	....	461.30
Colombia and Venezuela............	....	....	....	....
Countries bordering on Caribbean Littoral and Amazon Valley...........	4,514.26	....	....	....
Ecuador...........	29,473.98	48,396.77	28,574.98	1,698.06
Mexico and Central America..........	....	1,858.53	27,465.29	154,260.47
Peru...............	14,267.22	....	....	80,335.63
Training of Personnel.	....	....	....	....
Vaccine and Serum...	....	....	....	....
History of Yellow Fever............	....	....	....	....
West Africa.........	....	....	....	....
Administration......	....	....	....	....
TUBERCULOSIS IN FRANCE	*484,886.67*	*602,775.78*	*518,013.51*	*359,540.31*
Inauguration of Work	18,671.74	....	....	....
Departmental Organization...........	....	....	139,364.76	47,281.28
Public Health Visiting	....	....	76,191.46	101,473.08
Educational Division .	91,071.58	141,053.34	135,920.64	79,839.90
Medical Division	276,813.60	389,328.32	80,226.08	40,621.01
Contingent Fund.....	....	....	....	750.00

* Reports incomplete.
† Cost of work in Venezuela includes only the expenses of the survey commission.

Years 1913–1925, Inclusive, Covering All Activities—Cont'd

1922	1923	1924	1925	Total
$........	$........	$........	$........	$4,595.59
....	127.24	15,243.89	36,504.93	51,876.06
8,091.00	13,701.47	6,415.05	7,215.89*	42,511.58
7,250.11	10,572.80	12,369.77	4,756.34*	34,949.02
6,077.50	8,623.03	15,677.57	8,479.62*	38,857.72
23,978.42	6,532.42	6,200.31	13,104.14	80,175.31
....	*6,142.29*	*706,177.00*	*6,454.19*	*21,713.60*
....	375.98	....	....	2,431.33
....	5,766.31	4,756.46	....	10,522.77
....	....	2,004.56	3,037.54	5,042.10
....	....	....	772.81	772.81
....	....	300.75	2,643.84	2,944.59
211,980.51	*337,378.42*	*637,382.03*	*539,067.79*	*2,294,694.40*
....	239.97	....	....	177,819.13
469.68	99,838.09	515,247.46	370,264.24	986,280.77
....	37,259.99	60,714.72	9,723.35†	107,698.06
....	6,332.05	4,153.33	....	14,999.64
3,017.05	....	....	....	111,160.84
163,219.91	158,324.26	40,922.22	46,686.84	607,004.74
36,041.68	....	....	....	116,377.31
3,000.00	8,875.04	5,000.00	9,256.76	26,131.80
6,000.00	3,786.06	6,000.00	6,000.00	21,786.06
232.19	6,481.45	5,344.30	3,941.33	15,999.27
....	....	....	93,195.27	93,195.27
....	16,241.51	....	....	16,241.51
268,274.49	*82,041.52*	*67,093.60*	*14,350.04*	*2,396,975.92*
....	....	....		18,671.74
24,044.27	....	....	....	210,690.31
99,525.30	54,759.09	37,371.65	....	369,320.58
62,422.55	....	....	....	510,308.01
....	....	....	....	786,989.01
2,490.94	4,766.70	4,420.94	....	12,428.58

TABLE 2: *Expenditures of the International Health Board for the*

Activity, State, and Country	July 1, 1913–Dec. 31, 1918	1919	1920	1921
Tuberculosis in France—*Continued*				
Postgraduate Tuberculosis Courses....	$........	$........	$........	$........
Comité National.....	....	....	....	....
Central Administration.............	98,329.75	72,394.12	86,310.57	89,575.04
Public Health Education.................	*36,294.26*	*36,701.04*	*68,373.54*	*89,092.64*
Schools of Hygiene and Public Health	*32,968.43*	*23,582.57*	*29,929.01*	*24,929.87*
Brazil:				
Bahia..........	....	....	....	....
São Paulo.......	32,968.43	23,582.57	29,929.01	24,725.36
Czechoslovakia—Prague.........	....	....	....	204.51
England—London..	....	....	....	....
Poland—Warsaw...	....	....	....	....
Hungary—Budapest	....	....	....	....
Yugoslavia—Zagreb	....	....	....	....
Canada—Toronto..	....	....	....	....
Trinidad..........	....	....	....	....
Study and Training Courses for Health Officers...........	....	....	....	3,466.64
Fellowships.........	3,325.83	13,118.47	38,409.84	60,696.13
Study of Teaching Hygiene and Public Health in Medical School.........	....	....	34.69	....
Study and Training for Health Officers .	....	....	....	....
Training of State Appointees........	....	....	....	....
Training Centers:				
Alabama..........	....	....	....	....
Public Health Nursing	....	....	....	....
Brazil.............	....	....	....	....
France.............	....	....	....	....
Public Health Administration..............	....	....	*12,708.81*	*20,736.31*
United States.......	....	....	....	....
Developm't of State Health Services:				
Sanitary Engineering:				
Colorado......	....	....	....	....
Connecticut...	....	....	....	....
Idaho........	....	....	....	....

Years 1913–1925, Inclusive, Covering All Activities—Cont'd

1922	1923	1924	1925	Total
$5,044.15	$........	$........	$........	$5,044.15
....	22,515.73	10,472.28	14,350.04	47,338.05
74,747.28	....	14,828.73	....	436,185.49
164,675.97	*501,070.58*	*442,238.41*	*1,033,256.99*	*2,371,703.43*
46,752.71	*411,592.58*	*242,288.16*	*789,515.49*	*1,501,548.82*
....	....	....	3,595.40	3,595.40
20,561.52	5,404.19	7,613.95	3,018.59	147,803.62
3,416.41	4,964.84	9,610.81	123,404.03	141,600.60
22,774.78	209,023.55	15,953.40	225,008.72	472,760.45
....	92,200.00	209,100.00	3,000.00	304,300.00
....	....	....	40,000.00	40,000.00
....	....	....	124,137.50	124,137.50
....	....	....	262,500.00	262,500.00
....	....	....	4,851.25	4,851.25
3,286.02	2,958.07	17,532.45	....	27,243.18
114,637.24	186,519.93	182,427.80	218,090.08	817,225.32
....	....	....	....	34.69
....	....	....	1,413.45	1,413.45
....	....	....	5,757.59	5,757.59
....	....	....	18,480.38	18,480.38
14,630.10	*25,654.17*	*23,237.83*	*51,106.92*	*114,629.02*
14,630.10	25,654.17	23,237.83	26,406.28	89,928.38
....	....	....	24,700.64	24,700.64
54,287.63	*158,714.90*	*226,922.64*	*289,184.99*	*739,317.45*
1,686.33	*11,747.84*	*12,315.92*	*18,940.01*	*44,690.10*
....	....	1,200.00	800.00	2,000.00
....	....	....	375.00	375.00
....	....	....	1,600.00	1,600.00

TABLE 2: *Expenditures of the International Health Board for the*

Activity, State, and Country	July 1, 1913–Dec. 31, 1918	1919	1920	1921
Public Health Administration—*Continued*				
United States—*Cont'd*				
Developm't of State Health Services				
Sanitary Engineering—*Cont'd*				
Iowa..........	$........	$........	$........	$........
Louisiana.....	....	....	....	....
Maine........	....	....	....	....
Missouri......	....	....	....	....
Montana	....	....	....	....
North Dakota .	....	....	....	....
Tennessee.....	....	....	....	....
Texas.........	....	....	....	....
Utah..........	....	....	....	....
Vital Statistics				
Alabama......	....	....	....	....
Georgia.......	....	....	....	....
Mississippi....	....	....	....	....
Montana	....	....	....	....
Tennessee.....	....	....	....	....
West Virginia .	....	....	....	....
Epidemiology				
Alabama......	....	....	....	....
Kansas.......	....	....	....	....
Rhode Island..	....	....	....	....
Tennessee.....	....	....	....	....
Utah.........	....	....	....	....
Virginia	....	....	....	....
Traveling Expenses of State Health Officers.........	....	....	....	....
Foreign	....	....	*12,708.81*	*20,736.31*
Australia	....	....	....	....
Canada...........	....	....	....	....
Czechoslovakia	....	....	12,708.81	20,736.31
Denmark.........	....	....	....	....
France...........	....	....	....	....
Honduras.........	....	....	....	....
Hungary..........	....	....	....	....
Philippine Islands .	....	....	....	....
Yugoslavia........	....	....	....	....

Years 1913–1925, Inclusive, Covering All Activities—Cont'd

1922	1923	1924	1925	Total
$........	$3,495.12	$........	$........	$3,495.12
....	457.72	....	....	457.72
....	....	....	350.00	350.00
1,050.00	368.43	....	....	1,418.43
....	927.57	1,855.01	950.00	3,732.58
....	....	477.73	....	477.73
....	642.55	....	....	642 55
....	1,423.50	....	....	1,423.50
636.33	345.00	500.00	150.00	1,631.33
....	....	....	665.00	665.00
....	400.00	....	....	400.00
....	....	....	700.00	700.00
....	....	....	1,250.00	1,250.00
....	....	....	1,273.09	1,273.09
....	....	1,706.66	1,050.00	2,756.66
....	....	2,229.04	5,049.68	7,278.72
....	....	....	236.62	236.62
....	....	....	537.68	537 68
....	....	....	924.33	924.33
....	151.14	2,550.58	2,097.65	4,799.37
....	3,536.81	750.00	930.96	5,217.77
....	....	1,046.90	....	1,046.90
52,601.30	*146,967.06*	*191,368.89*	*270,244.98*	*694,627.35*
20,000.00	21,432.73	9,715.68	....	51,148.41
....	....	577.93	....	577.93
5,534.47	7,720.00	12,720.00	7,720.00	67.139.59
....	....	....	198,880.00	198,880.00
....	....	5,000.00	13,638.69	18,638.69
....	....	....	5,740.85	5,740.85
....	....	....	4,503.55	4,503.55
12,046.83	18,873.44	11,944.76	5,811.89	48,676.92
....	....	....	33,950.00	33,950.00

TABLE 2: *Expenditures of the International Health Board for the*

Activity, State, and Country	July 1, 1913– Dec. 31, 1918	1919	1920	1921
Public Health Administration—*Continued*				
Foreign—*Continued*				
League of Nations				
Interchange of Public Health Personnel.....	$........	$........	$........	$........
Epidemiological Intelligence Service.......	....	....	....	....
Training in Vital Statistics	....	....	....	....
Expenses of Dr. W. H. Welch ..	....	....	....	....
Conference in Singapore.....	....	....	....	....
Public Health Laboratory Service.........	....	....	....	*16,109.70*
United States........	....	....	....	*2,539.88*
Alabama..........	....	....	....	....
Arkansas.........	....	....	....	....
Connecticut.......	....	....	....	....
Delaware.........	....	....	....	....
Kansas...........	....	....	....	2,539.88
Maine............	....	....	....	....
Missouri..........	....	....	....	....
Montana..........	....	....	....	....
Oregon...........	....	....	....	....
Tennessee.........	....	....	....	....
Utah.............	....	....	....	....
Virginia..........	....	....	....	....
Central America	....	....	....	*1,377.02*
Costa Rica........	....	....	....	....
Guatemala........	....	....	....	307.50
Honduras.........	....	....	....	....
Nicaragua........	....	....	....	85.18
Salvador..........	....	....	....	984.34
Demonstrations......	....	....	....	....
Administration	....	....	....	12,192.80
Miscellaneous.........	*171,140.15*	*55,846.90*	*38,539.49*	*38,916.59*
Surveys and exhibits..	73,675.85	16,896.80	24,996.05	13,437.76
Library.............	1,844.12	....	....	....
Philippine Hospital Ship.............	37,500.00	6,500.00	....	....
Investigation of sewage disposal in rural homes.........	10,311.51	778.60	....	....

* Reports incomplete.

Years 1913–1925, Inclusive, Covering All Activities—Cont'd

1922	1923	1924	1925	Total
$15,020.00	$63,080.00	$91,353.22	$........	$169,453.22
....	29,215.44	32,808.37	........*	62,023.81
....	6,645.45	20,700.54	........*	27,345.99
....	....	3,097.30	....	3,097.30
....	....	3,451.09	....	3,451.09
26,325.29	*32,180.74*	*41,767.89*	*46,456.97*	*162,840.59*
9,854.16	*19,708.21*	*30,248.64*	*19,700.40*	*82,051.29*
3,261.03	9,973.47	12,560.85	7,479.00	33,274.35
....	1,676.16	3,836.39	1,195.41*	6,707.96
....	....	375.00	1,800.00	2,175.00
....	....	1,500.00	....	1,500.00
5,468.14	2,693.88	....	....	10,701.90
....	....	....	600.00	600.00
874.99	....	2,067.41	1,771.48	4,713.88
....	676.74	2,100.00	1,050.00	3,826.74
....	900.00	2,688.37	1,120.32	4,708.69
250.00	2,888.45	2,166.66	2,301.16	7,606.27
....	....	1,900.00	1,387.50*	3,287.50
....	899.51	1,053.96	995.53	2,949.00
4,096.00	*12,472.53*	*11,519.25*	*16,611.86*	*46,076.66*
....	303.14	2,994.39	3,220.12	6,517.65
621.75	1,581.36	1,715.94	1,546.64	5,773.19
....	4,222.71	....	....	4,222.71
2,445.53	3,271.69	6,808.92	11,845.10	24,456.42
1,028.72	3,093.63	....	....	5,106.69
206.33	....	....	....	206.33
12,168.80	....	....	10,144.71	34,506.31
17,719.15	*14,684.51*	*28,673.81*	*24,403.03*	*389,923.63*
....	....	....	....	129,006.46
....	....	....	....	1,844.12
....	....	....	....	44,000.00
....	....	....	....	11,090.11

TABLE 2: *Expenditures of the International Health Board for the*

Activity, State, and Country	July 1, 1913–Dec. 31, 1918	1919	1920	1921
Miscellaneous—*Cont'd*				
Medical commission to Brazil..........	$18,513.47	$........	$........	$........
Adviser in Medical Education	12,725.19	1,666.67	....	....
Investigation of powdered milk........	....	....	500.00	....
Paris Conference on International Nomenclature of Causes of Death ...	....	....	615.30	....
Compilation of mining sanitary code......	....	....	....	125.98
Smallpox vaccine for Vera Cruz, Mexico..	....	....	....	....
Plans for laboratory at Nictheroy, Brazil ..	....	....	....	....
Traveling expenses of visiting public health authorities ..	2,561.36	....	....	7,660.12
Field equipment and supplies..........	6,207.56	23,434.94	5,996.96	4,982.25
Pamphlets, charts, and films............	6,200.41	5,499.50	5,873.33	10,153.44
Hookworm and malaria films donated or lent............	....	....	....	....
Express, freight, and exchange..........	1,600.68	1,070.39	557.85	2,557.04

Years 1913–1925, Inclusive, Covering All Activities—Cont'd

1922	1923	1924	1925	Total
$........	$........	$........	$........	$18,513.47
....	....	....	....	14,391.86
....	....	....	....	500.00
....	....	....	....	615.30
77.20	....	....	....	203.18
....	165.62	....	....	165.62
....	429.98	....	....	429.98
2,113.62	3,619.19	18,502.74	15,038.82	49,495.85
5,189.62	6,688.08	6,949.08	6,581.26	66,029.75
8,869.43	3,057.48	2,389.95	2,742.95	44,786.49
....	....	....	40.00	40.00
1,469.28	724.16	832.04	....	8,811.44

CHINA MEDICAL BOARD

Report of the Director

To the President of the Rockefeller Foundation:

Sir:

I have the honor to submit herewith my report as General Director of the China Medical Board for the period January 1, 1925, to December 31, 1925.

Respectfully yours,

ROGER S. GREENE

General Director

CHINA MEDICAL BOARD

OFFICERS AND MEMBERS

1925

Chairman

GEORGE E. VINCENT[1]

General Director

ROGER S. GREENE

Acting Resident Director in China

HENRY S. HOUGHTON

Assistant Resident Director in China

L. CARRINGTON GOODRICH

Adviser on Premedical Education

N. GIST GEE

Secretary

NORMA S. THOMPSON

Executive Secretary

MARGERY K. EGGLESTON

Members

John G. Agar[1]
Ernest D. Burton[2]
Wallace Buttrick
Simon Flexner
Raymond B. Fosdick[1]
Frederick L. Gates
Frank J. Goodnow
Vernon Kellogg[1]
Paul Monroe
John R. Mott
Francis W. Peabody
John D. Rockefeller, Jr.
Wickliffe Rose[1]
George E. Vincent[1]
William H. Welch

[1] Member of Executive Committee.
[2] Died May 5, 1925.

CHINA MEDICAL BOARD

OFFICERS AND MEMBERS

1926

Chairman

George E. Vincent[1]

General Director

Roger S. Greene

Acting Resident Director in China

Henry S. Houghton

Adviser on Premedical Education and Assistant Resident Director in China[2]

N. Gist Gee

Assistant Resident Director in China

L. Carrington Goodrich

Secretary

Norma S. Thompson

Executive Secretary

Margery K. Eggleston

Members

Wallace Buttrick[1, 3]
Simon Flexner
Raymond B. Fosdick[1]
Frederick L. Gates
Frank J. Goodnow
Vernon Kellogg[1]
Paul Monroe
John R. Mott
Francis W. Peabody
John D. Rockefeller, Jr.
Wickliffe Rose[1]
George E. Vincent[1]
William H. Welch

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[1]Member of Executive Committee.
[2]Assistant Resident Director in China as of June 1, 1926.
[3]Died May 27, 1926.

TABLE OF CONTENTS

CHINA MEDICAL BOARD

Educational institutions in China labored under serious difficulties during the year 1925 on account of political disturbances, both international and domestic. Chinese government schools suffered most through the diversion of their funds to military uses, while Chinese and foreign schools were alike handicapped, though in varying degrees in different places, by the frequent disorganization of transportation and by the preoccupation of many of their students with political questions, which often led to the interruption of academic work. Though these difficulties are serious and cannot be ignored there have been some encouraging developments.

A striking feature of this period was the loyalty of most of the teachers in government schools of all grades, who continued to work even while their salaries were many months in arrears. Another ground for encouragement is the steady increase year by year in the number of competent teachers, administrators, and practitioners of the various professions. As a consequence the younger men who used to be prematurely forced into positions of responsibility, tend more and more to serve a thorough apprenticeship before taking up the burden that in other countries is carried by an older generation.

The remission by the American Congress of the remaining payments of the Boxer Indemnity due to the United States, resulted in the organization in June, 1925, of the China Foundation for the Promotion of Education and Culture, which was established by the Chinese Government to receive the indemnity funds and to use them for the improvement of education and other cultural enterprises. Of the fifteen members of the board of trustees of this foundation ten are Chinese, most of whom have had experience as teachers or as administrators in modern educational and scientific institutions, and five are Americans. All the members were appointed by the Chinese Government. The executive head of the foundation is Mr. Fan Yuan-lien, a former minister of education who, besides being familiar with modern educational developments abroad, through study in Japan, the United States, and Europe, has had wide experience in his own country.

The foundation decided to devote itself primarily to the advancement of education in the pure and applied sciences and to the encouragement of research. After setting aside as an endowment the accumulated payments since December, 1920, when the remission took effect, and adding to it one-third of all future instalments, the foundation will have available for use annually, a sum of approximately Mex. $800,000, or about $400,000 in American currency. While the amount is small in comparison with the needs of education in China, it is believed that the foundation can be of use by helping a limited number of institutions to raise their standards and by making its grants in such a way as to stimulate appropriations from public revenues and gifts from private sources for similar purposes. Since the greater part of the first year was naturally required for organization and investigation, no grants were made in 1925, but it is expected that, beginning with the academic year 1926–1927, the foundation will play a part in the cultivation of the sciences in China.

The unpaid portions of the much larger indemnity due to Great Britain, and those of certain other countries, are also being remitted, and while it is not yet known just how all these funds will be used, a considerable part is likely to go directly or indirectly to the improvement of education.

The available funds of the China Medical Board were required, almost wholly, for the support and further development of enterprises already started, so that few new projects could be considered. It seems likely that for some years to come intensive cultivation of a few existing enterprises, with special attention to the selection and further development of the best Chinese personnel, will prove a more effective policy than attempts to encourage the establishment of new institutions or the radical reorganization of weaker schools while the supply of competent workers is still scant.

The work of the Board falls into two principal divisions: (1) medical education, in which the main effort is made through the Peking Union Medical College, an institution supported wholly by the Board, and (2) the improvement of the teaching of physics, chemistry, and biology through co-operation with a number of independent colleges and universities.

I. MEDICAL EDUCATION

Modern scientific education in China is faced by a serious dilemma. First, there does not exist an adequate scientific literature, nor even an accepted terminology in the national language for many branches of science, including medicine. Secondly, the number of teachers qualified and willing to give instruction through the medium of the Chinese language is entirely insufficient to man even two or three medical schools of high grade. Chinese physicians who have received a modern education, adequate to fit them for teaching positions, usually prefer to speak in a foreign language when dealing with professional subjects. In reporting the results of their research most of them write in a European language for publication in a foreign journal, partly because they find it easier to do so, and partly because they can thus reach a larger number of readers capable of appreciating their work. Usually they prefer also to teach in a foreign language. The number of foreign scientists who have sufficiently mastered the difficult Chinese written language, to be able to teach well in Chinese, has always been insignificant, and relatively few are willing even to make the attempt. Practically none can write a paper in Chinese without assistance.

Consequently the choice must for the present be made between teaching in a foreign language, thus severely limiting the number of students qualified to enter a school of high grade and placing an abnormal mental strain upon the student body, or teaching in Chinese with the consequent difficulty of securing a competent faculty and with a very meager literature which cannot now be kept abreast with the latest developments in the wide field of the medical sciences.

It does not seem likely that the problem will be satisfactorily solved until there has grown up a new generation of medical teachers and investigators trained in China and consequently having a better command of their own language and literature than that possessed by most of the graduates returned from abroad. The recent literary revolution in China, which is substituting the spoken for the classical language as a medium for literary expression, should greatly facilitate the task of these younger men who must develop a scientific literature of their own before modern medicine can be thoroughly

econd Intentional Exposure

Photograph Excised Here

Fig. 59.—Mothers' Club of the Public Health Demonstration Center opened in Peking, September 1, 1925.

naturalized in China. A great deal of work has already been done on scientific terminology.

In some fields of science Chinese already furnishes a satisfactory medium of expression, but in medicine there is still much work to be done.

For the present, therefore, a school which is trying to present to its students the best that modern medicine has to offer, and to provide for its staff opportunities for scientific investigation, must depend almost wholly on a foreign language. Such a school must expect small classes, for though the teaching of English is surprisingly widespread in China—much more so than is true of any other foreign language—business, government service, and the other professions naturally absorb the greater part of the English-speaking student body.

As a consequence quality rather than quantity must be sought. There can be no illusions as to the probability of producing a large proportion of natural leaders from any school, no matter how competent its staff nor how elaborate its equipment. No entrance test for genius has yet been devised. With a small registration the number of outstanding personalities to be graduated will be correspondingly small. If successful the school will turn out men capable of becoming useful practitioners, with here and there a

Photograph Excised Here

Fig. 60.—Corner of the clinic, Health Center, Peking.

Photograph Excised Here

Fig. 61.—Visiting nurses of the Health Center, Peking. The uniform of the nursing staff of the Health Center is a modification of that worn by the American public health nurse.

future teacher or investigator. But the small school, well staffed and equipped, may serve a larger number by also offering opportunities for graduate work to ambitious men from schools less fortunately placed. Such men may thus make good the deficiencies in their earlier training and then proceed to develop whatever native talents they possess. A few men of great ability may emerge from their numbers just as many men in the West, who received their earlier training in inferior schools, have made their way to the front rank through later opportunities for self-development. The majority will return to practice or teaching a little better trained and with a broader outlook. Through junior staff appointments the small school may hope to carry further the training of Chinese who receive their professional education abroad, giving them a chance at the same time to orient themselves after their long absence from China, and to learn something of the special problems of medicine and hygiene in their own country before they go to more important posts in the same school or elsewhere.

Peking Union Medical College

The Peking Union Medical College is striving to discharge educational functions of the three types.

The following table shows the enrollment in all departments of the College for the three years 1923 to 1925.

	1923–1924	*1924–1925*	*1925–1926*		
			Men	*Women*	*Total*
Medical School					
First year	23	20	9	1	10
Second year	14	18	15	3	18
Third year	9	11	15	2	17
Fourth year	5	8	9	2	11
Fifth year (interns)	3	5	8	..	8
Totals	54	62	56	8	64
Premedical School					
First year	28	30	..	..	..
Second year	13	18	..	..	..
Third year	19	12	..	..	..
Totals	60	60	..	..	..
School of Nursing					
First year	4	6	..	10	10
Second year	5	4	..	4	4
Third year	5	5	..	4	4
Fourth year	1	5	..	5	5
Totals	15	20	..	23	23
Graduate and Special Students					
Medical School and Hospital	119	104			52*
Premedical School	3	4			..
School of Nursing	21	15			11*
	143	123			63*
GRAND TOTALS	272	265			150*

Besides the fifth-year students who serve as interns there are ordinarily some forty residents and interns who should be regarded as graduate students, though they are not registered as such. The thirty-one assistants in the various

*To December 31, 1925.

departments are also receiving special training. On the other hand, some of the graduate students come only for short courses, which brings their average stay to a little under three months. Counting undergraduate and graduate students, house staff assistants, and pupil nurses, the average number of persons under instruction at one time during the academic year 1924–1925 was about 240.

At the end of the year 1924–1925 the premedical school of the College was closed, since it was believed that recent improvements in the science teaching of other colleges in China made it undesirable to continue longer the maintenance of a special preparatory department attached to the medical school. This will explain the reduction in the total enrollment for the year 1925–1926. The number of graduate students covers enrollment for only one trimester and is therefore not comparable with the figures for 1923–1924 and 1924–1925 which show enrollments for twelve months.

Teaching Staff

Every year shows a distinct increase in the number of Chinese on the teaching staff and a similar increase in the responsibilities carried by the Chinese teachers; but as the medical school has been steadily growing there has not been a corresponding decrease in the foreign personnel. It seems probable, however, that from this time on the number of foreigners required will gradually diminish.

The following table shows the changes that have taken place during the last five years:

	Chinese				Foreign			
	1922–23	3–24	1924–25	1925–26	1922–23	1923–24	1924–25	1925–26
Medical School								
Professors	..	..	..	..	7	9	9	9
Associate professors	1	2	3	4	7	7	8	7
Assistant professors	..	..	..	..	1	2	1	5
Associates	6	4	4	9	16	18	17	15
Assistants	15	24	31	30	5	3	6	3
Totals	22	30	38	43	36	39	41	39
Premedical School								
Assistant professors	..	..	..	..	5	5	3	..
Instructors	1	1	1	..	4	6	9	..
Assistants	4	5	7	..	4	3	2	..
Totals	5	6	8	..	13	14	14	..
School of Nursing								
Instructors	..	1	..	1	2	2	3	3
GRAND TOTALS	27	37	46	44	51	55	58	42

During the year 1924–1925, Dr. Alfred E. Cohn, member of the Rockefeller Institute for Medical Research, served as visiting professor of medicine for three months, and Dr. R. K. S. Lim, of Amoy University, formerly of the University of Edinburgh, as visiting professor and acting head of the department of physiology for the entire year. These visiting professors are not included in the foregoing table.

Curriculum

The announcement published annually by the College shows in detail the courses offered to undergraduates and graduates. For the class entering in September, 1924, a new curriculum was introduced which is intended to bring about a close relation between the teaching in the preclinical subjects and the study of cases and treatment of patients under the clinical staff. Among its important features are the courses in which several departments participate in order to cover a given field of study consecutively in its physiological, pathological, and clinical aspects. Since, at the end of the year 1925, there were only two classes under instruction according to this new plan, it is still too early to report on its effectiveness.

An effort is being made to insure that graduates of the College shall have a good knowledge of their own language, though instruction in medical subjects must be in English for some time to come. Chinese is one of the subjects in which students are examined for admission, and provision is being made for special instruction in Chinese scientific composition in the fourth year of the course.

Short courses in ophthalmology, roentgenology, and obstetrics and gynecology were given for graduates in 1925. The course in ophthalmology was given for the first time in the Chinese language. Most of the graduate students are following informal courses in the laboratories and clinics and assisting to some extent in the regular work of the departments in which they are registered.

Research

The nature of the studies which are being carried on by the several departments will best be seen from the list of papers published during the year, which appears on pages 379 to 385 of this report. The field study of kala-azar, which was begun in 1924, was continued under a special appropriation from the China Medical Board, and will be maintained through the year 1926. It is hoped that this investigation in a country in which the disease had not previously been studied systematically, may result at least in some simplification of the problem of transmission, and thus be of certain value to those who are working elsewhere on the same problem.

Publications

The College assembles annually one or more volumes of selected papers published by members of the staff, which are sent to the leading medical libraries of the world. An announcement and a report of the hospital are also published annually and can be obtained by those who are interested in securing more detailed information about the institution, on application to the Director of the College at Peking, or to the Secretary of the

Board of Trustees of the Peking Union Medical College, 61 Broadway, New York City.

Experimental Study of Public Health Organization

Since little modern public health work is at present done in China, the teaching of hygiene and public health in a practical way has in the past been almost impossible. In order to provide for the students opportunities to observe and participate in some kind of public health work, however simple, arrangements were made early in 1925 for co-operation with the police department of Peking in the establishment of an experimental health center in a district of the city having a population of about fifty-five thousand.

Work was begun in September, 1925, in some old temple buildings which were remodeled for the purpose. The director and two of the principal medical officers are also officers of the Epidemic Prevention Bureau, an organ of the Ministry of the Interior, concerned mainly with the preparation of biological products. The work was originally divided into four sections—General Sanitation, Vital Statistics, Medical Services, and Communicable Disease Control—which were later reduced to three by placing communicable disease control under the officer in charge of vital statistics. The section of Medical

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Fig. 62.—Student nurses on duty in a ward, Peking Union Medical College.

Services includes a public health nursing service under an American superintendent with a staff of five Chinese women nurses. School hygiene also comes within the field of this section. While attention is mainly directed to maternity and child welfare through clinics and visits to homes, clinics are conducted also for men. Emphasis is laid on education and disease prevention. Serious cases are referred to other dispensaries or hospitals for treatment. The nursing service, though regarded at first with some suspicion, is rapidly winning popular appreciation. The Section of Vital Statistics and Communicable Disease is endeavoring to secure systematic reports of births and deaths and of the incidence of communicable diseases. While seriously hampered by the scarcity of well-trained physicians who could co-operate by filing reports with reliable diagnoses, steady progress is being made in securing notification of births and deaths.

The Division of General Sanitation has conducted a house-to-house survey, has inspected and improved the public latrines in the district with a view to fly control, has assisted in the removal of refuse, previously not adequately cared for, and has examined public water-supplies.

Through this experimental organization knowledge is being obtained as to the kinds of

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Fig. 63.—Nurse training in the Peking Union Medical College Hospital. Practical work in the nursery.

public health work that are practicable under present social, political, and economic conditions in China, the principal difficulties are being learned, and the result is likely to be the development of a modest program that can actually be carried out in some of the larger cities of the country. Men who have been trained in public health abroad will here have an opportunity to gain experience, and to adapt what they have learned to local conditions. The professor of hygiene and public health in the Peking Union Medical College is adviser to the Health Station, and will have charge of the teaching of students there. Students will begin work in the Health Station in 1926, going there in small groups in their fourth year, just as they go to the clinical departments in the hospital.

The total expenses in the Health Station for the first year were estimated at about Mex. $44,000 of which about 40 per cent is being paid by the police and the Epidemic Prevention Bureau, and the remainder by the College.

The Hospital

Admissions to the hospital by departments, including transfers, during the year ending June 30, 1925, were as follows:

July 1, 1924–June 30, 1925

Departments	Chinese Male	Chinese Female	Foreigners Male	Foreigners Female	Total 1924–25	Total 1923–24
Medicine	926	296	170	159	1,551	1,509
Surgery	683	143	79	74	979	992
Obstetrics *	74	257	20	62	413	376
Gynecology	..	143	..	106	249	294
Ophthalmology	129	49	14	8	200	221
Otolaryngology	189	90	37	28	344	344
Neurology	63	17	6	4	90	130
Totals	2,064	995	326	441	3,826	3,866

The actual number of in-patients treated during the year was 3,765, as against 3,797 in 1923–1924; 3,403 in 1922–1923, and 2,653 in 1921–1922, the first year of work in the new hospital. The military operations and consequent interruption of transportation apparently account for the slight decrease in in-patients, some of whom ordinarily come from a considerable distance.

The average duration of stay was seventeen days, as compared with sixteen days in the previous year, due in part, no doubt, to the admission of wounded soldiers, some of whom remained under treatment for nearly six months.

Gradual progress is being made in securing autopsies on patients dying in the hospital. During the year 1924–1925, sixty-five such autopsies were performed (33.7 per cent of total deaths), as against thirty-six (22.4 per cent) in the previous year. Besides these examinations

*The admissions to the obstetrical department include babies delivered in the hospital.

seven autopsies were performed on cases occurring outside the hospital and four on still-born infants.

The out-patient department also showed a slight decrease in the number of new cases, but on the other hand there was an increase in the total number of visits as shown by the following figures:

Out-patients	*New*	*Old*	*Total Visits*
1923–1924	16,048	65,766	81,814
1924–1925	15,892	72,437	88,329

In addition there were 10,707 office consultations or visits in the College Health and Private Consultation Service as compared with 11,223 in the preceding year.

In December, 1925, there was again a call for emergency work by the hospital staff for the soldiers wounded in the severe fighting near Tientsin. About four thousand were received in the Nanyuan Barracks, south of Peking, where they were cared for by volunteers from various institutions in Peking, since the army medical service was unprepared to deal with such large numbers. The greater part of the operating was done by surgeons from the Peking Union Medical College, and the X-ray and nursing services were also organized by the College staff. The wounded came in at first so rapidly as to swamp the small staff available and made impossible the keeping of complete records, but up to January 10, 1926, the College unit had recorded 940 fluoroscopic examinations and 729 operations, besides attending, with the help of volunteers, to the daily dressings of over 1,000 cases.

The Government Epidemic Prevention Bureau had charge of sanitation in the camp. Several cases of typhus occurred, but by systematic delousing, provision of bathing facilities, and isolation of cases, the outbreak of a serious epidemic was prevented.

All expenses incurred by the College for special equipment, supplies, and transportation were promptly paid by the military authorities, making unnecessary the use of an emergency appropriation of $10,000, which was voted by the Board for this purpose. Of the most serious cases, both surgical and medical, altogether 158 were removed at different times to the College hospital in the city for treatment. As these patients began to convalesce, they were returned to the military hospital or to an emergency Red Cross Hospital in the city to make room for other cases needing special hospital care.

School of Nursing

The improvement of nursing education has from the beginning been an important part of the work of the Peking Union Medical College. The school of nursing is conducted as an educational enterprise and not in order to secure service from student nurses; the practical work in the hospital is arranged at such times and in such quantities as seem best to serve the educational needs of the students. The table on page 11, shows that the classes are still very small. This is due to the requirement of middle school graduation and a working knowledge of English as qualifications for admission. The first year of the regular four-year course is devoted almost entirely to classroom and laboratory work, and throughout the course the medical subjects are taught by members of the departments in the medical school. Arrangements were made in 1925 to have the first year of the course given at Yenching University in Peking, thus reducing the time spent in the hospital to three years.

Five nurses were graduated in 1925, four of whom have remained in the service of the hospital, correspondingly reducing the number of staff nurses required from abroad. Meanwhile the nursing in the hospital is mainly carried on by graduate nurses, of whom about twenty-five, including the administrative and supervisory staff, are foreigners and Chinese trained abroad, and about sixty-five are graduates of various schools in China, who are thus enabled to secure supplementary training and experience.

New Construction

Toward the end of 1925 a new construction program was authorized, which will cost approximately $750,000 over a period of four years. A large building to the north of the present dispensary and hospital laboratory building will provide for much needed extension of the out-patient department on the lower floors, for additional laboratories for the clinical staff, and for more rooms for resident staff and male nurses. Another large building on the site of "Oliver Jones Hall," the present women's dormitory, will provide quarters for women medical students, nurses, and other women on the hospital staff, whose duties make it necessary for them to live in or near the hospital. An enlargement of the power equipment, to carry the additional load which will result when the new buildings are occupied, is included in the plans.

Budget

Appropriations to the amount of $888,000 were made for the regular budget of the College and its hospital, and an addition of $50,000 was made to the operating capital mainly to permit the accumulation of a larger stock of coal, on account of the frequent interruption of railway traffic which has recently prevented deliveries of coal in Peking for several months.

A summary of receipts and expenditures of the College for the year ending June 30, 1925, will be found on pages 386 to 389. The net cost of operation of the College and hospital for that year was $866,353.30, United States currency.

Hsiangya Medical College

In 1925 the Hunan-Yale College of Medicine at Changsha, which had been conducted for eleven years by a board composed partly of Chinese and partly of representatives of the Yale Foreign Missionary Society, was reorganized under a wholly Chinese board of trustees, and plans were made for much needed enlargement of the staff and equipment. The China Medical Board had been contributing to the support of this school since 1915, but the greater part of the budget had been provided by contributions from Yale graduates and undergraduates, the Commonwealth Fund, and the provincial government of Hunan. Pending the completion of arrangements for financing the enterprise under these new auspices the Board made a grant of Mex. $40,000 toward the budget for the year 1925–1926, this being approximately one-fifth of the gross amount required for the medical school and its hospital.

THE ROCKEFELLER FOUNDATION 1913
THE WELLBEING OF MANKIND THROUGHOUT THE WORLD
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Fig. 64.—Bailie Hall, University of Nanking, in which are housed the biological and agricultural laboratories.

The Chinese name of the school, which now becomes its official designation, is the Hsiangya Medical College. The new board is made up largely of men of educational interests and includes some with modern medical training.

Like most of the other medical schools in China which are trying to maintain high standards, this school still has a very small student body. Thirty-seven men have been graduated since 1921, when the first class completed the course, and fifty-one students were enrolled in the fall term of 1925, distributed as follows: first year 12, second year 14, third year 12, fourth year 7, fifth year 6.

Judged by the most satisfactory test, the performance of its graduates in their professional work, the Hsiangya Medical College has demonstrated its usefulness. Its graduates have given good service in mission hospitals, in the Peking Union Medical College, where one of them has lately served as medical resident, directing both Chinese and foreign interns, and in graduate work in the United States. This record seems to show that very creditable results can be obtained with a small teaching staff and limited resources when classes are also small and practically all the energies of the faculty are devoted to their teaching or to clinical work in the school hospital.

The fact that teaching is done in English as at

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Fig. 65.—Auditorium, Tsinghua College.

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Fig. 66.—Science Building, Tsinghua College.

Peking, combined with the thorough preparation required in physics, chemistry, and biology, no doubt tends to limit the registration at Hsiangya, but like some other schools it has probably been affected to some extent by the general financial stringency which makes it difficult for many parents to send their sons to a university or professional school.

Shantung Christian University

A third medical school to which the Board has been contributing is that conducted by the Shantung Christian University at Tsinan in the province of Shantung. The University now holds a Canadian charter, granted in 1924, but it is actually an international organization, receiving support also from Great Britain and the United States, and having eight Chinese on the field board of managers. The gross expenditure for the school and hospital during the year ending June 30, 1925, was approximately Mex. $175,000, including the support of full-time members of the staff whose salaries are paid directly by missionary societies co-operating in the school, instead of through the university treasury. The China Medical Board contributed to this budget Mex. $38,000.

The composition of the faculty of a school of this type is of interest. Naturally the organization cannot be rigid as changes must be made in the distribution of teaching and clinical duties according to the special qualifications of the available personnel. The following table shows the composition of the staff for the year 1924–1925:

Anatomy	3
1 professor of histology and embryology; 1 associate professor of anatomy;* 1 assistant professor of anatomy	
Physiology, etc.	5
1 professor of physiology; 1 professor of biological chemistry and toxicology; 1 associate professor of physiology and pharmacology;* 1 demonstrator in biological chemistry; 1 professor of pharmacy and materia medica	
Pathology	4
1 professor and 1 assistant professor of pathology; 1 professor and 1 instructor in bacteriology	
Public Health	1
1 assistant professor	
Medicine	7
1 professor; 2 associate professors (1 absent); 1 instructor; 1 associate professor of pediatrics;* 1 associate professor and 1 instructor in dermatology	
Surgery	4
1 professor; 1 associate professor (orthopedics);* 1 associate professor (urology); 1 instructor (otolaryngology)	
Ophthalmology	1
1 assistant professor	
Obstetrics and Gynecology	2
1 professor of obstetrics; 1 associate professor of gynecology	
Hospital Resident Staff	6
1 resident physician; 5 assistant residents (2 in surgery, 1 in medicine, 1 in dermatology, 1 in ophthalmology) for about 100 beds	
Translation Bureau	1
As this school teaches mainly in Chinese its staff is naturally interested in the development of medical literature in Chinese. It, therefore, maintains a translation bureau directed by a foreign member of the staff who devotes all his time to this work. English is more and more used as a secondary language and as such its importance is recognized	
Total	34

*On leave during 1924–1925.

Of the thirty-four members of the professional staff enumerated above twenty are foreign (Canadian, British, and American) and fourteen are Chinese.

The enrollment during the academic year 1924–1925, as shown in the report of the school for that year, was as follows: first year 12, second year 40, third year 12, fourth year 25, fifth year 9; total 98. Of these, thirty-seven are from Shantung Province. The remainder come from thirteen other provinces of China and from one foreign country, Chosen (Korea). The large size of the second-year class is due to the fact that it contains two sections admitted at different dates.

The experiment of teaching modern medical science in Chinese is probably conducted nowhere under such favorable conditions as in this school. While the difficulties are great, Chinese must eventually become the accepted medium of instruction in all schools in China, and the existence of such schools will no doubt hasten the development of an adequate terminology and encourage not only the translation of foreign literature but also the production of original work in Chinese. Meanwhile the graduates of the Shantung Christian University are becoming constantly more useful as practitioners and are making less urgent the need for additional foreign doctors in the mission hospitals of China.

With the other medical schools of China, with which the Board is not at present co-operating, this report cannot undertake to deal. Some of them are making important contributions to the progress of modern medicine in China. The majority, unfortunately, labor under a serious handicap with meager financial support and entirely inadequate staff.

II. PREMEDICAL EDUCATION

For the past eight years the Board has been contributing to the improvement of teaching in physics, chemistry, and biology in China, with the purpose of strengthening the educational foundation for the medical schools of the country. Thirteen institutions, three of which are Chinese and ten foreign, have been aided through fellowships for graduate study for their teachers, and through grants for increased budgets, additional equipment, or new laboratories. Twenty-four teachers had received fellowships up to the end of 1925 and most of them are now at work again in the institutions from which they came. The Board has contributed or made pledges toward the construction of new laboratory buildings at nine institutions, and four of these buildings are now in use. In other cases the buildings have been constructed entirely with funds received from other sources, while the Board has assisted by providing additional equipment. The grants for salaries of additional teachers and increased laboratory and library budgets have in most cases been made for a period of not over five years, on a diminishing scale.

While teaching and research in the sciences have not reached a level at all comparable with that in the great universities of the West, there are now about a dozen institutions where the teaching in physics, chemistry, and biology is probably not inferior to that done in the better small colleges of the United States, with here and there a department which is doing a little advanced work.

Yenching University

The recent improvement in science teaching in the colleges of China has seemed to justify the discontinuance of the special three-year preparatory course maintained until 1925 by the Peking Union Medical College, to which reference has already been made. With the admission of the senior preparatory class into the medical school the two junior classes were transferred to Yenching University. An appropriation of Mex. $138,765, was made to the University toward the maintenance of its science departments for the five years, 1925 to 1929 inclusive. It is expected that work will be begun in the University's new buildings outside the city of Peking in the fall of 1926. During the year 1925–1926 most of the science teaching was done in the laboratories formerly used by the premedical school of the Peking Union Medical College. Of the two new laboratory buildings one was contributed by the Board. This institution is maintained by a union of American and British missionary societies.

Southeastern University

The National Southeastern University at Nanking is the most important government institution south of Peking. It has one of the best agricultural schools in the country, and has had for several years a strong group of men in its science departments. The Board has co-operated with it for three years, through a grant for salaries of additional instructors in physics, chemistry, and biology, and has contributed half the cost of a new laboratory building which is now under construction. The University has been working at a great disadvantage during the past two years, owing to the fighting that has taken place in its vicinity and sudden changes in the political control of the province, which have been reflected in changes in the University administration. The impoverishment of the government has also caused serious delays in the payment of funds due for the budget and for buildings. In 1925 the Board renewed its appropriation for salaries to the amount of Mex. $6,750

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Fig. 67.—Chemical Laboratory, Soochow University.

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Fig. 68.—Biology Laboratory, St. John's University.

for one year only, as the unsettled conditions made it difficult to plan for a longer period.

University of Nanking

The University of Nanking, a conspicuous example of educational co-operation on the part of American societies, completed in 1925 a fire-proof science building in which are housed the College of Agriculture and the Department of Biology, the original science building being left for the exclusive use of departments of physics and chemistry. The China Medical Board contributed Mex. $25,000 toward the construction of this new building, the total cost of which was Mex. $100,000. The staff for physics, chemistry, and biology is now well organized with experienced teachers, both foreign and Chinese. Professor W. G. Whitman of the Massachusetts State Normal School at Salem, is spending the year 1925–1926 at the University of Nanking under an appropriation from the Board, assisting in the improvement of teaching methods in the science departments.

Ginling College

Ginling College at Nanking is an institution for women, jointly maintained by American and British societies in close association with the University of Nanking. An appropriation made by the Board for the salary of a physics teacher

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Fig 69 —Science Hall, St John's University, toward the maintenance of which the Board is contributing over a five-year period, 1924–1928.

having expired in 1924, a new appropriation of Mex. $15,000 payable in five years in diminishing annual instalments was made in 1925, to be available for the general maintenance of the science departments. The College has a well-equipped science building, which was completed in 1923.

Yale-in-China

The College of Yale-in-China at Changsha, the capital of Hunan Province, has been maintaining a special premedical course to prepare students for the Hsiangya Medical College. An earlier appropriation from the Board toward the maintenance of this course having expired in 1925, an appropriation of Mex. $13,806 was made for the budget of the year ending June 30, 1926, while plans were under consideration by the College for some reorganization of its work. The heads of the departments of chemistry and physics, both of whom are Chinese, returned in 1925 from a period of graduate study in the United States under fellowships from the Board. Students who have completed the premedical course have in the past shown themselves well prepared for medical studies.

Shantung Christian University

Prior to 1925, the Board, though co-operating with the medical school of the Shantung Christian University, had made no direct contribution in aid of the teaching of physics, chemistry, and biology in the college of arts and sciences. The University had, however, assembled a group of competent teachers and had provided two large laboratory buildings and considerable equipment, by means of which a successful demonstration had been conducted in the teaching of these sciences in the Chinese language. In 1925 the Board appropriated Mex. $22,546 for additional equipment and necessary alterations in the laboratories, Mex. $2,734 for books and journals, and Mex. $5,850 per annum for five years for salaries of teachers.

Nankai University

Nankai University in Tientsin is generally regarded as the best Chinese private institution of college grade in North China. Its science departments are particularly well organized and equipped. For three years the Board has been contributing to the salary budget of the departments of chemistry, physics, and biology, besides assisting in the construction of the science laboratories. In 1925 the Board appropriated an additional sum of Mex. $20,000 for maintenance of these departments for the five years 1926 to 1930 inclusive, payable in annually diminishing instalments. The University at the same time planned a considerable increase in its expenditure for these departments with funds raised from other sources. During the political disturbances of the past year, when most government schools and even private institutions have suffered heavily, Nankai University has been able to continue its work uninterruptedly and to meet all its financial obligations.

Tsinghua College

Tsinghua College, the institution in which students have been prepared for study in the United States under scholarships paid from the first partial remission of the American Boxer Indemnity, is situated a few miles northwest of Peking. It has a good staff of teachers, both Chinese and foreign, fine buildings for the work that it has been doing, and a regular income. Its graduates have been well prepared for admission to the second-year classes of the best American colleges, and in some cases have won even more advanced standing. It has hitherto been understood that all those who completed the required course would be sent abroad. In recent years, however, there has been a growing conviction among educators in China and in the United States, that it is unwise to send students abroad at such an early age. Better results can be obtained by sending those of more mature years, both because schools in China can be better adapted to Chinese needs than foreign colleges and can keep students in closer touch with their own people, and because a later selection is more likely to include students who will justify in their subsequent work the large expenditure needed to send them abroad.

Tsinghua College has, therefore, determined to extend its course and, after its obligations to its present students are discharged, to send abroad only selected men and women, who will be chosen, not merely from Tsinghua itself, but from all the recognized colleges of China. This wise policy involves considerable financial difficulty for a few years while the large classes, either already abroad, or entitled to expect scholarships under the old plan, are completing their courses of study.

The biological laboratories in particular need more space and equipment, if advanced work is to be offered. The Board, therefore, pledged Mex. $75,000 toward the construction of a fireproof building for the biological sciences, on condition that an equal sum should be secured from other sources. It also provided Mex. $5,000 for additional equipment, and a grant of Mex. $1,000 per annum for general maintenance expenses of the department of biology for the five years 1926 to 1930 inclusive.

Lingnan University

In 1923 the Board pledged the sum of $77,700 Hongkong silver currency for a laboratory building for Lingnan University (Canton Christian College) on condition that an equal amount be secured from other sources for the same purpose. The College succeeded in 1925 in raising the additional funds required, but the acute political disturbances in the south of China, complicated by labor troubles and international controversies, have prevented the prompt execution of the plans for improvement. The student body has, however, remained loyal, and influential friends of the University in government circles have done what they could to help the institution over this difficult period.

Institute for Science Teachers

An appropriation had been made in 1924 toward the expenses of a summer institute for science teachers to be held in 1925 at Southeastern University, Nanking. The civil war in the Yangtze Valley made it impossible to carry out this program, but plans were made for a similar institute in 1926, to be held at Tsinghua College, near Peking, with the co-operation of the China Foundation for the Promotion of Education and Culture.

Biological Supply Service

The Board continued its co-operation with Soochow University in the establishment of a biological supply service, primarily for fresh-water

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Fig. 70

Photograph Excised Here

Fig. 71

Improvement in hospital facilities in China. Hospital ward of ten years ago (Fig. 70) and present-day ward in the same institution (Fig. 71).

forms. Already the service is being widely used by colleges in regions less favorably situated for collecting. Amoy University is independently establishing a similar service, which will presumably emphasize salt-water forms. The importation from abroad of ordinary biological specimens for teaching purposes, which has been common in the past, should, therefore, soon become unnecessary.

Other Activities

The Board's adviser on premedical education has kept in touch with the institutions with which the Board is co-operating, has assisted in the placing of teachers, and has served on an advisory committee of the China Foundation for the study of science teaching and the formulation of plans for its improvement.

Experiments have been continued with gas plants for cracking kerosene and other oils. It appears that such plants can be constructed locally at a moderate cost, thus solving one great practical problem encountered in science teaching in a country where there are only two or three municipal gas plants.

Arrangements have been made for teachers to visit schools other than their own to observe teaching methods and equipment and to exchange ideas. The interruption of railway traffic for long periods made it impossible to

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Fig. 72

Photograph Excised Here

Fig. 73

Another page of contrasts. Wards of the same institution a decade ago (Fig. 72) and today (Fig. 73).

carry out as many visits as had been planned, but the few that were made appear to show that such interchanges of ideas will serve a useful purpose.

Information about the striking improvements that have recently been made in the teaching of science in China has been spread through illustrated articles, contributed to the press by representatives of the leading colleges.

Through prize essay contests, lectures to college and middle school students, and scholarships, efforts have been made to interest a larger number of students in medicine as a career, but this work has been badly hampered by the disorganization of transportation and by the preoccupation of many of the persons concerned with emergency work and other distractions caused by the political situation.

In spite of the financial embarrassment of the national and provincial governments, science in China is making steady progress. The number of experienced and competent teachers is steadily increasing, and they have much better physical equipment with which to work. The interest which the China Foundation is taking in this field is making new funds available and is stimulating contributions from other sources. There are still few institutions equipped to do much experimental work of an original type, but in the biological field useful systematic studies are being made. Many of these studies have been published by the Science Society of China, which has its headquarters, with a library and a biological laboratory, at Nanking. A private laboratory of natural history at Peking is beginning the publication of two series of descriptive works, *Fauna Sinensis* and *Flora Sinensis*, and a recently organized Peking Society of Natural History is publishing as its first bulletin a list of the birds of China.

III. FELLOWSHIPS

Grants for Study Abroad

The table presented below shows the number of persons studying in the United States or in Europe under fellowships from the China Medical Board during the years 1924 and 1925, by the subjects studied. While for a time it seems advisable to provide opportunities for foreign teachers already at work in China to improve themselves by study abroad during their furloughs, more and more attention is being devoted to the advanced training of Chinese teachers, as candidates qualified to profit by study abroad are found. Assistance is now given in each case only to persons who are preparing for certain specific positions in teaching institutions and usually only after the candidates have demonstrated their ability by actual work in China following the completion of their undergraduate studies.

FELLOWSHIPS FOR STUDY IN THE UNITED STATES AND EUROPE

	1924			*1925*		
Subjects Studied	*To Chinese*	*To Americans and Europeans*	*Total*	*To Chinese*	*To Americans and Europeans*	*Total*
Medical						
Anatomy	..	2	2	1	3	4
Bacteriology, immunology, and serology	1	..	1	1	1	2

Subjects Studied	1924 To Chinese	1924 To Americans and Europeans	1924 Total	1925 To Chinese	1925 To Americans and Europeans	
Medical (*Cont'd*)						
Biochemistry	1	2	3	1	1	2
Dermatology and syphilology	1	..	1	..	1	1
Gynecology and obstetrics	..	1	1	2	1	3
Medicine	1	5	6	..	4	4
Neurology	1	1	2	..	2	2
Ophthalmology	1	1	2	2	..	2
Oral surgery and dentistry	1	..	1	1	..	1
Otolaryngology	1	..	1	1	..	1
Pathology	..	..	..	..	1	1
Pediatrics	..	..	..	1	2	3
Pharmacology	2	1	3	1	1	2
Physiology	1	2	3	1	..	1
Roentgenology	..	1	1	1	1	2
Surgery	..	2	2	2	3	5
Totals	11	18	29	15	21	36
Premedical						
Biology	..	4	4	2	3	5
Chemistry	5	3	8	7	1	8
Physics	3	1	4	4	..	4
Totals	8	8	16	13	4	17
Miscellaneous						
Dietetics	1	..	1	..	..	..
Hospital administration	2	1	3	..	2	2
Laboratory technique	..	1	1	..	1	1
Medical photography	1	..	1	..	..	..
Nursing	6	5	11	5	4	9
Pharmacy	..	..	..	..	1	1
Totals	10	7	17	5	8	13
Deductions for persons counted twice	1	3	4	2	4	6
GRAND TOTALS	28	30	58	31	29	60

The expenditure for fellowships in the United States and Europe amounted in 1925 to $47,575

Fellowships for Study at Peking Union Medical College*

Subjects studied	*1923*			*1924*			*1925*		
	To Chinese	*To Americans and Europeans*	*Total*	*To Chinese*	*To Americans and Europeans*	*Total*	*To Chinese*	*To Americans and Europeans*	*Total*
Medical									
Anatomy	2	..	2	1	..	1	..	..	..
Bacteriology	2	..	2	2	..	2	2	..	2
Biochemistry	1	1	2	..	..	..	1	..	1
Dental surgery	..	..	..	..	..	..	1	..	1
Embryology	..	..	..	1	..	1	1	..	1
Hygiene (dental)	..	..	..	1	..	1	..	..	..
Hygiene (school)	2	2	4	..	..	..	..	..	..
Medicine	7	9	16	11	4	15	10	..	10
Medicine (clinical lab. technique)	3	..	3	2	..	2	..	..	..
Neurology	..	1	1	..	1	1	..	..	..
Obstetrics and gynecology	..	5	5	5	6	11	8	8	16
Ophthalmology	7	1	8	12	12	24	16	..	16
Otolaryngology	..	..	..	..	..	..	1	..	1
Parasitology	2	2	4	1	..	1	3	2	5
Pathology	1	..	1	3	1	4	7	..	7
Pediatrics	1	1	2	2	..	2	1	..	1
Pharmacology	..	1	1	1	..	1	1	..	1
Physiology	..	..	..	..	..	..	1	..	1
Roentgenology	..	1	1	..	..	..	4	15	19
Surgery	5	12	17	5	5	10	6	2	8
Totals	33	36	69	47	29	76	63	27	90
Premedical									
Biology	1	..	1	1	..	1	1	..	1

Miscellaneous									
Anesthesia	..	..	..	..	1	1	..	..	..
Dietetics	..	1	1	..	1	1	..	..	..
Hospital administration	..	1	1	..	..	..	..	1	1
Nursing	6	1	7	14	2	16	22	..	22
Social service	1	..	1	..	..	..	..	..	..
Totals	7	3	10	14	4	18	22	1	23
GRAND TOTALS	41	39	80	62	33	95	86	28	114
Deductions for persons counted more than once	..	1	1	2	1	3	24†	2†	26†
Totals	41	38	79	60	32	92	62†	26†	88†

EXPENDITURES FOR FELLOWSHIPS AND SCHOLARSHIPS AT THE PEKING UNION MEDICAL COLLEGE

	1923		*1924*		*1925*	
Fellowships for Graduate and Special Students	*No.*	*Expenditure*	*No.*	*Expenditure*	*No.*	*Expenditure*
For Chinese	41	G.$3,924.19	60	G.$5,399.57	62	G.$6,651.99
For foreigners	38	3,195.22	32	2,898.25	26	3,114.56
Totals	79	G.$7,119.41	92	G.$8,297.82	88	G.$9,766.55
Undergraduate Scholarships for Chinese	9	932.47	9	394.10	9	285.20
GRAND TOTALS	88	G.$8,051.88	101	G.$8,691.92	97	G.$10,051.75

*Undergraduate scholarships and fellowships given by other divisions of the Rockefeller Foundation are not included in this summary.
†In accordance with most recent information.

including stipends and payments for tuition and traveling expenses.

Fellowships at the Peking Union Medical College

Reference has already been made to graduate students at the Peking Union Medical College. Most of them are men and women engaged in institutional work in China on very small salaries, who have been granted fellowships by the Board, in relatively small amounts, sufficient to cover their actual expenses. The average cost of these fellowships in 1925, including tuition and traveling expenses was at the rate of $458 per year of twelve months. The actual cost for those who remain for a full year would average considerably less, since the numerous students who come for shorter periods increase the cost of travel, which enters into the average reported above. The average expenditure by the Board for students who went abroad, including many who were given relatively small grants, to supplement sums received from other sources, was $815.57.

Certain kinds of study can be pursued quite as advantageously in Peking as abroad, and the needs of those graduate students whose earlier training was defective are likely to be best met by teachers who understand their background and know the conditions to which they expect to return. In the case of students whose knowledge of English is imperfect, difficulties can be explained and met through teachers and fellow students who speak Chinese. For those who wish eventually to go abroad, a period of study under good teachers makes possible a more accurate estimate of their native ability and promise upon which a decision as to the wisdom of granting a traveling fellowship can be based.

A small part of the appropriation has been used for the payment of undergraduate scholarships in the premedical and medical schools and the school of nursing of the Peking Union Medical College. The tables on pages 370 and 371 show the number of fellowships granted, the subjects studied, and the expenditure for the three years 1923, 1924, and 1925.

IV. MISCELLANEOUS

In its earlier years the Board gave a good deal of attention to the raising of standards of hospital practice in China and contributed to building, equipment, and maintenance funds of several strategically located institutions in different parts of the country. Various causes have been instrumental in bringing about marked improvement during the past ten years, in spite of unfavorable conditions in China and in the foreign countries from which the principal support of most mission hospitals has come. It has, therefore, seemed best to bring this part of the program to a conclusion as soon as possible in order that available resources may be concentrated on the more fundamental work of education. Further development of non-teaching hospitals must depend largely on the communities which they serve and will probably come more rapidly as adequately trained Chinese doctors and nurses take the places formerly held by foreigners and bring the hospitals into closer touch with the people and the local authorities.

Photograph Excised Here

Fig. 74.—Old type of hospital building in China.

Photograph Excised Here

Fig. 75.—New plant of the same hospital.

In pursuing this policy grants for maintenance are gradually being terminated and such renewals as are made provide for a smaller contribution from the Board, usually on a diminishing scale if the new grant runs for more than one year. In accordance with this plan, grants were made in 1925 as follows:

To the United Free Church Mission Hospital at Mukden, Mex. $1,000 toward the maintenance of a foreign nurse for one year.

To the American Methodist Mission Hospital at Wuhu, $16,509 for general hospital maintenance in five annually diminishing instalments.

To the Church of Scotland Mission Hospital at Ichang, $2,500 for general hospital maintenance in five annually diminishing instalments.

To the London Mission Hospital at Siaochang, $600 as reimbursement for loss by exchange on a previous appropriation.

The Board completed in 1925 a two-year period of co-operation with the China Council on Health Education in its work of popular health education and promotion of school hygiene. The Council has done good work in keeping the need of public health activities before the people. Now that the need is beginning to be recognized, it seems likely that the next logical step is the actual demonstration of what can be done in China to promote personal and public hygiene, by such enterprises as the health center at Peking. There is reason to hope that

Photograph Excised Here

Fig. 76.—Kitchen of a Chinese hospital ten years ago.

Photograph Excised Here

Fig. 77.—Kitchen of the same institution today.

the next few years may see a distinct advance in this field.

Officers of the Board

Miss M. K. Eggleston was elected Executive Secretary of the China Medical Board, as of May 27, 1925.

The Acting Resident Director in China, Dr. H. S. Houghton, and the Assistant Resident Director, Mr. L. C. Goodrich, left for the United States on furlough in the summer. The General Director visited China in the spring and remained in Peking to take charge of the Peking office during the absence of Dr. Houghton.

APPENDIX

I

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II

Peking Union Medical College
Peking, China

RECEIPTS AND EXPENDITURES FOR THE ACADEMIC YEAR ENDING JUNE 30, 1925

Receipts

Local Income		
General		
Rentals	Mex. $41,755.45	
Tuition, graduate students	6,027.50	
Tuition, students	11,274.00	
Tuition, pupil nurses	1,567.50	
Board and room, students	10,152.87	Mex. $70,777.32
Hospital		
First-class patients	Mex. $26,785.00	
Second-class patients	27,894.00	
Third-class patients	17,200.47	
Professional services	41,406.14	
X-ray fees	11,493.45	
Laboratory fees	1,262.61	
Out-patient fees	9,294.73	
Operating room fees	3,632.00	
Hire of ambulance	1,129.00	
Charges for use of radium	1,289.25	
Physiotherapy fees	780.00	142,166.65
Miscellaneous		
Sale of electricity	Mex. $2,130.35	
Sale of gas	106.75	
Sundry items	671.97	2,909.07
		Mex. $215 853.04
Less provision for uncollectable hospital fees		1,000.00
Total Local Income		Mex. $214,853.04
Received from China Medical Board		
Toward regular budget		1,502,491.43
Contingent fund		2,705.47
Total Receipts Under Peking Administration		Mex. $1,720,049.94

EXPENDITURES

	SALARIES	OTHER EXPENSES	TOTAL
	Mex.	*Mex.*	*Mex.*
GENERAL OFFICE			
Administration	$119,495.06	$20,363.55	$139,858.61
Library	6,407.50	13,000.00	19,407.50
College Health Service	15,641.69	1,917.51	17,559.20
Reprints		13,079.00	13,079.00
Travel abroad		181,553.00	181,553.00
Travel in the Orient		5,498.70	5,498.70
Language study		2,435.51	2,435.51
Schools for foreign children		5,000.00	5,000.00
Totals	$141,544.25	$242,847.27	$384,391.52
PHYSICAL PLANT			
Mechanical department	$54,837.04	$138,633.05	$193,470.09
Department of buildings and grounds	30,870.08	13,978.13	44,848.21
Totals	$85,707.12	$152,611.18	$238,318.30
HOSPITAL			
Administration	$54,873.93	$8,119.95	$62,993.88
Resident staff	20,268.92		20,268.92
Medical and surgical supplies, drugs, etc.		43,117.75	43,117.75
Clinical laboratory	20,324.00	5,500.00	25,824.00
Nursing services	98,383.37		98,383.37
Physiotherapy	4,322.50		4,322.50
Dietary department	22,772.00	63,598.83	86,370.83
Nurses' home	5,775.00	11,563.90	17,338.90
Matron's department	6,540.44	17,901.95	24,442.39
Laundry	4,874.01	5,205.88	10,079.89
Pharmacy	12,428.17		12,428.17
Roentgenology	7,799.47	9,034.41	16,833.88
Totals	$258,361.81	$164,042.67	$422,404.48
MEDICAL SCHOOL			
Administration	$6,166.00	$698.83	$6,864.83
Scientific services for all departments	12,052.32	2,496.56	14,548.88
Central photographic bureau	1,933.00	1,685.00	3,618.00
Central illustration bureau	1,015.00		1,015.00

	Salaries	Other Expenses	Total
Medical School (*Continued*)	*Mex.*	*Mex.*	*Mex.*
Departments			
Anatomy	$35,281.38	$4,550.00	$39,831.38
Physiology	27,254.00	6,730.46	33,984.46
Pharmacology	15,310.00	4,400.00	19,710.00
Biochemistry	13,773.35	4,468.17	18,241.52
Pathology	70,745.20	6,980.93	77,726.13
Hygiene and public health	2,190.00	1,766.00	3,956.00
Medicine	102,986.68	12,222.89	115,209.57
Neurology	19,806.00	1,299.74	21,105.74
Surgery	53,613.57	1,872.92	55,486.49
Gynecology and obstetrics	27,878.58	1,019.00	28,897.58
Otolaryngology	25,958.67	799.73	26,758.40
Ophthalmology	31,455.32	2,099.16	33,554.48
Roentgenology	13,595.00	2,340.58	15,935.58
Totals	$461,014.07	$55,429.97	$516,444.04
Premedical School			
Administration	$4,217.00	$545.64	$4,762.64
Departments			
Chemistry	20,781.86	958.26	21,740.12
Physics	12,010.56	248.03	12,258.59
Biology	18,224.00	521.95	18,745.95
English	16,105.00	123.10	16,228.10
Chinese	4,984.00	160.24	5,144.24
Totals	$76,322.42	$2,557.22	$78,879.64
School of Nursing	$19,082.46	$2,080.67	$21,163.13
Department of Religious and Social Work	$11,839.00	$1,241.00	$13,080.00
Student Halls	$3,498.00	$19,111.70	$22,609.70
Extraordinary expenses (alterations, new equipment, etc.)	$666.70	$19,386.96	$20,053.66
Totals	$1,058,035.83	$659,308.64	$1,717,344.47
Contingent Items			$2,705.47
Total Expenditures Under Peking Administration			$1,720,049.94

SUMMARY OF NET COST

YEAR ENDING JUNE 30, 1925

	Chinese Currency	*U. S. Currency*
Net expenditure under regular budget	$1,502,491.43	$795,712.77
Contingent Fund	2,705.47	1,352.73
Retirement Fund, Group and Individual Insurance		18,077.78
Expenses of Trustees' office in United States (Purchasing agency, etc.)		51,210.02
TOTAL NET EXPENDITURES		$866,353.30

DIVISION OF MEDICAL EDUCATION

Report of the Director

To the President of the Rockefeller Foundation:

Sir:

I have the honor to submit herewith my report as Director of the Division of Medical Education for the period January 1, 1925, to December 31, 1925.

Respectfully yours,

RICHARD M. PEARCE

Director

DIVISION OF MEDICAL EDUCATION

The function of the Division of Medical Education is the study of present-day needs in medical education and, where conditions warrant, co-operation with medical schools in the development of programs for improving their facilities. During 1925 representatives of the Division visited twenty-one countries for the purpose of initial investigation of the status of medical education or in connection with programs either under consideration or already in force. Study visits of teachers or administrators from seven medical schools were financed; as an emergency measure, medical literature was furnished to medical schools in twenty-one countries of Europe handicapped by low exchange and laboratory supplies were provided for certain departments of medical schools in eight countries; 135 fellowships were granted to medical scientists for study outside their own countries and 120 [1] resident fellowships were supported; in addition,

[1] This does not include nineteen fellowships that constituted a part of the aid given to laboratory departments of medical schools in Italy (see page 408), or one special fellowship supported in Brazil.

funds were provided for the maintenance of thirteen fellowships administered by the British Medical Research Council and forty-three fellowships administered by the Medical Fellowship Board of the National Research Council, Washington, D. C.; assistance in the form of contributions toward building, equipment, endowment, or maintenance was given to fourteen medical schools. The associate director of the Division, Dr. W. S. Carter, was detailed to China to serve as acting director of the Peking Union Medical College for the academic year 1925–1926 in the absence of Dr. H. S. Houghton.

Surveys and Visits by Staff Members

Preliminary studies of the needs of medical education were carried out by the Division in Norway, Italy, Algeria, Irish Free State, and France. Visits in connection with projected or operative programs were made in Austria, Belgium, Bulgaria, Canada, China, Chosen, Czechoslovakia, Denmark, Germany, Hongkong, Hungary, Italy, Japan, the Philippine Islands, Poland, Turkey, and Yugoslavia.

International Exchange of Information

Visits of Teachers and Administrators

The Division sometimes invites commissions or individual teachers or officials from medical schools to make study visits under its auspices in connection with undertakings in which it is especially interested. In 1925 Professor F. R. Fraser, director of the medical unit of St. Bartholomew's Hospital, London, spent two months in the United States and Canada as the guest of the Division, making an extensive study of clinical teaching in the Eastern and Middle Western states and at Montreal and Toronto in Canada.

A commission representing the Faculdade de Medicina e Cirurgia, São Paulo, Brazil, was invited to come to the United States in connection with plans for the development of its medical school and hospital. Dr. Benedicto Montenegro, surgeon, Dr. Rezende Puech, pediatrician, and Dr. Souza Campos, pathologist, arrived in New York April 27. They made careful studies of hospital and medical school construction and equipment and of methods of teaching and organization in the United States and Canada. On leaving the United States in June, they were given aid for continuing their studies in Great Britain and in some of the principal medical centers of Continental Europe.

Dr. A. De Waart, director of the medical school at Batavia, Java, was a guest of the Division in the United States from February 9 until May 2. During this time he made a special study of methods of medical education, visiting some of the principal medical schools and hospitals in eleven of the states and in Toronto, Canada.

In view of plans for the expansion of the Department of Pathology at the University of Cambridge, England, Professor H. R. Dean was invited to the United States for the purpose of observing developments and construction in this country. He visited pathological departments in New York City, Rochester (New York), Cleveland, Baltimore, Boston, and Montreal.

Dr. H. G. Earle, professor of physiology of the Medical School of the University of Hongkong, studied methods of medical education and visited some of the leading medical schools and hospitals in twelve of the Eastern and Middle Western states and in Montreal and Toronto.

A commission from the Medical Faculty of the University of Lyon, consisting of Professor Jean Lepine, dean of the Faculty, Professor A. Policard (histology), and Professor A. Latarget (anatomy), was given facilities for visiting medical schools and hospitals in some of the important centers in Great Britain. Arrangements for studying American medical schools and hospitals were made for Professor J. W. McNee, of University College Hospital, London, who came to this country as exchange professor of internal medicine at the Johns Hopkins University Medical Department, Baltimore.

Publications

During the year the Division issued the third number of a bulletin which it publishes from time to time under the title "Methods and Problems of Medical Education." This number contains articles by professors describing organization, equipment, research, and methods of teaching in departments of anatomy at Western Reserve University, Cleveland, the University of Leiden, the University of Frankfurt-am-Main, and the University of Strasbourg; in departments of physiology at Cambridge University, England, Harvard University, Boston, University of Groningen, and Western Reserve University; in departments of pharmacology at Western Reserve University and the Peking Union Medical College; in the Department of Histology at the University of Strasbourg; in the departments of physiological chemistry and surgery at the Peking Union Medical College; in the departments of pathology at Western Reserve University, McGill University, and the Johns Hopkins University; in the Department of Physiological Chemistry at Yale University;

in the Obstetrical and Gynecological Unit, London School of Medicine for Women; and at the Molteno Institute for Research in Parasitology, Cambridge, England.

Fellowships

The Division grants fellowships to young medical scientists for study outside their own countries in preparation for teaching positions guaranteed to them in their home countries and to which they pledge themselves to return after the termination of their studies. In awarding the fellowships preference is given to candidates from institutions with which the Division is co-operating. During 1925 fellowships of this type were held by students from the following countries: Argentina 2, Australia 1, Austria 11, Belgium 3, Brazil 6, Bulgaria 3, Canada 13, Czechoslovakia 6, England 1, Estonia 2, France 1, Germany 10, Hongkong 3, Hungary 14, Japan 6, Latvia 2, Lithuania 2, New Zealand 1, the Philippine Islands 3, Poland 6, Rumania 17, Siam 4, Straits Settlements 1, Sweden 1, Syria 5, the Netherlands 1, Turkey 3, and Yugoslavia 7. The countries in which they studied were Austria, Belgium, Bulgaria, Canada, China, Czechoslovakia, Denmark, England, France, Germany, Ireland, Italy, Scotland, Spain,

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Fig. 78.—New Biology Building, McGill University. One of the buildings erected as a part of the program for the development of the medical school of McGill University, toward which the Rockefeller Foundation has contributed.

Sweden, Switzerland, the Netherlands, and the United States. The distribution of the fellows according to subjects was as follows: pathology, bacteriology, and immunology 31, chemistry 16, physiology 22, clinical medicine and medical specialties 28, anatomy and related subjects (histology, embryology, cytology) 20, obstetrics and gynecology 2, surgery and surgical specialties 7, pharmacology 8, physics 1, protozoology 2, helminthology 1, hospital administration 1, metabolism 5, hygiene 6, and mycology 1.

To further the interchange of medical students between Great Britain and the United States the Division co-operates with the British Medical Research Council, which is in a position to select promising British medical scientists for work in the United States. Thirteen fellows appointed by the Council studied the following subjects in that country during 1925: brain surgery 1, internal medicine 1, physiological chemistry 5, pharmacology 1, therapeutics 1, cardiac physiology 1, psychiatry 1, metabolism 1, micro-dissection 1. One fellow taught as exchange professor of internal medicine at the Johns Hopkins University Medical School.

Forty-three fellowships were in force during the year under the Medical Fellowship Board of the National Research Council of Washington, toward the expenses of which over a five-year

THE ROCKEFELLER FOUNDATION 1913
THE WELLBEING OF MANKIND THROUGHOUT THE WORLD
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Fig. 79.—Residents' quarters and new Obstetric Hospital, University College, London.

period the Division of Medical Education in co-operation with the General Education Board pledged assistance in 1922. The distribution of these fellowships according to specialties studied was: anatomy 2, surgery 1, pathology 9, physiology 10, physiological chemistry 9, neuropathology 1, bacteriology 6, pharmacology 3, anatomy and physiology 1, physics and physiology 1.

Emergency Assistance in Europe

A program of emergency aid, now gradually being reduced, has been carried out since 1920 in countries of Europe in which, on account of low exchange and other adverse post-war economic conditions, medical teaching and research have been severely handicapped. During 1925 scientific literature was provided in twenty-one countries, namely, Armenia, Austria, Belgium, Bulgaria, Czechoslovakia, Estonia, Finland, France, Germany, Hungary, Italy, Latvia, Lithuania, Poland, Portugal, Rumania, Russia, Spain, Switzerland, Turkey, Yugoslavia. Laboratory supplies were furnished in eight countries: Austria, Bulgaria, Czechoslovakia, Germany, Poland, Hungary, Rumania, and Yugoslavia. Resident fellowships to the number of 120 [1] were allotted in six countries as follows: Austria 3,

[1] See footnote, page 395.

Germany 94, Hungary 11, Poland 2, Rumania 6, and Yugoslavia 4.

Aid in Medical School Development

New Undertakings

In co-operation with the International Education Board contribution was made during the year to the University of Copenhagen toward the cost of building and maintaining a central institute of physiology to house, in close relation to the medical school and hospital, the various university departments of physiology at present maintained in widely separated locations. Funds were given to the University of Strasbourg toward the erection of a new laboratory building for the department of histology and the completion of quarters for a clinic for otolaryngology, and also for general support of research and higher teaching in the medical sciences. The University of Utrecht received a grant toward the cost of building an institute of pharmacology.

The Association of American Medical Colleges has stimulated an investigation of medical education in the United States and Canada with particular reference to objects to be attained, the general content and purpose of the medical curriculum, and the adjustments which might possibly be considered by individual schools in the future. A commission composed of prominent educators and representatives of various organizations interested in the progress of medical science has been appointed to conduct the investigation. Fifty of the seventy-one schools constituting the Association of American Medical Colleges have pledged financial support, as have also the American Medical Association and the Carnegie Foundation. The Division of Medical Education of the Rockefeller Foundation, appreciating the importance of the work, has agreed to assist for a period of five years, and during 1925 it paid to the commission the first annual instalment of the sum which it guaranteed.

Progress of Earlier Undertakings

Pledges made to the King Edward VII College of Medicine in Singapore, Straits Settlements, for the endowment of chairs of bacteriology and physiological chemistry and to the University of Pennsylvania, Philadelphia, in co-operation with the General Education Board, toward the erection of buildings for the departments of anatomy and physiological chemistry, were paid in full during the year.

Payments were made to the University of Cambridge, England, toward the building and endowment of a laboratory of pathology; to the

University of Edinburgh, Scotland, toward a building for the chemical laboratory and toward the salary budget of the surgical staff; to the University of Brussels, Belgium, toward the cost of a new medical school building; to Chulalongkorn University, Bangkok, Siam, toward the cost of a medical school building and toward salaries of professors, in accordance with the five-year co-operative agreement entered upon in 1923; to the American University of Beirut, Syria, toward the maintenance of the medical school during the second of a five-year period of co-operation; to the University of Montreal, Canada, toward the support of the medical and premedical sciences; to the New York Academy of Medicine, New York City, for interest payments on capital for the support of its educational program; to the State University of Iowa, Iowa City, in co-operation with the General Education Board, toward a capital fund for building; to the Faculdade de Medicina e Cirurgia, São Paulo, Brazil, toward the development of the department of pathology; and to the Journal of the American Medical Association in accordance with an agreement to meet half the deficit of the Spanish edition of the Journal.

Pledges of funds were made to the University of Oxford, England, toward the endowment of a laboratory of physiological chemistry; and to

Columbia University, New York, toward the cost of medical school buildings.

Assistance in Improving Teaching and Research Facilities

In some countries it has seemed advisable to aid a few important medical school departments which are headed by men with exceptional power to attract, and ability to train and encourage, the younger group interested in medical science, thereby insuring the proper development of the medical teachers and investigators of the future. Small grants, renewable if conditions justify, are made to these departments each year for a series of years, with the hope that government or others responsible for financing medical education and research may eventually give increased support to the work. The funds allotted may be used in any way to improve the teaching and research conditions in the departments in question, and for fellowships for local students who might otherwise seek careers outside the university.

Laboratory departments in the following medical schools received aid during 1925:

Italy

Istituto di Anatomia Normale, Turin	Professor Giuseppe Levi
Istituto di Anatomia, Florence	Professor Giulio Chiarugi

Istituto di Fisiologia, Naples	Professor Filippo Botazzi
Istituto di Fisiologia, Turin	Professor Amedeo Herlitzka
Istituto di Anatomia Patologica, Milan	Professor Alberto Pepere
Istituto di Anatomia Patologica, Rome	Professor Antonio Dionisi
Istituto di Farmacologia, Padua	Professor Luigi Sabbatani
Istituto di Farmacologia, Genoa	Professor Alberico Benedicenti
Istituto di Patologia Generale, Florence	Professor Alessandro Lustig
Istituto di Patologia Generale, Turin	Professor Benedetto Morpurgo
Istituto di Patologia Generale, Pavia	Professor Aldo Perroncito
Istituto di Igiene, Bologna	Professor Donato Ottolenghi

France

Département de Parasitologie, Faculté de Médecine, Université de Paris	Professor Emile Brumpt

DIVISION OF STUDIES

Report of the Director

To the President of the Rockefeller Foundation:

Sir:

I have the honor to submit herewith my report as Director of the Division of Studies for the period January 1, 1925, to December 31, 1925.

Respectfully yours,

EDWIN R. EMBREE

Director

DIVISION OF STUDIES

A chief feature of the work of the Division of Studies during the year 1925 was the developing of a program in human biology. Surveys in the projects were presented and acted upon favorably by the Foundation. The regular program in nursing education was continued. Certain other commitments, particularly in hospital and dispensary studies and service, were brought toward conclusion.

Human Biology

At the meeting of the Rockefeller Foundation held February 25, 1925, after a special conference upon policy and program, the following minute was adopted: "Resolved that, without committing the Foundation to a comprehensive program in the field of human biology, the Division of Studies be authorized to continue to study and to make surveys of the sciences involved and to mature and to present to the Foundation from time to time specific projects to be considered on their merits."

On the basis of this authorization the Director of the Division is spending a large part of the current years in surveys, in America, in Europe and in the countries of the Pacific, of university work and other research in the biological sciences.

In the spring of 1925 visits were made to the American universities of the Pacific coast and to the important universities of the Dominion of Canada. In the autumn of 1925, in company with Dr. Clark Wissler, curator in anthropology of the American Museum of Natural History and professor of anthropology of Yale University, the Director visited Hawaii, New Zealand, and Australia. Visits extending into the following year were made with Professor Edwin G. Conklin, of Princeton University, to the universities and biological stations of Japan.

During the year 1925 the following items in biological research were assisted either as new enterprises or in continuation of earlier activities: (1) Institute for Biological Research at the Johns Hopkins University; (2) anthropoid research at the Institute of Psychology at Yale University; (3) studies in brain physiology at the State University of Iowa; (4) Marine Biological Laboratory, Woods Hole, Massachusetts; (5) Marine Biological Station of Stanford University at Pacific Grove, California; (6) fellowships in the biological sciences under the administration of the National Research Council and similar fellowships inaugurated some years earlier in physics, chemistry, and mathematics; (7) fellowships in the sciences of human biology administered directly by the Foundation on an international basis; (8) an international journal of abstracts of the biological sciences, and the completion of support under an earlier pledge to the Concilium Bibliographicum, Zürich; (9) studies and demonstrations in mental hygiene at the Canadian universities of Toronto and McGill, and certain other activities in this field under the auspices of the National Committee for Mental Hygiene of the United States.

Recommendations following surveys in the countries of the Pacific were not acted upon until after the close of the calendar year. Brief statements concerning certain of the projects which are receiving support by the Division follow.

Institute for Biological Research, Johns Hopkins University. To the Institute of Biological Research of the Johns Hopkins University, established July 1, 1925, in affiliation with the Medical School and the School of Hygiene, to carry out studies on a group of carefully formulated projects pertaining to the human life span and its possible extension, the Foundation had pledged itself to contribute over a five-year period ending June 30, 1930, sums totaling $175,000. In 1925 a payment of

$26,500 was made toward operating expenses and equipment. The Medical School of the University has provided quarters for the Institute rent free, and the School of Hygiene has donated considerable equipment.

Institute of Psychology, Yale University. To the new Institute of Psychology at Yale University the sum of $10,000 a year over a four-year period ending June 30, 1929, has been pledged for the promotion of psychological and biological research on anthropoids, the funds to be used for the salary of a full-time research associate, for the cost and maintenance of the necessary animals, and for apparatus and supplies. A payment of $5,000 was made to the Institute in 1925.

Studies in Brain Physiology, State University of Iowa. A grant of $60,000 has been made to the State University of Iowa toward the cost of special research in the physiology of the brain, to be conducted during a period of approximately two years ending December 31, 1927. The funds contributed by the Foundation are to be devoted to the salary of additional personnel and to the operation of a mobile mental clinic which will work from the Iowa State Psychopathic Hospital, one of the University's teaching units, as a base. During 1925 the Foundation's payments to this project amounted to $15,000.

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Fig. 80.—Kitchen, new School of Nursing, Cracow, Poland.

Dedication of New Laboratory Building at Woods Hole. On July 3, 1925, the new building of the Marine Biological Laboratory at Woods Hole, Massachusetts, toward the erection and endowment of which the Foundation contributed $500,000, was formally dedicated. Courses of instruction were given at the Laboratory in 1925 from June 30 to August 10. Facilities for research are available throughout the year. Five departments are organized for research and instruction, namely, zoology, protozoology, embryology, physiology, and botany. Special facilities for research in biochemistry and biophysics are also provided.

Marine Biological Station of Stanford University, Pacific Grove. To the Marine Biological Station maintained by Stanford University Pacific Grove, California, the Foundation has pledged a total of $100,000 toward the erection and equipment of a new physiological laboratory, with the understanding that an equal sum is to be raised from other sources for endowment of the enlarged work.

Nursing Education

In nursing education co-operation is being given chiefly in Europe and in America. On invitation, surveys of conditions in nursing and

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Fig. 81.—Participants in a morning dance, Central Australia.

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Fig. 82.—Totem tree and natives ready for totem dance.

health visiting in various countries are made by a staff in Europe, which also matures proposals for Foundation aid in individual cases, and recommends fellowships for certain well-qualified nurses who are to return to teaching positions in their own countries, and to give general counsel and assistance in educational work.

In 1925 aid was given to important government or university schools of nursing at the following centers: Lyon in France, Cracow in Poland, Belgrade and Zagreb in Yugoslavia. Fellowships and assistance of less definite character were given in a number of schools in a dozen European countries.

In America the Foundation has co-operated in an important experiment at Yale where a university school of nursing has been established under the deanship of Miss Annie W. Goodrich. High standards of entrance are maintained. The course is put definitely on an educational basis and tuition charged as for any other university course. Emphasis is given to training in public health from the beginning of the course and upon the aspects of disease involved in the home and the community at large as well as in the hospital. A carefully selected group of students, chiefly college graduates, is taking the course. A second demonstration center is in Nashville, in co-operation with Vanderbilt University and the George Peabody College for Teachers.

Fellowships

Fellowships form an important part of all branches of the work of the Division. The following is a list of the fifty-two fellowships held under the Division during the year:

Sciences of Human Biology

Canada 2

HINCKS, C. M.
HOOKE, S. B.

Nursing Education

Belgium 4

DAMMAN, M.
HACKS, E.
LIBERT, J.
PATYN, M.

Czechoslovakia 1

FIALOVA, A. A.

England 2

REYNOLDS, M.
SIMMONDS, R. M.

France 12

DAUDET, C.
ECHALIER, L. H.
GILODI, M.
GONDRE, A. L. C.
GRAMMONT, F.
GRIMARD, C.
LAVASTRE, R. A.
LEFEBVRE, M.
PAYS, M.
PONCET, A.
ROOB, M.
SAVORNIN, G. M. M.

Hungary 5

APOR, G.
FIATH, M.
OSZTOICS, K.
RUSS, M.
TARR, M.

Poland 17

BABICKA, M.
BORKOWSKA, E.
CHRZANOWSKA, H.
DZEMIDOWICZ, W.
KOMORSKA, S.
KULCZYNSKA, T. J.
LAZAREWICZ, Z.
MARTIN, A.
NAGORSKA, H.
PTASZYNSKA, M.
RABOWSKA, E.
RADAJEWSKA, I. J.
RYDEL, A.
SURYN, H.
WASILEWSKA, Z.
ZAWDSKA, Z. A.
ZMUDSKA, M.

Siam 1

SINHANETRA, C.

United States 1

ROBERTS, A.

Yugoslavia 7

BENCAN, I.
GRUBER, M.
HOLOBAR, J.
JANC, F.
JANIC, M.
PAPAILIOPULOS, S.
SCHIFFRER, A.

The following fellowships supported by the Division of Studies but administered by other agencies are not included in the list:

Administered by National Research Council

Biology	41
Physics	30
Chemistry	27
Mathematics	8

Administered by National Committee for Mental Hygiene

Psychiatry	8
Psychiatric Social Work	1

THE ROCKEFELLER FOUNDATION

Report of the Treasurer

NEW YORK, December 31, 1925

To the President of The Rockefeller Foundation:

Sir:

I have the honor to submit herewith my report of the financial operations of The Rockefeller Foundation and its subsidiary organizations for the period January 1, 1925, to December 31, 1925.

Respectfully yours,

L. G. MYERS

Treasurer

TREASURER'S REPORT

The following table summarizes transactions relating to income, disbursements, and appropriations:

Income for the year	$8,237,303.59
Undisbursed income on hand January 1, 1925	7,607,187.36
Sundry refunds	4,605.59
Total amount available for disbursement	$15,849,096.54
Disbursements on account of appropriations	9,113,730.43
Balance of income undisbursed on December 31, 1925	$6,735,366.11
Unpaid appropriations and commitments effective in 1925 and prior years	6,170,046.33
Balance in income account available for appropriation	$565,319.78

Appropriations and pledges effective in 1926 and following years, amounting to $16,486,970.35 as shown in the annexed balance sheet, are not provided for in the foregoing figures but are considered as charges against the income of the years in which they fall due.

Income invested in land, buildings, and equipment, almost wholly in China, was increased by the net sum of $47,358.23, as shown in Exhibit L, on page 484, making a total to date of $8,962,154.62.

Since the close of the year the accounts of the Comptroller, the accounts of the Treasurer, and the securities owned by the Corporation have been examined by Messrs. Squires and Company, Accountants, who have rendered a report to the Chairman.

The financial condition and operations are set forth in the appended exhibits, listed below:

Balance Sheet	Exhibit A
Statement of Receipts and Disbursements of Income	Exhibit B
Foundation Appropriations	
Division of Medical Education	Exhibit C
Division of Studies	Exhibit D
Schools of Hygiene and Public Health	Exhibit E
Miscellaneous	Exhibit F
International Health Board	Exhibit G
China Medical Board	Exhibit H
Summary of Appropriations and Payments	Exhibit I
Statement of Appropriations and Payments on account of Special Funds	Exhibit J

EXHIBIT A

BALANCE SHEET, DECEMBER 31, 1925

ASSETS

I. INVESTMENTS			
General Fund			
General schedule (Exhibit M)		$152,707,365.61	
Secured demand loans		12,490,000.00	
Cash on deposit		7,258.89	
			$165,204,624.50
Special Funds (Exhibit N)			
Securities		$77,000.00	
Secured demand loans		10,000.00	
			87,000.00
			$165,291,624.50
II. LAND, BUILDINGS, AND EQUIPMENT FUND (Exhibit L)			
In China		$8,919,007.90	
In New York		43,146.72	
			$8,962,154.62
III. INCOME ACCOUNTS			
Special Funds			
Cash on deposit in New York			$106.43
General Fund			
Secured demand loans		$1,100,000.00	
Cash on deposit in New York		121,470.42	
Cash on deposit in London		2,093,629.71	
Cash on deposit in Brussels		272,428.80	
Cash on deposit in Czechoslovakia		381,589.78	
Cash on deposit in Denmark		54,193.61	
Cash on deposit in Norway		186,676.54	
Cash on deposit in Paris		47,028.30	
Cash on deposit in Brazil		257,714.93	
Funds in hands of agents and sundry accounts receivable	$2,251,079.31		
Less accounts payable	30,445.29		
		2,220,634.02	
TOTAL		$6,735,366.11	
Excess of appropriations and pledges over income available		15,921,650.57	
			22,657,016.68
			$22,657,123.11
GRAND TOTAL			$196,910,902.23

EXHIBIT A

BALANCE SHEET, DECEMBER 31, 1925

FUNDS AND OBLIGATIONS

I. FUNDS			
General Fund (Exhibit K)			$165,204,624.50
Special Funds			
Gift of Laura S. Rockefeller		$50,000.00	
Gift of John D. Rockefeller		37,000.00	
			87,000.00
			$165,291,624.50
II. LAND, BUILDINGS, AND EQUIPMENT FUND			
Appropriations from income (Exhibit L)			$8,962,154.62
III. INCOME ACCOUNTS			
Special Funds			
Balance of appropriation payable from Estate Laura S. Rockefeller Fund (Exhibit B)		$64.77	
Laura S. Rockefeller Fund (Exhibit B)		41.66	
			$106.43
General Fund			
Balance due on appropriations payable in 1925 and prior years (Exhibit I)		$6,170,046.33	
Appropriations and pledges effective in 1926 and following years:			
1926	$8,262,194.35		
1927	3,399,491.50		
1928	2,291,760.00		
1929	1,628,417.50		
1930	905,107.00		
		16,486,970.35	
			22,657,016.68*
			$22,657,123.11
GRAND TOTAL			$196,910,902.23

*This total of all unpaid appropriations and pledges is $15,921,650.57 in excess of the balance of general fund income amounting to $6,735,366.11, as shown on opposite page, but it will be noted that these obligations become effective over a term of years, thus permitting their satisfaction gradually as the income of the respective years is received.

EXHIBIT B

STATEMENT OF RECEIPTS AND DISBURSEMENTS OF INCOME

GENERAL FUND

Receipts

Balance, December 31, 1924		$7,607,187.36	
Refunds of payments made in prior years			
International Health Board		4,605.59	
			$7,611,792.95
Income for the year			8,237,303.59
			$15,849,096.54

Disbursements

International Health Board (Exhibit G)			
General budget			
Hookworm, malaria, county health work, and yellow fever	$1,721,231.78		
State health services	19,308.78		
Public health laboratory service	43,094.98		
Public health administration	167,707.90		
Public health nursing	55,030.79		
Public health education	281,940.89		
Miscellaneous	41,137.74		
Buildings, equipment, and endowment			
Schools of hygiene and public health	831,054.26		
Government health institutions	178,590.00		
Administration	252,132.93		
		$3,591,230.05	
China Medical Board (Exhibit H)			
Medical education			
Peking Union Medical College			
Land, buildings, and equipment	$53,721.94		
Operation (1924–1925, part 1925–1926)	1,116,371.04		
Unaffiliated medical schools	76,479.39		

Premedical education	118,118.48		
Hospitals, mission and Chinese	67,937.75		
Fellowships and scholarships	60,718.66		
Miscellaneous	12,815.04		
Administration	87,248.32		
		1,593,410.62	
DIVISION OF MEDICAL EDUCATION (Exhibit C)			
General budget			
Aid to medical schools	$144,264.61		
Fellowships	362,840.94		
Miscellaneous	77,515.00		
Buildings, equipment, and endowment			
Medical schools	2,482,257.42		
Administration	64,933.58		
		3,131,811.55	
DIVISION OF STUDIES (Exhibit D)			
Dispensary development	$96,992.28		
Nursing education	105,069.80		
Hospital studies and demonstrations	15,980.51		
Fellowships in physics, chemistry, and mathematics	104,539.68		
Human biology	245,023.08		
Miscellaneous	31,552.66		
Administration	25,103.53		
		624,261.54	
SCHOOLS OF HYGIENE AND PUBLIC HEALTH (Exhibit E)		31,250.00	
MISCELLANEOUS (Exhibit F)		6,638.77	
ADMINISTRATION (Exhibit F)		135,127.90	
			9,113,730.43
Income on hand December 31, 1925, accounted for in balance sheet			$6,735,366.11

EXHIBIT B—*Continued*

SPECIAL FUNDS

Laura S. Rockefeller Funds

Balance, December 31, 1924	$41.66
Income collected during the year ending December 31, 1925	3,000.00
	$3,041.66
Amounts paid to the several societies designated by Mrs. Rockefeller	3,000.00
Balance, December 31, 1925, accounted for in cash on deposit	$41.66

John D. Rockefeller Fund

Income collected during the year ending December 31, 1925	$1,850.00
Amount paid to the society designated by Mr. Rockefeller	1,850.00

Estate Laura S. Rockefeller Fund

Balance of income December 31, 1925, accounted for in cash on deposit	$64.77

1925 FOUNDATION APPROPRIATIONS
UNPAID BALANCES OF APPROPRIATIONS MADE IN PRIOR YEARS AND PAYMENTS THEREON MADE IN 1925
EXHIBIT C
DIVISION OF MEDICAL EDUCATION

	PRIOR APPROPRIATIONS	1925 APPROPRIATIONS	1925 PAYMENTS
Belgium			
University of Brussels. Toward building and equipment of the new University institutes (R.F. 2668, 21029)*	$356,000.00	$500,000.00	$720,000.00
Brazil			
Faculdade de Medicina e Cirurgia, São Paulo			
Scientific equipment and assistants for Department of Pathology (R.F. 2851, 2959)	3,458.47	6,000.00	7,323.85
Toward salary and travel of professor of pathology (R.F. 2760, 2867, 2921)	537.76	6,000.00	4,793.93
Canada			
University of Montreal, Faculty of Medicine. Development of laboratories (R.F. 2938, 2965)	....	50,000.00	25,000.00
Denmark			
University of Copenhagen			
For buildings and equipment of an institute of physiology. Kr. 1,800,000 (R.F. 2923)	....	325,000.00	324,194.90
Salary and expenses of visiting professor, and laboratory equipment for medical school (R.F. 2820)	512.93	....	....
Great Britain			
England			
University of Cambridge			
Toward building of School of Pathology. £100,000 (R.F. 2910)	475,000.00	....	218,500.00
Toward endowment of School of Pathology (R.F. 2920, 2962)	....	23,100.00	22,186.18

*The figures in parentheses, following the text describing the purpose of each appropriation, are the serial numbers of the resolution of the Board or Executive Committee, authorizing the payment.

EXHIBIT C—*Continued*

	PRIOR APPROPRIATIONS	1925 APPROPRIATIONS	1925 PAYMENTS
Great Britain—*Continued*			
England—*Continued*			
University of Oxford. Toward endowment of Department of Physiological Chemistry. £20,000 (R.F. 2828)	$89,884.30	$........	$........
Scotland. University of Edinburgh			
Toward development of clinical teaching in its medical school (R.F. 2844, 2969)	4,425.07	8,000.00	3,277.50
Toward building of a clinical laboratory. £35,000 (R.F. 2937)	....	159,000.00	152,950.00
France			
University of Paris. Toward development of Department of Parasitology (R.F. 2942)	....	4,000.00	....
University of Strasbourg. Toward development of Medical School. Frs. 3,000,000 (R.F. 2955)	....	150,000.00	94,050.00
Holland			
University of Utrecht. Toward development of Institute of Pharmacology. Florins 460,000 (R.F. 2950)	....	185,500.00	184,414.00
Italy			
Toward development of laboratory departments in medical schools of Italy (R.F. 2944)	....	8,000.00	....
Siam			
Chulalongkorn University			
Buildings for its medical school (R.F. 2819)	113,594.03	....	37,921.01
Toward salaries and traveling expenses of foreign professors in its medical school (R.F. 2754, 2865)	3,800.24	20,000.00	13,454.55
Toward salaries and traveling expenses of foreign professors in the premedical school (R.F. 2866)	10,754.65	....	9,671.12

Travel of delegates to conference at Hongkong (R.F. 2935)	....	750.00	638.99
Straits Settlements			
King Edward VII College of Medicine. Toward endowment of chairs of physiological chemistry and bacteriology. Straits Dollars 350,000 (R.F. 2922)	....	210,000.00	195,343.75
Syria			
American University of Beirut. Maintenance and equipment (R.F. 2850, 2972)	17,200.00	18,000.00	....
United States			
Columbia University. Toward building and equipment of medical school laboratories (R.F. 2732, 21038. Prior year appropriation of $991,666.67 lapsed as shown below)	991,666.67	1,000,000.00	....
University of Iowa. Toward development of its medical school (R.F. 2956)	....	225,000.00	225,000.00
University of Pennsylvania. Toward building and equipment of new quarters for anatomy and physiological chemistry (R.F. 2958)	....	250,000.00	250,000.00
New York Academy of Medicine. For salaries and expenses of its educational program (R.F. 2779–81)	14,029.97	43,000.00	32,697.58
Fellowships			
Grants to doctors for medical study (R.F. 2912, 21034)	1,136.75	240,000.00	231,290.56
Resident fellowships in Europe (R.F. 2753, 2864)	23,097.90	85,000.00	26,769.40
Resident fellowships in Germany (R.F. 2752, 2863)	54,296.97	20,000.00	57,060.71
Medical Research Council, England. Fellowships in medicine in the United States (R.F. 2730)	37,291.64	....	5,471.78
National Research Council. Research fellowships in medicine supported jointly by the Foundation and General Education Board (R.F. 2763, 2869)	12,660.51	50,000.00	42,248.49
Miscellaneous			
American Medical Association. Toward loss in publishing a Spanish edition of its Journal (R.F. 2879–80)	....	15,000.00	8,988.62

EXHIBIT C—*Continued*

	PRIOR APPROPRIATIONS	1925 APPROPRIATIONS	1925 PAYMENTS
Miscellaneous—*Continued*			
Association of American Medical Colleges. Toward study of the medical curriculum in America (R.F. 2966)	$........	$10,000.00	$10,000.00
Bulletins and reprints (R.F. 2968)	....	7,700.00	7,700.00
Laboratory equipment and supplies in Europe (R.F. 2725, 2862)	75,763.42	100,000.00	52,908.50
Medical literature in Europe (R.F. 2679, 2861, 2939)	21,604.24	44,000.00	52,196.17
Survey of medical schools in Europe and the Near East (R.F. 2651)	5,613.11	....	3,035.51
Travel of visiting scientists (R.F. 2750, 2764, 2810, 2813, 2822, 2829–30, 2906–07, 2917, 2924–26, 2933, 2943, 2960, 2963)	10,654.96	35,500.00	14,505.22
Administration			
Home Office (R.F. 2895)	....	70,070.11	64,933.58
Field Staff (R.F. 2751, 2898, 2936)	508.26	41,329.52	33,285.65
TOTALS	$2,323,491.85	$3,909,949.63	$3,131,811.55

Unexpended balances of appropriations allowed to lapse

R.F. 2651	$2,577.60
R.F. 2732	991,666.67
R.F. 2752	10,634.26
R.F. 2753	20,170.30
R.F. 2763	9,242.32
R.F. 2764	1,500.00
R.F. 2779	11,212.25
R.F. 2780	407.92
R.F. 2813	309.85
R.F. 2820	512.93

R.F. 2829	1,335.06			
R.F. 2830	1,032.40			
		1,050,601.56	....	....
R.F. 2879	1,048.98			
R.F. 2880	4,962.40			
R.F. 2920	6.90			
R.F. 2922	14,656.25			
R.F. 2923	805.10			
R.F. 2936	386.69			
R.F. 2937	6,050.00			
R.F. 2950	1,086.00			
R.F. 2962	906.92			
		....	29,909.24	....
NET TOTALS		$1,272,890.29	$3,880,040.39	$3,131,811.55

EXHIBIT D

DIVISION OF STUDIES

	PRIOR APPROPRIATIONS	1925 APPROPRIATIONS	1925 PAYMENTS
Dispensary Development			
Committee on Dispensary Development. Toward expenses of Committee (R.F. 2771, 2870)	$46,214.06	$100,000.00	$96,992.28
Nursing Education			
Europe			
Administration (R.F. 2769)	14,967.07	....	10,807.62
Travel of directors or teachers of schools of nursing (R.F. 2840, 2847, 2909, 2928)	2,000.00	11,000.00	7,950.00
University College Hospital, London. Teaching equipment for Nurses' Training School (R.F. 2932)	....	750.00	750.00
Expenses of commission to England from the School of Nursing at Lyon, France (R.F. 2834)	1,500.00	....	905.70
University of Cracow, Poland, School of Public Health and Bedside Nursing. Salaries and Scholarships (R.F. 2833, 2927)	65,000.00	35,000.00	23,422.92
School for Public Health and Bedside Nurses, Zagreb			
Building and equipment (R.F. 2832)	8,500.00	....	2,000.00
Salary and scholarships (R.F. 2913)	1,250.00	2,000.00	600.00
Belgrade School of Nursing. Resident scholarships and development of teaching facilities (R.F. 2908)	....	5,000.00	418.75
United States			
George Peabody College for Teachers. For education in public health nursing (R.F. 2951)	....	4,000.00	4,000.00
Vanderbilt University. For educational features of the School of Nursing (R.F. 2929)	....	10,000.00	....

Yale University School of Nursing			
Equipment, supplies, and incidental expenses (R.F. 2721)	26,841.08	....	10,516.30
Maintenance of educational features (R.F. 2871, 2918)	....	42,500.00	42,500.00
Survey of negro nursing education in the United States (R.F. 2805)	1,000.00	....	565.03
Miscellaneous			
Studies in nursing education (R.F. 2849)	39.94	....	....
Travel of visiting nurses (R.F. 2859–60, 2967)	1,399.19	250.00	633.48
Hospital Studies and Demonstrations			
American Conference on Hospital Service (R.F. 2848, 2964)	2,868.01	10,000.00	10,988.00
Study of maternity care in England (R.F. 2858, 2940)	3,992.51	1,000.00	4,992.51
National Research Council. Fellowships in physics, chemistry, and mathematics (R.F. 2774, 2876)	21,313.73	125,000.00	104,539.68
Human Biology			
Mental Hygiene			
National Committee for Mental Hygiene			
General expenses (R.F. 2873)	....	10,000.00	10,000.00
Survey of the care and treatment of mental deficiency (R.F. 2773, 2872)	7,440.56	25,000.00	28,293.55
Fellowships in mental hygiene (R.F. 2835, 2874)	5,000.00	15,000.00	16,206.16
Canadian National Committee for Mental Hygiene. Studies in the application of mental hygiene to school children (R.F. 2875)	....	15,000.00	15,000.00
National Research Council			
Research fellowships in the biological sciences (R.F. 2775, 2877)	36,702.35	75,000.00	55,037.95
International Biological Abstracts. Organizing and editing (R.F. 2911)	....	20,000.00	17,980.15
University of Iowa. Research in physiology of the brain (R.F. 2953–54)	....	62,500.00	15,256.32
Johns Hopkins University. Biological research (R.F. 2945–46)	....	26,500.00	26,500.00
Marine Biological Station at Pacific Grove. Toward building, equipment, and endowment (R.F. 2947)	....	50,000.00	50,000.00
Yale University. Promotion of anthropoid research (R.F. 2948)	....	5,000.00	5,000.00
Study of Australian aborigines (R.F. 2823)	1,194.22	....	....
Surveys in human biology (R.F. 2949)	....	10,000.00	5,748.95

EXHIBIT D—*Continued*

		PRIOR APPROPRIATIONS	1925 APPROPRIATIONS	1925 PAYMENTS
Miscellaneous				
Concilium Bibliographicum. Current expenses (R.F. 2878)		$........	$10,000.00	$10,000.00
National Health Council. Toward general budget (R.F. 2800)		194.60	....	....
Representatives of American Union of Biological Societies in Europe. Travel (R.F. 2837)		2,217.03	....	....
Administration				
Home Office (R.F. 2896)		....	25,803.41	25,103.53
Field Staff (R.F. 2899)		....	29,550.00	21,552.66
TOTALS		$249,634.35	$725,853.41	$624,261.54
Unexpended balances of appropriations allowed to lapse				
R.F. 2769	$4,159.45			
R.F. 2840	500.00			
R.F. 2849	39.94			
R.F. 2859	668.89			
R.F. 2774	14,083.86			
R.F. 2775	32,420.89			
R.F. 2837	2,217.03			
R.F. 2800	194.60			
R.F. 2771	33,720.59			
R.F. 2823	1,184.22			
		89,189.47	....	....
R.F. 2967		....	82.24	....
NET TOTALS		$160,444.88	$725,771.17	$624,261.54

EXHIBIT E

SCHOOLS OF HYGIENE AND PUBLIC HEALTH

	PRIOR APPROPRIATIONS	1925 APPROPRIATIONS	1925 PAYMENTS
Harvard School of Public Health			
Toward cost of operation (R.F. 2768, 2885)	$6,250.00	$25,000.00	$31,250.00
TOTALS	$6,250.00	$25,000.00	$31,250.00

EXHIBIT F

MISCELLANEOUS

		PRIOR APPROPRIATIONS	1925 APPROPRIATIONS	1925 PAYMENTS
National Information Bureau. Sustaining membership (R.F. 2941)		$........	$1,000.00	$1,000.00
Publications for persons engaged in public health and medical work (R.F. 2672, 2841, 2952)		190.22	200.00	183.77
Relief work in Japan. Through the Peking Union Medical College (R.F. 2743)		12,322.72	....	....
Traveling expenses of fellowship adviser to Europe (R.F. 2915)		....	2,500.00	1,935.15
Rotating funds for the Foundation's various offices (R.F. 2824)		5,000.00	....	....
War Relief Commission. Administration 1917 (R.F. 2216)		644.75	....	....
Asset accounts				
Furniture and fixtures (R.F. 2903)		....	4,000.00	2,868.28
Books for the library (R.F. 2904)		....	700.00	651.57
TOTALS		$18,157.69	$8,400.00	$6,638.77
Unexpended balances of appropriations allowed to lapse				
R.F. 2672	$0.15			
R.F. 2743	12,322.72			
		12,322.87	....	....
R.F. 2903	$1,131.72			
R.F. 2904	48.43			
R.F. 2915	564.85			
		....	1,745.00	....
NET TOTALS		$5,834.82	$6,655.00	$6,638.77

Administration				
Executive Offices (R.F. 2795, 2893, 2900–01, 2916)		7,556.39	105,331.11	90,853.10
Treasurer's Office (R.F. 2788, 2894)		6,122.72	19,034.21	13,923.11
Paris Office (R.F. 2818, 2897)		14,213.62	62,946.00	30,351.69
TOTALS		$27,892.73	$187,311.32	$135,127.90
Unexpended balances of appropriations allowed to lapse				
R.F. 2788	$1,300.42			
R.F. 2818	4,875.88			
		6,176.30	....	....
R.F. 2901	$1,168.16			
R.F. 2916	132.75			
		....	1,300.91	....
NET TOTALS		$21,716.43	$186,010.41	$135,127.90

EXHIBIT G

1925 INTERNATIONAL HEALTH BOARD APPROPRIATIONS *
UNPAID BALANCES OF APPROPRIATIONS MADE IN PRIOR YEARS AND PAYMENTS THEREON MADE IN 1925

	PRIOR APPROPRIATIONS	1925 APPROPRIATIONS	1925 PAYMENTS
HOOKWORM WORK			
United States. Alabama			
1925 (I.H. 22544)	$........	$25.00	$........
Mexico			
1924 (I.H. 22228, 22240, 22271, 22315–16, 22336)	19,487.32	....	7,107.73
1925 (I.H. 22487–89)	....	27,450.00	19,734.18
Central America			
Costa Rica			
1924 (I.H. 21954)	1,992.84	....	1,270.00
1925 (I.H. 22364)	....	4,400.00	3,243.77
Guatemala			
1924 (I.H. 22547)	13,010.23	....	3,728.37
1925 (I.H. 22365)	....	11,600.00	6,953.24
Honduras			
1924 (I.H. 21956)	1,048.79	....	Cr.295.73
Nicaragua			
1924 (I.H. 21957)	1.11	....	....
Panama			
1924 (I.H. 21958)	10,664.60	....	2,732.29
1925 (I.H. 22366, 22688)	....	18,460.00	11,268.61

* The Foundation provides for the cost of work carried on by the International Health Board by making to the Board one or more appropriations to cover its work during the year. From these large grants the Board then makes its own appropriations for specific objects.

South America			
Brazil			
1924 (I.H. 21969–73)	48,270.68	......	15,229.75
1925 (I.H. 22374–75)	....	30,255.00	17,847.23
Colombia			
1924 (I.H. 22182)	3,842.79	.....	538.26
1925 (I.H. 22546, 22680–82)	.	26,875.00	18,154.90
Paraguay			
1924 (I.H. 21973)	17,208.08	....	4,739.20
1925 (I.H. 22376)		26,800.00	14,269 23
West Indies			
Dominica (survey)			
1924 (I.H. 21959)	459 18	.	...
Haiti (survey)			
1924 (I.H. 21960)	4,967 65	....	2,071.07
1925 (I.H. 22367)	.	9,560.00	5,661.13
Jamaica			
1924 (I.H. 22073–74, 22203)	21,443 45	....	6,066.59
1925 (I.H. 22368–69)	. .	31,560 00	20,212.82
Montserrat, Nevis (survey)			
1924 (I.H. 21961)	1,207.54	....	56.68
1925 (I.H. 22370)	... ...	1,200.00	173.28
Porto Rico			
1924 (I.H. 21962–63, 22075)	10,656.88	....	3,474.58
1925 (I.H. 22371–73)	.....	19,824.00	14,475.50

EXHIBIT G—*Continued*

	PRIOR APPROPRIATIONS	1925 APPROPRIATIONS	1925 PAYMENTS
HOOKWORM WORK—*Continued*			
West Indies—*Continued*			
St. Kitts (survey)			
1924 (I.H. 21965)	$671.76	$........	$........
St. Lucia			
1924 (I.H. 21966, 22244)	3,795.02	....	2,169.98
Trinidad			
1924 (I.H. 21967–68)	7,109.46	....	4,782.94
The East			
Australia			
1924 (I.H. 22070)	4,033.91	....	1,764.17
Ceylon			
1924 (I.H. 22327)	320.00	....	100.99
1925 (I.H. 23021)	....	300.00	....
Fiji			
1924 (I.H. 22335)	719.77	....	530.86
1925 (I.H. 22377)	....	200.00	154.94
India			
1924 (I.H. 22071–72, 22350, 22501)	5,987.00	....	3,234.39
1925 (I.H. 22378, 22486)	....	9,700.00	2,273.25
Java			
1924 (I.H. 22202)	3,412.21	....	912.78
1925 (I.H. 22502–3, 22632–34)	....	12,450.00	4,955.98

Mauritius			
1924 (I.H. 21974)	100.00	....	....
Seychelles (survey)			
1924 (I.H. 21975)	1,000.00	....	....
1925 (I.H. 22608)	....	500.00	487.82
Siam			
1924 (I.H. 22076, 22257–58)	29,473.87	....	14,187.38
1925 (I.H. 22379–80, 22734)	....	17,485.00	4,838.49
South Sea Islands			
1924 (I.H. 22282)	777.96	....	8.00
1925 (I.H. 22381)	....	1,000.00	....
Straits Settlements			
1925 (I.H. 22505, 22755–56, 23020)	....	7,560.00	5,381.47
Europe. Spain			
1924 (I.H. 22277)	2,457.39	....	156.75
1925 (I.H. 22609, 22645)	....	7,580.00	4,451.88
Field Studies			
Alabama			
1924 (I.H. 22067)	3,078.62	....	1,948.08
1925 (I.H. 22382)	....	6,000.00	3,925.31
Studies by Dr. W. W. Cort			
1924 (I.H. 22334)	4,276.85	....	3,699.90
1925 (I.H. 22383, 22668)	....	10,616.68	6,763.37
Studies of hookworm infection in the pig (I.H. 22239)	499.96	....	355.89
Studies on carbon tetrachloride (I.H. 22066, 22739)	2,605.36	1,900.00	2,347.72
Resurveys in selected counties in the Southern States (I.H. 22270)	2.99	....	....
Motion picture film on hookworm disease (I.H. 22493)	965.34	....	....

EXHIBIT G—*Continued*

	PRIOR APPROPRIATIONS	1925 APPROPRIATIONS	1925 PAYMENTS
COUNTY HEALTH WORK			
United States			
Alabama			
1924 (I.H. 22107–8)	$6,878.15	$........	$6,158.24
1925 (I.H. 22516)	....	6,650.00	4,674.74
Arkansas			
1925 (I.H. 22613–14, 22736, 22742)	....	1,150.00	....
California			
1924 (I.H. 22079–81)	3,739.07	....	3,426.56
1925 (I.H. 22570–72)	....	7,500.00	5,625.00
Colorado			
1925 (I.H. 22647)	....	1,979.14	1,250.00
Florida			
1924 (I.H. 22220)	150.00	....	....
Georgia			
1924 (I.H. 21993)	2,986.61	....	675.24
1925 (I.H. 22573, 22699)	....	1,680.00	1,107.92
Illinois			
1925 (I.H. 22573, 22699)	....	1,650.00	1,650.00
Iowa			
1924 (I.H. 22110)	1,283.43	....	1,145.19
1925 (I.H. 22574)	....	2,500.00	998.50
Kansas			
1924 (I.H. 22209, 22250, 22292–94, 22318)	3,301.71	....	3,100.00
1925 (I.H. 22575–78, 22700–3, 22743)	....	5,208.33	2,359.07

Kentucky			
1924 (I.H. 22111–17)	4,224.30	....	3,956.03
1925 (I.H. 22401–7)	....	12,150.00	8,180.28
Louisiana			
1924 (I.H. 21994–98, 22118, 22120)	6,412.22	....	5,896.56
1925 (I.H. 22408–14)	....	6,777.78	4,173.76
Minnesota			
1924 (I.H. 22352)	1,289.45	....	1,289.45
1925 (I.H. 22415)	....	625.00	625.00
Mississippi			
1924 (I.H. 22121–25, 22200, 22295–99, 22338, 22353)	8,647.58	....	6,400.49
1925 (I.H. 22518–22, 22615, 22662, 22684, 22923)	....	12,800.00	8,144.50
Missouri			
1924 (I.H. 22189, 22191, 22193, 22252, 22254–55)	2,925.00	....	2,175.00
1925 (I.H. 22577, 22579–83, 22663, 22704–6)	....	5,400.00	3,655.00
New Mexico			
1924 (I.H. 22214, 22227–33)	6,828.08	....	5,768.27
1925 (I.H. 22617–24, 22707–08, 22710–13, 22715)	....	9,100.00	3,675.26
North Carolina			
1924 (I.H. 22134)	5,424.99	....	5,411.21
1925 (I.H. 22584)	....	9,000.00	5,331.96
Oklahoma			
1924 (I.H. 22219, 22325, 22339–41)	3,108.45	....	2,563.30
1925 (I.H. 22526–30, 22716–20, 22758–60)	....	12,037.48	7,983.04
Oregon			
1924 (I.H. 22001, 22135, 22215–16, 22342–43)	3,350.39	....	2,656.81
1925 (I.H. 22416–21)	....	11,450.00	8,057.79
South Carolina			
1924 (I.H. 22136–43)	7,934.44	....	7,295.74
1925 (I.H. 22422–31)	....	13,278.94	9,957.95

EXHIBIT G—*Continued*

	PRIOR APPROPRIATIONS	1925 APPROPRIATIONS	1925 PAYMENTS
COUNTY HEALTH WORK—*Continued*			
United States—*Continued*			
South Dakota			
1924 (I.H. 22221–22)	$3,229.19	$........	$1,875.01
1925 (I.H. 22585–86)	....	5,000.00	2,500.00
Tennessee			
1924 (I.H. 22002–8, 22301–2, 22304–7)	6,425.12	....	5,086.51
1925 (I.H. 22432–40, 22625, 22721–25)	....	12,380.00	7,263.69
Texas			
1924 (I.H. 22144–48)	5,912.32	....	4,117.70
1925 (I.H. 22531, 22587, 22626, 22648–49, 22664–65, 22669, 22744–47)	....	11,933.02	8,147.15
Utah			
1924 (I.H. 22217, 22354)	658.33	....	616.83
1925 (I.H. 22441–42)	....	2,600.00	937.50
Virginia			
1924 (I.H. 22009–15, 22218, 22344)	8,518.34	....	2,122.41
1925 (I.H. 22532, 22588–90)	....	10,000.00	7,100.84
Washington			
1924 (I.H. 22149)	2,500.00	....	2,500.00
1925 (I.H. 22533)	....	2,500.00	1,874.99
West Virginia			
1924 (I.H. 22150–56, 22490)	14,647.00	....	8,393.13
1925 (I.H. 22591–98, 22726–27)	....	13,735.00	6,722.97

Wyoming			
1924 (I.H. 22158)	2,500.00	....	2,462.51
1925 (I.H. 22599)	....	2,500.00	650.56
Foreign Countries			
Austria			
1925 (I.H. 22676)	....	3,850.00	....
Brazil			
1924 (I.H. 22016–24, 22347)	9,567.09	....	5,060.29
1925 (I.H. 22449–53, 22611–12, 22630–31, 22661)	....	21,835.00	11,507.70
Canada			
1924 (I.H. 21604, 22025)	15,779.80	....	15,357.73
France			
1924 (I.H. 22234)	13,500.00	....	5,000.00
1925 (I.H. 22770)	....	6,720.00	....
Poland			
1925 (I.H. 22605–6)	....	19,160.00	....
Philippine Islands			
1925 (I.H. 22698)	....	10,000.00	....
MALARIA WORK			
Co-operative Demonstrations			
United States			
Alabama			
1924 (I.H. 22091)	4,209.89	....	3,106.15
1925 (I.H. 22507, 22693–94)	....	8,106.67	3,348.84
Arkansas			
1924 (I.H. 22082)	5,000.00	....	4,263.40
1925 (I.H. 22629)	....	2,300.00	1,954.16

EXHIBIT G—*Continued*

	PRIOR APPROPRIATIONS	1925 APPROPRIATIONS	1925 PAYMENTS
MALARIA WORK—*Continued*			
Co-operative Demonstrations—*Continued*			
United States—*Continued*			
Florida			
1924 (I.H. 22083)	$2,062.50	$........	$1,125.00
Georgia			
1924 (I.H. 22205)	1,693.01	....	1,341.39
1925 (I.H. 22508)	....	5,900.00	2,874.43
Illinois			
1924 (I.H. 22272)	172.32	....	....
1925 (I.H. 22659, 22674)	....	3,800.00	3,174.64
Louisiana			
1924 (I.H. 22206-7, 22245)	3,109.83	....	2,355.64
1925 (I.H. 22384-86, 22556)	....	5,150.00	3,373.32
Mississippi			
1924 (I.H. 22093, 22273-74, 22288)	6,140.48	....	4,373.77
1925 (I.H. 22509, 22523, 22525, 22616, 22635)	....	13,791.33	7,418.62
Missouri			
1924 (I.H. 22246-47)	750.00	....	750.00
1925 (I.H. 22557-58, 22660, 22695)	....	2,100.00	1,686.67
North Carolina			
1924 (I.H. 22095-99, 22100-2)	10,059.87	....	8,254.83
1925 (I.H. 22559-62)	....	9,300.00	5,288.93

South Carolina			
1924 (I.H. 22188, 22248–49)	5,420.15	....	4,416.96
1925 (I.H. 22563–67)	....	12,650.00	....
Tennessee			
1924 (I.H. 21978–79, 22289–91)	3,261.16	....	2,639.88
1925 (I.H. 22387–90, 22696–97)	....	5,425.00	3,330.80
Texas			
1924 (I.H. 22103–6)	8,761.23	....	2,868.23
1925 (I.H. 22510)	....	1,900.00	1,151.09
Virginia			
1924 (I.H. 21980–85)	3,183.10	....	2,434.10
1925 (I.H. 22511–15, 22568, 22646)	....	11,225.00	7,096.88
South America. Brazil			
1924 (I.H. 21986–88	13,044.38	....	6,308.16
1925 (I.H. 22393–95)	....	23,109.00	14,079.63
Field Studies and Experiments			
United States			
Maryland			
1924 (I.H. 22275)	1,207.57	....	....
Mississippi			
1924 (I.H. 22094, 22230)	1,691.66	....	1,510.76
Johns Hopkins University, School of Hygiene			
1924 (I.H. 22204, 22260)	271.94	....	196.50
1925 (I.H. 22397, 22692)	....	3,205.00	2,603.77
Miscellaneous (I.H. 22278, 22740–41)	49.25	1,575.00	947.65
Central America. Nicaragua			
1924 (I.H. 21990, 22183)	1,762.43	....	925.81
1925 (I.H. 22398)	....	2,000.00	....

EXHIBIT G—*Continued*

	PRIOR APPROPRIATIONS	1925 APPROPRIATIONS	1925 PAYMENTS
MALARIA WORK—*Continued*			
Field Studies and Experiments—*Continued*			
West Indies. Porto Rico			
1924 (I.H. 21992)	$1,265.03	$........	$431.70
1925 (I.H. 22400, 22690)	....	1,633.33	1,242.29
South America			
Argentina (I.H. 22689, 22763–64)	....	5,000.00	1,444.13
Brazil (I.H. 22548)	....	4,000.00	2,090.93
Europe			
Austria			
1924 (I.H. 22090)	1,501.41	....	1,103.41
1925 (I.H. 22610)	....	2,400.00	1,754.18
Italy			
1924 (I.H. 21989)	2,232.12	....	841.71
1925 (I.H. 22549, 22658)	....	27,100.00	10,623.02
The East			
Palestine			
1924 (22284, 22351)	2,367.31	....	1,334.30
1925 (I.H. 22673)	....	4,660.00	17.50
Philippine Islands			
1924 (I.H. 21991)	2,576.50	....	1,995.83
1925 (I.H. 22552–73, 22735)	....	6,790.00	....

Training of personnel			
United States. Georgia (I.H. 22286, 22396, 22555)	4,858.08	9,677.00	13,381.75
France. Corsica (I.H. 22677)	....	16,295.00	....
Miscellaneous			
Motion picture film on malaria (I.H. 22237)	350.54	....	107.00
YELLOW FEVER			
Brazil			
1924 (I.H. 22266, 22332, 22484)	145,193.13	....	130,818.93
1925 (I.H. 22500, 22656, 22686, 22754)	....	350,000.00	261,728.58
Colombia and Venezuela			
1924 (I.H. 22167, 22238)	37,894.16	....	6,127.72
1925 (I.H. 22499)	....	5,000.00	276.78
Countries bordering on the Caribbean Littoral and Amazon Valley			
1924 (I.H. 22168, 22267)	846.67	....	....
Mexico and Central America			
1924 (I.H. 22326, 22333, 22485)	60,967.72	....	17,420.47
1925 (I.H. 22498)	....	60,000.00	23,908.74
West Africa			
1925 (I.H. 22657)	....	100,000.00	53,786.80
Training of personnel			
1924 (I.H. 22170)	384.41	....	384.41
1925 (I.H. 22361)	....	10,000.00	7,594.82
Vaccine and serum			
1924 (I.H. 22171)	1,104.54	....	1,104.54
1925 (I.H. 22362)	....	6,000.00	5,008.87
History of yellow fever			
1924 (I.H. 21750, 22172)	5,934.68	....	1,278.98
1925 (I.H. 22363)	....	10,000.00	3,941.33

EXHIBIT G—*Continued*

	PRIOR APPROPRIATIONS	1925 APPROPRIATIONS	1925 PAYMENTS
STATE HEALTH SERVICES			
Sanitary Engineering. United States			
Colorado			
1924 (I.H. 22312)	$1,200.00	$........	$1,200.00
1925 (I.H. 22463)	....	800.00	800.00
Connecticut			
1924 (I.H. 22358)	166.66	....	....
1925 (I.H. 22462)	....	1,500.00	....
Idaho			
1925 (I.H. 22602)	....	1,600.00	1,516.67
Maine			
1925 (I.H. 22729)	....	350.00	175.00
Montana			
1924 (I.H. 22026)	519.13	....	474.14
1925 (I.H. 22464)	....	950.00	950.00
North Dakota			
1924 (I.H. 22224)	988.90	....	....
Utah			
1924 (I.H. 22231)	300.00	....	300.00
1925 (I.H. 22465)	....	150.00	150.00
Epidemiology. United States			
Alabama			
1924 (I.H. 22159)	2,579.71	....	1,808.75
1925 (I.H. 22540)	....	5,260.00	2,870.90

Kansas			
1925 (I.H. 22750)	....	600.00	118.31
Rhode Island			
1925 (I.H. 22761)	....	600.00	....
Tennessee			
1925 (I.H. 22731)	....	1,150.00	436.78
Utah			
1924 (I.H. 22197, 22232)	2,118.06	....	1,291.99
1925 (I.H. 22466, 22667)	....	3,080.00	2,097.65
Virginia			
1925 (I.H. 22651)	....	1,687.50	746.62
Vital Statistics. United States			
Alabama			
1925 (I.H. 22650)	....	712.50	455.00
Mississippi			
1925 (I.H. 22685)	....	700.00	700.00
Montana			
1925 (I.H. 22730)	....	1,250.00	....
Tennessee			
1925 (I.H. 22732, 22762)	....	1,312.50	898.09
Texas			
1925 (I.H. 22774)	....	300.00	....
West Virginia			
1924 (I.H. 22198)	2,072.56	....	1,379.22
1925 (I.H. 22603)	....	1,050.00	939.66

EXHIBIT G—*Continued*

	PRIOR APPROPRIATIONS	1925 APPROPRIATIONS	1925 PAYMENTS
PUBLIC HEALTH LABORATORY SERVICE			
United States			
Alabama			
1924 (I.H. 22160–01)	$6,815.33	$........	$6,556.18
1925 (I.H. 22537)	....	7,500.00	3,546.38
Arkansas			
1924 (I.H. 22163)	4,000.00	....	3,836.39
1925 (I.H. 22455)	....	2,000.00	1,195.41
Connecticut			
1924 (I.H. 22357)	375.00	....	375.00
1925 (I.H. 22256)	....	1,800.00	1,350.00
Delaware			
1924 (I.H. 22349)	1,500.00	....	1,500.00
Maine			
1925 (I.H. 22748)	....	650.00	275.00
Missouri			
1924 (I.H. 22225, 22313)	1,802.46	....	1,544.87
1925 (I.H. 22601, 22728)	....	2,100.00	1,321.48
Montana			
1924 (I.H. 22037)	525.00	....	525.00
1925 (I.H. 22457)	....	1,050.00	1,050.00
Oregon			
1924 (I.H. 22085)	864.47	....	852.84
1925 (I.H. 22538)	....	1,350.00	1,120.32

South Carolina			
1925 (I.H. 22749)	....	500.00	....
Tennessee			
1924 (I.H. 22491)	391.66	....	166.66
1925 (I.H. 22492)	....	2,350.00	2,301.16
Utah			
1924 (I.H. 22038, 22359)	1,900.00	....	1,900.00
1925 (I.H. 22458, 22666)	....	2,775.00	1,387.50
Virginia			
1924 (I.H. 22280)	282.39	....	267.35
1925 (I.H. 22539)	....	998.50	815.77
Texas			
1925 (I.H. 22895)	....	441.67	....
Central America			
Costa Rica			
1924 (I.H. 22356)	132.12	....	126.51
1925 (I.H. 22459)	....	4,050.00	2,621.31
Guatemala			
1924 (I.H. 22039)	2,146.25	....	812.19
1925 (I.H. 22460)	....	3,050.00	1,338.04
Nicaragua			
1924 (I.H. 22040)	2,087.24	....	1,677.68
1925 (I.H. 22461)	....	6,000.00	4,631.94
Demonstrations (I.H. 22543)	....	300.00	....
PUBLIC HEALTH ADMINISTRATION			
Bureau of Study and Reform			
Czechoslovakia			
1924 (I.H. 22030)	4,520.00	....	4,220.00
1925 (I.H. 22467)	....	7,720.00	3,500.00

EXHIBIT G—*Continued*

	PRIOR APPROPRIATIONS	1925 APPROPRIATIONS	1925 PAYMENTS
PUBLIC HEALTH ADMINISTRATION—*Continued*			
Bureau of Study and Reform—*Continued*			
France			
National Office of Social Hygiene of the Ministry of Labor (I.H. 22542, 22644)	$.......	$30,000.00	$9,483.04
Hungary			
Bureau of Sanitary Reform (I.H. 22468)	....	5,000.00	2,282.35
Poland			
Advisory Board of the Central Health Service (I.H. 22604)	....	10,000.00	....
League of Nations			
Toward maintenance of an international interchange of public health personnel			
1922 (I.H. 21525)	15,020.00	....	12,213.22
1924 (I.H. 22322)	80,040.00	....	79,049.29
1925 (I.H. 22472)	....	100,000.00	....
Toward development of an epidemiological intelligence service			
1923 (I.H. 21608)	3,624.56	....	....
1924 (I.H. 22032, 22360)	37,840.00	....	36,259.46
1925 (I.H. 22471, 22496)	....	72,840.00	....
Toward cost of training health officers in vital and public health statistics			
1923 (I.H. 21871)	854.55	....	....
1924 (I.H. 22033)	21,000.00	....	20,700.54
1925 (I.H. 22473)	....	21,000.00	....

Public Health Nursing			
Brazil			
1924 (I.H. 22028–29)	10,941.16		6,191.39
1925 (I.H. 22474)		40,350.00	16,212.54
France			
Central Bureau for Nurses (I.H. 22675)		3,900.00	
Public Health Visiting			
1924 (I.H. 22035)	42,082 13		17,013.78
1925 (I.H. 22470)		47,230.00	15,613 08
School of Bedside and Public Health Nursing at Nantes (I.H. 22768)		7,000 00	
Public Health Education			
Schools of hygiene and public health			
Brazil			
Institute of Hygiene, São Paulo			
Equipment and supplies (I.H. 22176, 22672)		4,382.30	2,009 33
Operation (I.H. 22175)	7,994 85		3,608 80
Department of Hygiene and Legal Medicine of the Medical Faculty of Bahia. Laboratory of Hygiene Equipment (I.H. 22671)		5,000.00	3,549 69
England. London School of Hygiene and Tropical Medicine. Operation (I.H. 21749, 22041, 22475)	50,000.00	25,000.00	35,962 12
Hungary. Institute of Hygiene, Budapest. Operation (I.H. 22640)		3,680.00	
Poland. School of Public Health, Warsaw. Support of biochemist (I.H. 21931, 22476)	800.00	4,000.00	3,000.00
Trinidad. Imperial College of Tropical Agriculture. Toward maintenance of chair of sanitation and tropical hygiene (I.H. 22641)		5,000.00	4,851 25
Study and training courses for health officers			
California (I.H. 22345)	600.00		

EXHIBIT G—*Continued*

	PRIOR APPROPRIATIONS	1925 APPROPRIATIONS	1925 PAYMENTS
PUBLIC HEALTH EDUCATION—*Continued*			
Study and training courses for health officers—*Continued*			
Ohio			
Correspondence courses (I.H. 22177, 22600, 22687)	$750.00	$1,125.00	$1,500.00
Health Officers' Institute (I.H. 22346, 22753)	184.68	400.00	325.95
Mississippi. Health Officers' Institute (I.H. 22935)	....	200.00	....
Training of health workers (I.H. 22179, 22261, 22607, 22679, 22766, 22767)	9,775.53	17,000.00	5,343.52
Teaching of hygiene in medical schools			
Harvard Medical School. Preparation of syllabus (I.H. 22752)	....	4,500.00	....
Medical School of Vanderbilt University. Special training for professor of hygiene and public health (I.H. 22219)	3,110.02	....	3,110.02
Training Stations. United States. Alabama (I.H. 22480, 22534–36, 22670)	2,489.28	11,000.00	9,162.06
Fellowships. Grants to doctors for study of public health (I.H. 22276, 22477–79, 22637)	15,000.00	219,000.00	209,518.15
TUBERCULOSIS IN FRANCE			
Comité National de Défense contre la Tuberculose			
1924 (I.H. 22034)	16,480.62	....	6,322.90
1925 (I.H. 22469)	....	14,350.00	7,625.30
ADMINISTRATIVE FIELD STAFF			
Salaries (I.H. 22047, 22481)	20,756.23	430,000.00	373,395.31
Traveling expenses (I.H. 22049–50, 22481, 22495)	37,175.97	138,000.00	132,785.46

Commutation (I.H. 22048, 22481)	23,956.73	60,000.00	48,840.78
Medical examinations (I.H. 22481)	....	1,500.00	942.00
Drugs for conserving health (I.H. 22481)	....	500.00	38.63
Bonding (I.H. 22481)	....	7,000.00	4,987.11
Automobiles (I.H. 22481)	....	3,000.00	930.14
Insurance and retirement allowances (I.H. 22481)	....	58,000.00	21,553.22
MISCELLANEOUS			
Travel of visiting scientists (I.H. 21642, 21774, 22199, 22201, 22226, 22235, 22321, 22328)	16,942.08	25,400.00	18,741.52
Philippine Islands. Contingent Fund (I.H. 22256)	44.48	....	....
Express, freight, and exchange (I.H. 22481)	....	5,000.00	Cr.740.58
Field equipment and supplies (I.H. 22481)	....	7,000.00	6,594.61
Pamphlets and charts (I.H. 22481)	....	5,000.00	2,553.99
Hookworm and malaria films donated or lent (I.H. 22201, 22481)	9.18	1,000.00	40.00
BUILDINGS, EQUIPMENT, AND ENDOWMENT			
Schools of hygiene and public health			
Canada. University of Toronto School of Hygiene and Public Health Building (I.H. 22627)	....	250,000.00	250,000.00
Interest on endowment (I.H. 22628)	....	12,500.00	12,500.00
Czechoslovakia. State Public Health Institute, Prague. Buildings and equipment (I.H. 21680, 22174, 22497)	804,889.49	....	126,490.09
England. London School of Hygiene and Tropical Medicine. Land, building, and equipment (I.H. 21448, 21469, 21723, 22733)	28,201.67	205,000.00	233,201.67
Hungary. Institute of Hygiene, Budapest (I.H. 22639)	....	245,000.00	40,000.00
Poland. Institute of Public Health, Warsaw. Buildings and equipment (I.H. 22314, 22331)	80,000.00	....	80,000.00
Yugoslavia. School of Public Health, Zagreb. Building and equipment (I.H. 22653)	....	145,000.00	88,862.50

EXHIBIT G—*Continued*

	PRIOR APPROPRIATIONS	1925 APPROPRIATIONS	1925 PAYMENTS
BUILDINGS, EQUIPMENT, AND ENDOWMENT—*Continued*			
Government Health Institutions			
Denmark. State Serum Institute, Copenhagen. Buildings and equipment (I.H. 22638)	$........	$200,000.00	$144,640.00
Norway. State Serum Institute, Oslo. Buildings and equipment (I.H. 22876)	....	187,000.00	....
Yugoslavia. Central Epidemiological Institute at Belgrade. Equipment (I.H. 22652)	....	33,950.00	33,950.00
ADMINISTRATION			
Home Office (I.H. 22164–65, 22483)	57,713.17	211,608.44	227,879.07
Paris Office (I.H. 22269, 22482)	21,519.91	41,964.00	24,253.86
TOTALS	$2,163,679.97	$4,249,610.11	$3,591,230.05
Unexpended balances of appropriations allowed to lapse	434,997.20	4,172.71	....
NET TOTALS *	$1,728,682.77	$4,245,437.40	$3,591,230.05

Refunds of amounts disbursed in prior years

League of Nations (I.H. 21609)	$1,139.00
Illinois (I.H. 22272)	75.00
Tennessee (I.H. 22002, 22004)	16.30
Brazil (I.H. 2979, 2982–83, 21246)	3,211.70
Fiji (I.H. 21649)	163.35
Siam (I.H. 22076)	.24
	$4,605.59

* The Foundation appropriated to the International Health Board for its work during the year 1925 the sum of $4,433,475.

EXHIBIT H

1925 CHINA MEDICAL BOARD APPROPRIATIONS *
UNPAID BALANCES OF APPROPRIATIONS MADE IN PREVIOUS YEARS AND PAYMENTS THEREON MADE IN 1925

Hospitals of Missionary Societies	Prior Appropriations	1925 Appropriations	1925 Payments
American Baptist Foreign Mission Society			
Ningpo. Support of additional staff (C.M. 276). Balance of prior instalments	$11,250.00	$........	$........
Shaohsing			
Support of additional staff (C.M. 277). Balance of prior instalments	6,000.00	....	....
Residence (C.M. 2319)	3,000.00	....	....
American Board of Commissioners for Foreign Missions			
Fenchow			
Support of additional staff (C.M. 2519)			
Balance of prior instalments	5,397.24	....	....
Instalment for 1925	....	3,700.00	....
Maintenance (C.M. 2520)			
Balance of prior instalments	3,000.00	....	....
Instalment for 1925	....	1,500.00	....
Tehchow			
Support of additional staff (C.M. 2498)			
Balance of prior instalments	6,909.00	....	....
Instalment for 1925	....	1,091.00	....

* The Foundation provides for the cost of work carried on by the China Medical Board by making to the Board one or more appropriations to cover its work for the year. From these large grants the Board then makes its own appropriations for specific objects.

EXHIBIT H—*Continued*

	PRIOR APPROPRIATIONS	1925 APPROPRIATIONS	1925 PAYMENTS
HOSPITALS OF MISSIONARY SOCIETIES—*Continued*			
American Board of Commissioners for Foreign Missions—*Continued*			
Tehchow—*Continued*			
Maintenance (C.M. 2571)			
Balance of prior instalments	$2,310.50	$........	$........
Instalment for 1925	....	2,310.50	....
Board of Foreign Missions of the Methodist Episcopal Church			
Peking			
Support of additional staff (C.M. 2266, 2522)			
Balance of prior instalments	6,600.00	....	....
Instalment for 1925	....	2,400.00	....
Equipment for dental department (C.M. 2540)	10,000.00	....	....
Maintenance (C.M. 2675)	....	3,000.00	....
Wuhu			
Maintenance (C.M. 2718). Instalment for 1925	....	3,250.00	....
Support of additional staff (C.M. 2385). Balance of prior instalments	11,882.18	....	2,652.52
Building and equipment (C.M. 2499)	44,069.44	....	25,148.25
Board of Missions of the Methodist Episcopal Church, South. Support of additional staff (C.M. 2418). Balance of prior instalments	24,000.00	....	4,390.00
Board of Missions of the Methodist Episcopal Church, South—American Baptist Foreign Mission Society, Jointly. Huchow. Support of additional staff (C.M. 2152–54). Balance of prior instalments	2,175.00	....	2,175.00
Board of Foreign Missions of the Presbyterian Church in the U. S. A.			
Changteh. Maintenance (C.M. 2604)			
Instalment for 1924	3,750.00	....	....
Instalment for 1925	....	3,750.00	....

Chefoo. Maintenance (C.M. 2603)			
Instalment for 1924	3,750.00		
Instalment for 1925		3,750.00	
Hwaiyuen			
Support of additional staff (C.M. 2655–56). Balance of prior instalments	2,625.00		
Maintenance (C.M. 2657, 2699)	750.00	3,375.00	
Paotingfu. Maintenance (C.M. 2572)			
Balance of prior instalments	6,750.00		2,250.00
Instalment for 1925		4,500.00	
Shuntehfu. Maintenance (C.M. 2573). Balance of prior instalments	2,625.00		875.00
Board of Foreign Missions of the Reformed Church in America. Amoy			
Equipment (C.M. 2282)	2,025.00		
Support of additional staff (C.M. 2283). Balance of prior instalments	9,405 00		
Church of Scotland. Foreign Missions Committee. Ichang			
Support of additional staff (C.M. 289). Balance of prior instalments	8,250 00		750.00
Maintenance (C.M. 2719). Instalment for 1925		675.00	
Domestic and Foreign Mission Society of the Protestant Episcopal Church in the U. S. A. Anking			
Support of additional staff (C.M. 2308) Balance of prior instalments	2,475.00		
Construction and equipment of wards and out-patient department (C.M. 2700)		9,000.00	
Maintenance (C.M.2701). Instalment for 1925		1,000.00	
Executive Committee of Foreign Missions of the Presbyterian Church in the U. S. A., South. Soochow, Kashing. Support of additional staff (C.M. 2101). Balance of prior instalments	13,625.00		
Foreign Mission Board of the Southern Baptist Convention			
Laichowfu. Support of additional staff (C.M. 279–80). Balance of prior instalments	9,000.00		
Hwanghien. Support of additional staff (C.M. 281–82). Balance of prior instalments	5,250.00		
Yangchow. Maintenance (C.M. 2525). Instalment for 1925		1,000.00	1,000.00

EXHIBIT H—*Continued*

	PRIOR APPROPRIATIONS	1925 APPROPRIATIONS	1925 PAYMENTS
HOSPITALS OF MISSIONARY SOCIETIES—*Continued*			
London Missionary Society. Siaochang. Support of additional staff (C.M. 2167, 2725)			
Balance of prior instalments	$1,415.93	$........	$ 710.25
Instalment for 1925	....	600.00	....
Methodist Women's Hospital in Peking. Nurses' Training School			
Equipment and supplies. Mex. 5,000 (C.M. 2677)	3,000.00	....	2,784.87
Support of additional staff (C.M. 2678)			
Instalment for 1924	550.00	....	530.16
Instalment for 1925	....	550.00	269.29
Nanking Union Hospital			
Buildings and equipment (C.M. 2574)	24,400.00	....	....
Maintenance (C.M. 2575)			
Instalment for 1924	9,250.00	....	9,250.00
Instalment for 1925	....	9,250.00	....
United Christian Missionary Society			
Luchowfu. Maintenance (C.M. 2637)			
Balance of prior instalments	16,000.00	....	6,638.84
Instalment for 1925	....	8,000.00	....
Nantungchow			
Support of additional staff (C.M. 2218). Balance of prior instalments	8,400.00	....	....
Building and equipment. Mex. 12,000 (C.M. 2658)	7,000.00	....	6,960.00
United Free Church of Scotland. Mukden. Support of additional staff (C.M. 2714)	....	600.00	....

Loss in Exchange. To cover loss in exchange on payments to missionary societies for their hospitals (C.M. 2503)	25,236.12	....	230.63
Hospitals under Chinese Management			
Central Hospital, Peking. Support of additional staff (C.M. 2464). Balance of prior instalments	12,430.05	....	1,322.94
Missionary Societies—Hospitals and Premedical Education			
Yale Foreign Missionary Society. Hsiangya Medical College, Changsha. Support of additional staff of hospital, premedical school, and nurse training school. Mex. 41,605 and $6,645 a year for five years (C.M. 2454–55)			
Balance of prior instalments	35,234.80	....	....
Instalment for 1925	....	25,000.00	....
Premedical Education			
Fukien Christian University			
Support of additional staff (C.M. 2274–75). Instalment for 1923	12,700.00	....	....
Maintenance of science department (C.M. 2276)	10,000.00	....	....
Ginling College			
Support of additional staff (C.M. 2402). Instalment for 1924	1,600.00	....	1,320.00
Maintenance for 1925 (C.M. 2721)	....	2,750.00	....
Lingnan University (Canton Christian College)			
Equipment (C.M. 2443)	10,000.00	....	....
Support of additional staff (C.M. 2445). Balance of prior instalments	19,522.25	....	....
Construction and equipment of science building. Hk. 77,700 (C.M. 2631)	47,000.00	....	34,000.00
Nankai College			
Science building (C.M. 2591)	9,672.75	....	3,279.08
Science equipment. Mex. 25,000 (C.M. 2592)	15,000.00	....	14,067.54
Support of additional staff (C.M. 2593)			
Balance of prior instalment	3,730.64	....	2,742.19
Instalment for 1925	....	4,050.00	....
Support of visiting professor. 1923–1924 (C.M. 2632)	1,200.00	....	1,200.00

EXHIBIT H—*Continued*

	PRIOR APPROPRIATIONS	1925 APPROPRIATIONS	1925 PAYMENTS
PREMEDICAL EDUCATION—*Continued*			
Nanking University			
Toward construction of science building. Mex. 25,000 (C.M. 2680)	$15,000.00	$........	$12,366.66
Equipment for science departments. Mex. 25,000 (C.M. 2681)	15,000.00	....	5,000.00
Gas plant. Mex. 5,000 (C.M. 2682)	3,000.00	....	2,762.50
Support of visiting professor for one year. Mex. 15,000 (C.M. 2683)	9,000.00	....	5,250.00
Yenching University			
Maintenance of premedical department (C.M. 2670, 2717)			
Balance of prior instalment	1,875.00	....	1,875.00
Instalment for 1925	....	13,520.00	....
Construction and equipment of science building (C.M. 2602)	31,764.04	....	13,658.09
St. John's University, Shanghai. Maintenance of science departments (C.M. 2679)			
Instalment for 1924. Mex. 10,000	6,000.00	....	....
Instalment for 1925. Mex. 8,000	....	4,800.00	....
Shanghai College. Maintenance of science departments (C.M. 2688)			
Instalment for 1924. Mex. 6,000	3,300.00	....	....
Instalment for 1925. Mex. 6,000	....	2,750.00	....
Shantung Christian University			
Additional equipment and alterations for science buildings (C.M. 2727). Mex. 22,546	....	14,000.00	....
Books, periodicals, and other literature for premedical department (C.M. 2728). Mex. 2,734	....	1,700.00	....
Support of additional staff (C.M. 2729). Instalment for 1925. Mex. 5,850	....	3,600.00	....

Soochow University			
Furniture and equipment for science department. Mex. 28,000 (C.M. 2673, 2722)	16,000.00	205.00	....
Maintenance of science department (C.M. 2674)			
Balance of 1924 instalment	670.00	....	....
Instalment for 1925. Mex. 9,500	....	5,425.00	....
Southeastern University			
Toward construction of science building (C.M. 2587)	42,310.43	....	11,122.57
Scientific equipment. Mex. 25,000 (C.M. 2588)	15,000.00	....	....
Support of additional staff (C.M. 2589). Balance of prior instalment	7,957.03	....	2,980.60
Yale-in-China. Maintenance of science departments (C.M. 2724) 1925–1926. Mex. 13,806	....	8,300.00	....
Miscellaneous			
Expenses of biological supply service (C.M. 2690)	8,500.00	....	4,272.02
Summer Institute for science teachers (C.M. 2672, 2691)	4,484.03	3,000.00	2,222.23
MEDICAL EDUCATION			
Medical Schools. Affiliated			
Peking Union Medical College			
Purchase of additional property (C.M. 2381)	3,798.47	....	2,998.87
Buildings and fixed equipment (C.M. 2646, 2744)	55,699.27	100,000.00	31,887.63
Alterations to Chinese houses (C.M. 2579)	620.82	....	Cr. 249.55
Movable equipment (C.M. 2614)	8,659.58	....	3,132.86
Accessories (C.M. 2529)	12,058.87	....	1,641.57
Library (C.M. 2624)	5,909.78	....	4,362.97
Peking stock (C.M. 2648, 2712)	250,000.00	50,000.00	....
Engineering survey of mechanical equipment (C.M. 2713)	....	12,000.00	9,735.34
Plans and estimates for new buildings, equipment, and alterations (C.M. 2723)	....	1,200.00	212.25

EXHIBIT H—*Continued*

	PRIOR APPROPRIATIONS	1925 APPROPRIATIONS	1925 PAYMENTS
MEDICAL EDUCATION—*Continued*			
Medical Schools. Affiliated—*Continued*			
Peking Union Medical College—*Continued*			
Operation			
Budget 1923–1924 (C.M. 2651)	$87,672.83	$........	$........
Budget 1924–1925 (C.M. 2676, 2695)	405,000.00	466,000.00	792,593.62
Budget 1925–1926 (C.M. 2715)	....	444,000.00	235,934.69
Contingent Fund 1923–1924 (C.M. 2627)	12,158.16	....	....
Group insurance and retiring allowances (C.M. 2649–50, 2696)	10,170.35	12,000.00	10,617.16
Expenses in America (C.M. 2708)	....	5,000.00	4,417.04
Administration. Home Office (C.M. 2707)	....	52,225.76	49,603.99
Insurance on buildings and plate glass (2653, 2684, 2697)	4,060.59	100.00	3,912.47
Visiting professors, 1924 (C.M. 2654)	3,061.18	....	2,180.73
Training service for Chinese doctors, 1923–1924 (C.M. 2630)	8,333.76	....	....
Diet investigation (C.M. 2539)	981.09	....	....
Field studies in kala-azar (C.M. 2633, 2698)	7,761.96	18,000.00	17,111.34
Emergency fund. Care of wounded soldiers (C.M. 2748)	....	10,000.00	....
Shanghai Medical School. Purchase of land (C.M. 2269, 2429)	2,031.65	....	....
Medical Schools—Unaffiliated			
Hsiangya Medical College			
Toward budget for year 1924–1925. Mex. 40,000 (C.M. 2689)	22,000.00	....	5,040.00
Toward budget for year 1925–1926. Mex. 40,000 (C.M. 2716)	....	24,000.00	....
Shantung Christian University			
Maintenance (C.M. 2578, 2694)			
Balance of 1924 instalment	10,407.16	....	10,407.16
Instalment for 1925	....	20,000.00	11,032.23

Instalment for 1925–1926	....	9,000.00	....
Construction of buildings and equipment (C.M. 2692)	50,000.00	....	50,000.00
Loss in exchange on remittances for capital expenditure (C.M. 2693)	30,000.00	....	....
FELLOWSHIPS AND SCHOLARSHIPS			
For study in the United States and Europe, 1925 (C.M. 2726)	....	50,000.00	47,575.05
For study at the Peking Union Medical College			
Chinese students			
Year 1924 (C.M. 2661)	7,054.03	....	2,847.70
Year 1925 (C.M. 2704)	....	9,000.00	6,072.06
Foreign students			
Year 1924 (C.M. 2660)	4,323.92	....	1,222.17
Year 1925 (C.M. 2703)	....	6,000.00	3,001.68
Students from the Lingnan University for study in the medical department of the University of Hongkong (C.M. 2554–58)			
Balance of prior instalments	1,200.00	....	....
Instalment for 1925. Hk. 1,600	....	1,200.00	....
EDUCATIONAL CAMPAIGN			
Council on Health Education			
Toward general budget (C.M. 2642). Instalment for 1924. Mex. 13,500	7,500.00	....	....
For carrying out a special campaign among the middle schools and colleges of China concerning the value and possibilities of scientific medicine (C.M. 2643)			
Instalment for 1924. Mex. 4,500	2,500.00	....	....
Instalment for 1925. Mex. 4,500	....	2,500.00	....
TRANSLATION			
China Medical Missionary Association, Publication Committee. For use in its translation work (C.M. 2639–40)			
Instalment for 1924–1925. Mex. 6,000	4,000.00	....	3,255.00
Instalment for 1925–1926. Mex. 4,000	....	3,000.00	....

EXHIBIT H—*Continued*

	Prior Appropriations	1925 Appropriations	1925 Payments
Translation—*Continued*			
National Medical Association of China. Toward its share of the expenses of the Terminology Committee (C.M. 2453). Balance of prior instalments	$1,800.00	$........	$817.41
Miscellaneous			
China Medical Missionary Association. Toward current expenses (C.M. 2585–86)			
Balance of prior instalments	7,167.37	....	5,627.02
Instalment for 1925. Mex. 10,000	....	6,000.00	....
North China Union Language School. Toward cost of recitation building (C.M. 2502)	26,098.59	....	1,818.97
Emergency Fund. For aid of medical work in China, at the discretion of the resident director (C.M. 2647, 2711)	756.03	1,000.00	1,232.61
Land and building for Peking Office (C.M. 2671)	7,254.78	....	64.03
Administration			
Home Office (C.M. 2667–68, 2706)	762.51	34,817.17	33,257.44
Peking Office (C.M. 2666, 2709)	14,413.72	34,716.00	37,515.20
Architectural Bureau in Peking Office (C.M. 2662, 2705, 2747)	5,643.72	15,100.00	16,475.68
Totals	$1,740,936.62	$1,539,260.43	$1,593,410.62
Unexpended balances of appropriations allowed to lapse	196,153.85	65,000.00	....
Net Totals *	$1,544,782.77	$1,474,260.43	$1,593,410.62

* The Foundation appropriated to the China Medical Board for its work during the year 1925 the sum of $1,555,518.

EXHIBIT I
SUMMARY OF APPROPRIATIONS AND PAYMENTS

	PRIOR APPROPRIATIONS (BALANCES)	1925 APPROPRIATIONS	1925 PAYMENTS
INTERNATIONAL HEALTH BOARD	$1,728,682.77	$4,245,437 40	$3,591,230.05
CHINA MEDICAL BOARD	1,544,782.77	1,474,260 43	1,593,410.62
DIVISION OF MEDICAL EDUCATION	1,272,890.29	3,880,040 39	3,131,811.55
DIVISION OF STUDIES	160,444.88	725,771 17	624,261.54
SCHOOLS OF HYGIENE AND PUBLIC HEALTH	6,250.00	25,000 00	31,250.00
MISCELLANEOUS	5,834.82	6,655.00	6,638.77
CENTRAL ADMINISTRATION	21,716 43	186,010.41	135,127 90
TOTALS	$4,740,601 96	$10,543,174.80	$9,113,730.43

Prior appropriations	$4,740,601.96	
1925 appropriations	10,543,174.80	
TOTAL APPROPRIATIONS		$15,283,776 76
1925 Payments		9,113,730 43
Balance payable on appropriations		$6,170,046 33

In addition to the foregoing, the Foundation has made pledges and appropriations which become effective in future years, and which will require for payment the following amounts:

Year 1926	$8,262,194.35
Year 1927	3,399,491.50
Year 1928	2,291,760.00
Year 1929	1,628,417.50
Year 1930	905,107.00
TOTAL	$16,486,970.35

EXHIBIT J

STATEMENT OF APPROPRIATIONS AND PAYMENTS ON ACCOUNT OF SPECIAL FUNDS DURING THE YEAR 1925

	APPROPRIATIONS	PAYMENTS
LAURA S. ROCKEFELLER FUNDS		
Baptist Home for the Aged of New York City (R.F. 2890)	$500.00	$500.00
Baptist Home of Northern Ohio (R.F. 2888)	500.00	500.00
Euclid Avenue Baptist Church of Cleveland, Ohio (R.F. 2889)	1,500.00	1,500.00
Ministers and Missionaries Benefit Board of the Northern Baptist Convention (R.F. 2887)	500.00	500.00
	$3,000.00	$3,000.00
JOHN D. ROCKEFELLER FUND		
Baptist Home for the Aged in New York City (R.F. 2891–92)	$1,850.00	$1,850.00
ESTATE LAURA S. ROCKEFELLER FUND		
Park Avenue Baptist Church Building Fund (R.F. 21035)	$64.77	....

EXHIBIT K

STATEMENTS OF PRINCIPAL FUNDS

General Fund

Balance of Mr. Rockefeller's gifts	$165,204,624.50

This fund is accounted for in securities, secured demand loans, and cash on deposit.

Laura S. Rockefeller Funds

Mrs. Rockefeller's gifts comprising four separate funds	$50,000.00

These funds are invested in securities and secured demand loans.

John D. Rockefeller Fund

Mr. Rockefeller's gifts for special purposes	$37,000.00

This fund is invested in securities.

EXHIBIT L

LAND, BUILDINGS, AND EQUIPMENT FUND

	BALANCE DECEMBER 31, 1924	EXPENDITURES 1925	BALANCE DECEMBER 31, 1925
THE ROCKEFELLER FOUNDATION			
Library	$5,085.32	$651.57	$5,736.89
Equipment	34,541.55	2,868.28	37,409.83
NET TOTALS, The Rockefeller Foundation	$39,626.87	$3,519.85	$43,146.72
CHINA MEDICAL BOARD			
Peking Office. Land and building	$10,745.22	$64.03	$10,809.25
Peking Union Medical College:			
Original purchase	171,013.29	......	171,013.29
Additional land	203,155.57	2,998.87	206,154.44
New buildings	6,940,303.09	31,887.63	6,972,190.72
Alterations, original buildings	293,400.00	......	293,400.00
Alterations, Chinese houses	5,379.18	Cr.249.55	5,129.63
Movable equipment	451,068.32	3,132.86	454,201.18
Accessories	383,324.83	1,641 57	384,966 40
Supplies	20,200.09	....	20,200.09
Heavy furniture for staff residences	7,258.04	....	7,258.04
Library	82,090.22	4,362.97	86,453.19
Street improvements	8,899.72	..	8,899.72

Shanghai Medical School Land	298,331.95	....	298,331.95
NET TOTALS, China Medical Board	$8,875,169.52	$43,838.38	$8,919,007.90
NET GRAND TOTALS	$8,914,796 39	$47,358.23	$8,962,154.62

SUMMARY

Balance, December 31, 1924	$8,914,796.39
Expenditures 1925	47,358.23
Balance, December 31, 1925	$8,962,154.62

EXHIBIT M

SCHEDULE OF SECURITIES IN GENERAL FUND ON DECEMBER 31, 1925

Bonds

Name	Interest Rate Per Cent	Date of Maturity	Amount	Foundation's Ledger Value Per Cent	Foundation's Total Ledger Value
American Agricultural Chemical Co. First Mortgage Convertible................	5	Oct., 1928	$202,000.00	101.	$204,020.00
American Telephone & Telegraph Co. Thirty-year Collateral Trust...........	5	Dec., 1946	100,000.00	97.75	97,750.00
Armour & Co. Real Estate First Mortgage	4½	June, 1939	1,000,000.00	93.25	932,500.00
Atlantic & Birmingham Ry. First Mortgage	5	Jan., 1934	677,000.00	90.	609,300.00
Atlantic Refining Co. Notes.............	4½	July, 1926	700,000.00	99.51	696,570.00
Atlantic Refining Co. Notes.............	4½	Jan., 1927	400,000.00	99.51	398,040.00
Atlantic Refining Co. Notes.............	4½	July, 1927	400,000.00	99.51	398,040.00
Baltimore & Ohio R. R. Refunding and General Mortgage....................	5	Dec., 1995	650,000.00	99.75	648,375.00
Belgian Government Notes.............	5	....	Fcs. 24,000,000.00	....	1,708,200.00
Chicago & Alton R. R. Refunding Mortgage	3	Oct., 1949	$551,000.00	65.	358,150.00
Chicago & Alton Ry. First Lien...........	3½	July, 1950	854,000.00	53.	452,620.00
Chicago City & Connecting Railways Collateral Trust.........................	5	Jan., 1927	1,305,000.00	85.	1,109,250.00
Chicago, Milwaukee & St. Paul Ry. General Mortgage Series "A"............	4	May, 1989	30,000.00	97.	29,100.00
Chicago, Milwaukee & St. Paul Ry. General Mortgage Series "C"............	4½	May, 1989	500,000.00	103.	515,000.00

Chicago, Milwaukee & St. Paul Ry. Debenture (Certificates of Deposit)..........	4	July, 1934	450,000.00	52.50	236,250.00
Chicago, Milwaukee & St. Paul Ry. General and Refunding Mortgage Series "A" (Certificates of Deposit)..............	4½	Jan., 2014	500,000.00	52.50	262,500.00
Chicago, Milwaukee & St. Paul Ry. Receivers Equipment Trust Series "D".......	5	$133,000 due Aug. 1 each year 1926–40	1,995,000.00	98.25	1,960,087.50
Chicago & North Western Ry. Extension...	4	Aug. 15, 1926	50,000.00	95.	47,500.00
Chicago & North Western Ry. Sinking Fund Debenture....................	5	May, 1933	80,000.00	102.	81,600.00
Chicago Railways Co. First Mortgage.....	5	Feb., 1927	500,000.00	97.	485,000.00
Cleveland, Cincinnati, Chicago & St. Louis Ry., St. Louis Division Collateral Trust..	4	Nov., 1990	73,000.00	90.	65,700.00
Cleveland, Cincinnati, Chicago & St. Louis Ry. General........................	4	June, 1993	700,000.00	83.893	587,250.00
Cleveland Short Line First Mortgage......	4½	Apr., 1961	500,000.00	95.	475,000.00
Colorado Industrial Co. First Mortgage....	5	Aug., 1934	2,000,000.00	80.	1,600,000.00
Dominion of Canada, Government of, Fifteen-year........................	5	Apr., 1931	500,000.00	94.565	472,825.00
Erie R. R. General Mortgage Convertible Fifty-year Series "B"...............	4	Apr., 1953	1,065,000.00	74.7175	795,742.30
Illinois Central R. R., Refunding Mortgage	4	Nov., 1955	300,000.00	87.	261,000.00
Interborough Rapid Transit Co., First Mortgage (Stamped).................	5	Jan., 1966	1,750,000.00	96.8571	1,695,000.00
International Mercantile Marine Co. First and Collateral Trust Sinking Fund......	6	Oct., 1941	2,848,000.00	97.5	2,776,800.00
Lake Erie & Western R.R. Second Mortgage	5	July, 1941	100,000.00	100.	100,000.00

EXHIBIT M—*Continued*

Name	Interest Rate Per Cent	Date of Maturity	Amount	Foundation's Ledger Value Per Cent	Foundation's Total Ledger Value
Lake Shore & Michigan Southern Ry. First Mortgage	3½	June, 1997	$926,000.00	87.	$805,620.00
Lake Shore & Michigan Southern Ry. Debenture	4	May, 1931	1,673,000.00	92.	1,539,160.00
Missouri, Kansas & Texas R. R. Prior Lien Series "A"	5	Jan., 1962	331,250.00	78.5	260,031.25
Missouri, Kansas & Texas R. R. Prior Lien Series "B"	4	Jan., 1962	331,250.00	64.5	213,656.25
Missouri, Kansas & Texas R. R. Adjustment Series "A"	5	Jan., 1967	98,800.00	61.5	59,532.00
Morris & Essex R. R. First and Refunding Mortgage	3½	Dec., 2000	175,000.00	82.75	144,812.50
Mutual Fuel Gas Co. First Mortgage	5	Nov., 1947	250,000.00	100.	250,000.00
National Railways of Mexico Prior Lien Fifty-year Sinking Fund with July 1, 1914 and subsequent coupons attached	4½	July, 1957	50,000.00	60.3275	30,163.75
Secured 6% notes for coupon due January 1, 1914	....	Jan., 1933	1,125.00	59.	663.75
Certificate Series "A" interest in arrears	....	....	7,357.50	5.50	404.66
Certificate Series "B" interest in arrears	....	....	13,500.00	.50	67.50
New York Central Lines Equipment Trust of 1913	4½	Jan., 1926–28	108,000.00	99.0393	106,962.46

New York Central & Hudson River R. R. Thirty-year Debenture...............	4	May, 1934	330,000.00	88.45	291,885.00
New York, Chicago & St. Louis R. R. First Mortgage.....................	4	Oct., 1937	35,000.00	95.	33,250.00
New York, Chicago & St. Louis R. R. Debenture............................	4	May, 1931	1,303,000.00	87.	1,133,610.00
New York Connecting R. R. First Mortgage	4½	Aug., 1953	500,000.00	95.69073	478,453.65
Northern Pacific Ry. Refunding and Improvement Mortgage	4½	July, 2047	390,000.00	91.577	357,150.00
Pennsylvania R. R. Consolidated Mortgage Sterling..........................	4	May, 1948	£2,400.00	99.	11,880.00
Pennsylvania R. R. General Mortgage.....	4½	June, 1965	$1,500,000.00	98.25	1,473,750.00
Philadelphia & Reading Coal & Iron Co. Refunding Sinking Fund.............	5	Jan., 1973	167,000.00	94.25234	157,401.42
Pittsburg, Cincinnati, Chicago & St. Louis Ry. Consolidated Mortgage Series "I"...	4½	Aug., 1963	500,000.00	103.	515,000.00
Reading Co. General and Refunding Series "A"............................	4½	Jan., 1997	333,000.00	94.25	313,852.50
Rutland R. R. First Consolidated Mortgage	4½	July, 1941	25,000.00	90.	22,500.00
St. Louis—San Francisco Ry. Prior Lien Series "A"	4	July, 1950	1,500,000.00	72.75	1,091,250.00
Seaboard Air Line Ry. Adjustment Mortgage................................	5	Oct., 1949	455,000.00	77.	350,350.00
Southern Pacific R. R. First and Refunding Mortgage........................	4	Jan., 1955	100,000.00	86.	86,000.00
United States Fourth Liberty............	4¼	Oct. 15, 1938	1,075,000.00	93.21347	1,002,044.80
United States Second Liberty Converted...	4¼	Nov. 15, 1942	2,100,000.00	93.00921	1,953,193.40
United States Government Treasury Notes Series "B".........................	4¾	Mar. 15, 1927	3,000,000.00	100.	3,000,000.00
United States Government Treasury Notes	4¼	Sept. 15, 1926	1,000,000.00	100.	1,000,000.00

EXHIBIT M—*Continued*

Name	Interest Rate Per Cent	Date of Maturity	Amount	Foundation's Ledger Value Per Cent	Foundation's Total Ledger Value
United States Government Treasury Notes Series "A"	4½	Dec. 15, 1927	$4,000,000.00	100.	$4,000,000.00
Wabash R. R. Second Mortgage	5	Feb., 1939	120,000.00	97.8	117,360.00
Washington Ry. & Electric Co. Consolidated Mortgage	4	Dec., 1951	450,000.00	83.5	375,750.00
Western Maryland R. R. First Mortgage	4	Oct., 1952	1,032,000.00	78.8913	814,158.76
Wheeling & Lake Erie R. R. Lake Erie Division First Mortgage	5	Oct., 1926	140,000.00	100.	140,000.00
Wheeling & Lake Erie R. R. Equipment Trust Series "B"	5	Apr., 1926-27	100,000.00	99.75	99,750.00
Wilson Realty Co. First Mortgage	6	July, 1929	7,500.00	95.	7,125.00
Total Bonds	....	....	....	....	$42,295,958.45

Stocks

Name	Number of Shares	Foundation's Ledger Value Per Share	Foundation's Total Ledger Value
American Ship Building Co. Common	24,260	$54.173537	$1,314,250.00
Anglo-American Oil Co., Ltd. (Par £1)	366,517	18.874803	6,917,936.32
Anglo-American Oil Co., Ltd. (Par £1) Non-voting	122,172⅓	18.874803	2,305,978.78

Atchison, Topeka & Santa Fe Ry. Preferred	5,000	98.25	491,250.00
Atchison, Topeka & Santa Fe Ry. Common	21,100	95.2563	2,009,908.33
The Buckeye Pipe Line Co. (Par $50)	49,693	100.	4,969,300.00
Central National Bank, Savings & Trust Co. Capital	950	177.8538	168,961.10
Chehalis & Pacific Land Co. Capital	220	20.223	4,449.15
Chicago City & Connecting Rys. Participation Certificates Preferred	17,530	15.	262,950.00
Chicago City & Connecting Rys. Participation Certificates Common	10,518	2.	21,036.00
Chicago & Eastern Illinois Ry. Preferred	3,000	34.	102,000.00
Cleveland Arcade Co. Capital	2,500	98.6222	246,555.56
Cleveland Trust Co. Capital	457	195.7541	89,459.62
Colorado & Southern Ry. First Preferred	4,800	54.	259,200.00
Consolidated Gas Co. of New York Capital (No par value)	40,000	60.5889375	2,423,557.50
Continental Oil Co. (Par $10)	100,000	6.951916	695,191.60
The Crescent Pipe Line Co. (Par $25.)	14,120	35.	494,200.00
Cumberland Pipe Line Co.	6,000	40.6666	244,000.00
Eureka Pipe Line Co.	12,357	162.	2,001,834.00
Galena-Signal Oil Co. Preferred	4,193	139.7	585,779.50
Galena-Signal Oil Co. Common	20,000	83.0018	1,660,037.26
Great Lakes Towing Co. Preferred	1,527	88.7361	135,500.05
Great Lakes Towing Co. Common	1,200	12.	14,400.00
Indiana Pipe Line Co. (Par $50)	24,845	105.1111	2,611,485.28
Kanawha & Hocking Coal & Coke Co. Preferred	202	100.	20,200.00
Kanawha & Hocking Coal & Coke Co. Common	668	90.953	60,756.40
Manhattan Ry. Capital (Modified Guarantee)	10,000	100.	1,000,000.00
Missouri, Kansas & Texas R. R. Co. 7% Preferred	9,531	40.	381,240.00
National Transit Co. (Par $12.50)	126,481	28.5	3,604,708.50
New York Transit Co.	12,392	122.	1,511,824.00
Northern Pacific Ry. Common	700	91.7625	64,233.75
Northern Pipe Line Co.	9,000	95.	855,000.00
Pere Marquette Ry. Preferred	5,740	54.56502	313,204.35
Provident Loan Certificates	242	100.	242,000.00

EXHIBIT M—*Continued*

Name	Number of Shares	Foundation's Ledger Value Per Share	Foundation's Total Ledger Value
The Solar Refining Co.	9,076	92.5035	$839,561.76
Southern Pipe Line Co.	24,845	125.	3,105,625.00
South West Pennsylvania Pipe Lines	8,000	125.	1,000,000.00
Standard Oil Co. (Indiana) (Par $25)	460,760	43.35	19,973,946.00
Standard Oil Co. (Nebraska)	1,490	90.	134,100.00
Standard Oil Co. (New Jersey) Non-voting Cumulative Preferred	55,000	102.8729	5,658,008.48
Standard Oil Co. (New Jersey) Common (Par $25)	919,500	36.475	33,538,762.50
The Standard Oil Co. (Ohio) Common	33,912	102.	3,459,024.00
The Standard Oil Co. (Ohio) Preferred Non-voting Cumulative	17,088	106.	1,811,328.00
Tilden Iron Mining Co. Capital	1,780	27.35	48,683.46
Union Tank Car Co. Common	48,000	33.46017	1,606,087.97
Western Pacific R. R. Corporation Preferred	28,609	30.705971	878,467.15
Western Pacific R. R. Corporation Common	18,000	11.934765	214,825.79
Wilson Realty Co. Capital	591	100.	59,100.00
Woman's Hotel Co. (In liquidation) Capital	300	5.	1,500.00
Total Stocks	....	....	$110,411,407.16

Summary

Bonds	$42,295,958.45
Stocks	110,411,407.16
Total ledger value of investments belonging to General Fund	$152,707,365.61

EXHIBIT N

SCHEDULE OF SECURITIES IN SPECIAL FUNDS ON DECEMBER 31, 1925

John D. Rockefeller Fund

Bonds

Name	Interest Rate Per Cent	Date of Maturity	Amount	Foundation's Ledger Value Per Cent	Foundation's Total Ledger Value
Canada Southern Ry. Consolidated Mortgage Series "A"	5	Oct., 1962	$37,000.00	100.	$37,000.00
Total Bonds					$37,000.00

Laura S. Rockefeller Fund

Bonds

Name	Interest Rate Per Cent	Date of Maturity	Amount	Foundation's Ledger Value Per Cent	Foundation's Total Ledger Value
Colorado Industrial Co. First Mortgage	5	Aug., 1934	$50,000.00	80.	$40,000.00
Total Bonds					$40,000.00

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