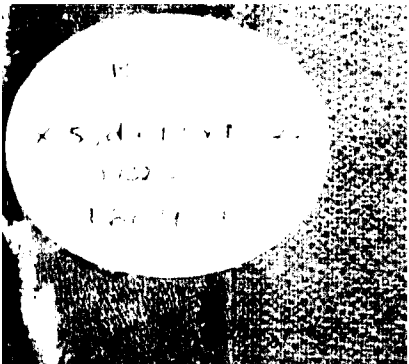
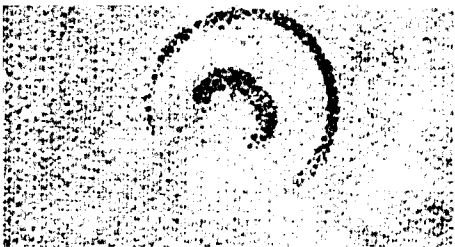




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THE ROCKEFELLER FOUNDATION
Annual Report for 1932

The
Rockefeller Foundation

Annual Report

1932

49 West 49th Street
New York



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1932

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Counsel

THOMAS M. DEBEVOISE

¹ Died November 12, 1932.

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Comptroller

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Counsel

THOMAS M. DEBEVOISE

To the Members of The Rockefeller Foundation,
New York.

Gentlemen:

I have the honor to transmit herewith an account of the work of The Rockefeller Foundation for the period January 1, 1932, to December 31, 1932, including the reports of the Secretary and the Treasurer of the Foundation, the Director of the International Health Division, and the Directors for the Medical Sciences, Natural Sciences, Social Sciences, and Humanities.

Respectfully yours,

MAX MASON

President



LOUIS GUERINEAU MYERS

LOUIS GUERINEAU MYERS

Louis Guerineau Myers, treasurer of The Rockefeller Foundation and of the Rockefeller Institute for Medical Research from time of their organization, and treasurer of the General Education Board from 1910, died in Baltimore on January 27, 1932.

Mr. Myers was born in Bayonne, New Jersey, January 16, 1874. In 1905 he became associated with Mr. George Foster Peabody, who at that time was treasurer of the General Education Board. In 1909 Mr. Myers was made assistant treasurer of this board, and in the following year he became its treasurer.

Widely known as a connoisseur of antique furniture and pewter, Mr. Myers frequently permitted the use of his collections in loan exhibitions. He was the author of *Some Notes on American Pewterers*, published in 1926, and was an authority also on colonial and early federal furniture, portraits, and glass.

In the death of Mr. Myers, the Foundation lost an able financial officer, a wise and patient counselor, and a singularly gracious and attractive personality. As treasurer not only of the Foundation but of the various Rockefeller boards, Mr. Myers had the responsibility for the administration of large capital resources. That administration was marked by a scrupulous attention, a deep consciousness of his trust, and a useful wisdom.

In his dealings with others Mr. Myers displayed a rare courtesy, an unhurried attention, and a ready sympathy. Of distinguished appearance, aristocratic in speech and manner, he was inherently a man of broad and democratic sympathies. Trained to find real values, he was undecieved by superficial ones. Whether he was dealing with a trustee, a fellow officer, or an obscure dealer in antiques, he showed no change of attitude or manner. He bore his physical suffering with an unobtrusive fortitude. Three things shaped and colored his personality: a simple religious faith, an understanding appreciation of art, and a dry but gentle humor. Many of his associates were unaware of his national reputation as a collector and connoisseur. And yet his interest in antiques was deeply significant. Through him, in a sense broader than his expertness and interest, a rectitude and graciousness of the eighteenth century found a lively and articulate expression.

DR. LOUIS SCHAPIRO

Dr. Louis Schapiro, for seventeen years a member of the field staff of The Rockefeller Foundation, died of pulmonary embolism on February 4, 1932, in Bangkok, Siam, where he was serving as an adviser in public health to the Siamese Government.

Born in Poland, May 24, 1886, Louis Schapiro came to the United States with his family when he was four years of age. His boyhood and early youth were spent in Milwaukee, where he attended the public elementary and high schools. He received his degree in medicine from the George Washington University Medical School, Washington, D. C., in 1907. In 1908 he was appointed assistant surgeon of the United States Coast and Geodetic Survey and was assigned to service on the United States Steamship "Fathomer," which was on duty in the Philippine Islands. In May, 1910, he became a medical inspector in the Health Department of the Philippines. He was placed in charge of the public health service of Tondo, a section of Manila, where he greatly improved the health and living conditions of the district.

In November, 1914, Dr. Schapiro accepted an appointment to the staff of the International Health Board of The Rockefeller Foundation and was sent to Costa Rica to direct a campaign for the control of hookworm disease which the government of that country was undertaking with the assistance of the Foundation. Later he served in similar capacity in Panama and Colombia.

Dr. Schapiro brought to the service of the Foundation a large practical experience in public health and a fine spirit for public service which he utilized to the utmost extent for the betterment of health conditions in the various countries in which he worked. His industry, unusual tact, gentlemanly persistence, patience, and his sympathetic understanding in advocating the cause of the people among whom he worked brought him great success in difficult fields. He was a man of high ideals, generous nature, winning personality, and his effective interest in community responsibility made him universally beloved. In Costa Rica, Panama, and Colombia permanent health services stand as monuments to his enthusiasm, his tireless efforts, and his genius for organization. In Siam he was stricken down just as his efforts were beginning to bear fruit.



DR. LOUIS SCHAPIRO

REPORT OF THE SECRETARY

SECRETARY'S REPORT

The members and trustees of The Rockefeller Foundation during 1932 were:

John D. Rockefeller, Jr., <i>Chairman</i>	
James R. Angell	John D. Rockefeller, 3rd
Trevor Arnett	Walter W. Stewart
John W. Davis	Anson Phelps Stokes ¹
David L. Edsall	Harold H. Swift
Raymond B. Fosdick	Augustus Trowbridge
Jerome D. Greene	George H. Whipple
Ernest M. Hopkins	William Allen White
Charles P. Howland ¹	Ray Lyman Wilbur
Vernon Kellogg	Arthur Woods
Max Mason	Owen D. Young

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

The President, <i>Chairman</i>	
James R. Angell ²	Charles P. Howland ¹
Trevor Arnett	Vernon Kellogg ³
David L. Edsall	Walter W. Stewart ⁴
Raymond B. Fosdick	Augustus Trowbridge ⁵
Jerome D. Greene	Arthur Woods

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

Rufus Cole, M.D., <i>Chairman</i>	
John G. FitzGerald, M.D.	Edwin O. Jordan, Sc.D.
Wade H. Frost, M.D.	Waller S. Leathers, M.D.
Lewis R. Thompson, M.D.	
Frederick F. Russell, M.D., <i>Director of the Division, Secretary</i>	

¹ Died November 12, 1932.

² Resigned April 13, 1932.

³ Elected October 14, 1932.

⁴ Elected April 13, 1932.

⁵ Resigned October 14, 1932.

Meetings

Regular meetings of The Rockefeller Foundation were held on April 13 and December 14, 1932. Eight meetings of the Executive Committee were held during the year to execute programs within general policies approved by the trustees.

The officers of the Foundation during 1932 were:

John D. Rockefeller, Jr.	<i>Chairman, Board of Trustees</i>
Max Mason	<i>President</i>
Thomas B. Appleget	<i>Vice-President</i>
Selskar M. Gunn	<i>Vice-President</i>
Alan Gregg, M.D.	<i>Director for the Medical Sciences</i>
Warren Weaver	<i>Director for the Natural Sciences</i>
Edmund E. Day	<i>Director for the Social Sciences</i>
David H. Stevens	<i>Director for the Humanities</i>
Frederick F. Russell, M.D.	<i>Director, International Health Division</i>
Norma S. Thompson	<i>Secretary</i>
Lefferts M. Dashiell	<i>Treasurer</i>
George J. Beal	<i>Comptroller</i>
Thomas M. Debevoise	<i>Counsel</i>

Financial Summary

The following is a summary of receipts and disbursements of the Foundation in 1932. Disbursements in many instances involved appropriations made in former years; on the other hand, in some cases payments represented but a portion of appropriations made during 1932, remainders of which are payable during succeeding years.

Statement of Funds Available and Disbursements During the Year 1932

FUNDS AVAILABLE		
Balance available December 31, 1931		
To meet appropriations, pledges, and authorizations	\$57,496,305.66	
Available for appropriation	1,728,257.93	
	\$59,224,563.59	
Authorizations allowed to lapse, reverting to Principal Fund	2,595,500.00	
	\$56,629,063.59	
Transferred from Principal Fund April 13, 1932	2,509,833.82	
Income and refunds received during the year 1932	10,327,352.95	\$69,466,250.36
DISBURSEMENTS		
Universities and other educational institutions		
Education		
Medical sciences	\$463,593.94	
Nursing	78,930.76	
Social sciences	183,995.17	
Natural sciences	200,890.75	
General	2,500.00	
Departmental development	1,500,076.28	
Research programs	2,109,337.50	
Land and buildings	519,569.17	
Research institutions and organizations		
Education		
Medical sciences	3,477.13	
Social sciences	20,086.06	
General	9,212.50	
General development	640,130.74	
Research programs	732,112.94	
Land and buildings	5,754.25	
Special committees and commissions	240,727.94	
Fellowships and grants in aid	1,516,060.99	
Miscellaneous	1,137,111.28	
Public health	2,539,057.15	
General	1,035,344.22	
Administration	799,889.51	\$13,737,858.28

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BALANCE

To meet appropriations, pledges, and authorizations.....	\$52,798,216.01	
Available for appropriation.....	2,930,176.07	\$55,728,392.08

Summary of Expenditures in 1932

UNIVERSITIES AND OTHER EDUCATIONAL INSTITUTIONS

Medical Science Education

Albany Medical College, Albany, New York.....	\$15,000.00
Brussels, Belgium, Assistance Publique.....	10,000.00
China Medical Board, Inc., New York City.....	304,000.00
Chulalongkorn University, Bangkok, Siam.....	21,738.43
National Central University Medical School, Shanghai, China.....	16,481.72
Peiping Union Medical College, China.....	56,863.79
Shantung Christian University, Tsinan, China.....	14,510.00
University of Montreal, Canada.....	25,000.00
	<u>\$463,593.94</u>

Nursing Education

Schools of Nursing in Budapest, Cracow, Debreczen, Warsaw, and Zagreb.....	\$14,000.00
St. Luke's International Medical Center, College of Nursing, Tokyo, Japan.....	8,000.00
University of Lyon, France.....	10,000.00
University of Toronto, Canada.....	7,962.50
Vanderbilt University, Nashville, Tennessee.....	34,999.96
Miscellaneous.....	3,968.30
	<u>\$78,930.76</u>

Social Science Education

American University of Beirut, Syria.....	\$10,000.00
German School of Political Science, Berlin.....	30,000.00
National Catholic School of Social Service, Washington, D. C.....	15,000.00
New York School of Social Work, New York City.....	5,000.00
Tulane University of Louisiana, New Orleans.....	15,000.00
University of Chicago, Illinois.....	60,086.42
University of Vienna, Austria.....	8,000.00
Western Reserve University, Cleveland, Ohio.....	12,500.00
Yenching University, Peiping, China.....	25,000.00
Miscellaneous.....	3,408.75
	<u>\$183,995.17</u>

SECRETARY'S REPORT

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Natural Science Education

Yenching University, Peiping, China.....	\$196,458.25
Miscellaneous.....	4,432.50
	<u>\$200,890.75</u>

General Education

New Education Fellowship, London, England.....	\$2,500.00
--	------------

Departmental Development

American University of Beirut, Syria.....	\$45,833.26
Harvard University, Cambridge, Massachusetts ..	498,785.56
Keio Gijuku University, Tokyo, Japan.....	11,059.72
Leland Stanford Jr. University, Stanford University, California.....	20,000.00
London School of Economics and Political Science, England.....	31,763.20
McGill University, Montreal, Canada.....	26,787.50
New York School of Social Work, New York City.....	25,000.00
Tohoku Imperial University, Sendai, Japan.....	9,096.07
University of California, Berkeley.....	37,250.00
University of Chicago, Illinois.....	54,020.65
University of Cincinnati, Ohio.....	7,500.00
University of Leipzig, Germany.....	10,978.80
University of London, England.....	501,369.54
University of Paris, France.....	5,000.00
University of Szeged, Hungary.....	54,040.15
University of Washington, Seattle.....	40,455.91
Yale University, New Haven, Connecticut.....	116,457.84
Miscellaneous.....	4,678.08
	<u>\$1,500,076.28</u>

Research Programs

California Institute of Technology, Pasadena.....	\$10,000.00
Columbia University, New York City.....	273,595.01
Cornell University Medical College, New York City.....	24,999.98
Hanover Polytechnic School, Germany.....	8,419.71
Harvard University, Cambridge, Massachusetts ..	225,628.83
Harvard University and Radcliffe College.....	46,829.71
Iowa State College of Agriculture and Mechanic Arts, Ames.....	7,500.00
Johns Hopkins University, Baltimore, Maryland ..	55,922.08
Leland Stanford Jr. University, California.....	53,750.00
London School of Economics and Political Science	21,054.69
Massachusetts Institute of Technology, Cambridge	45,000.00
McGill University, Montreal, Canada.....	36,174.46
Peiping Union Medical College, China.....	15,819.93

THE ROCKEFELLER FOUNDATION

Princeton University, New Jersey.....	\$16,000.00
Tulane University of Louisiana, New Orleans....	15,000.00
University of California, Berkeley.....	10,000.00
University of Chicago, Illinois.....	415,065.86
University of Denver, Colorado.....	5,000.00
University of Hawaii, Honolulu.....	30,000.00
University of Leiden, Netherlands.....	6,931.58
University of Minnesota, Minneapolis.....	117,500.00
University of North Carolina, Chapel Hill.....	32,500.00
University of Oslo, Norway.....	7,020.00
University of Pennsylvania, Philadelphia.....	54,929.40
University of Rochester, New York.....	87,825.80
University of Stockholm, Sweden.....	11,688.87
University of Texas, Austin.....	50,000.00
University of Toronto, Canada.....	8,000.00
University of Vermont, Burlington.....	11,464.12
University of Virginia, Charlottesville.....	26,352.50
University of Warsaw, Poland.....	32,562.01
Vanderbilt University, Nashville, Tennessee.....	50,000.00
Washington University, St. Louis, Missouri.....	55,000.00
Yale University, New Haven, Connecticut.....	221,250.00
Miscellaneous.....	20,552.96

\$2,109,337.50

Land and Buildings

Chulalongkorn University, Bangkok, Siam.....	\$42,688.38
London School of Economics and Political Science.....	55,806.81
University of Lyon, France.....	44,159.98
University of Munich, Germany.....	162,404.10
University of Oslo, Norway.....	7,254.98
University of the Philippines, Manila.....	23,318.75
University of Sydney, Australia.....	73,470.00
University of Stockholm, Sweden.....	45,799.20
University of Washington, Seattle.....	40,311.40
Yale University, New Haven, Connecticut.....	15,000.00
Miscellaneous.....	9,355.57

\$519,569.17

RESEARCH INSTITUTIONS AND ORGANIZATIONS

Medical Science Education

China Medical Association, Shanghai.....	\$3,477.13
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Social Science Education

Laboratory of Anthropology, Santa Fe, New Mexico.....	\$13,434.56
Social Science Research Council, New York City.....	6,651.50

\$20,086.06

SECRETARY'S REPORT

General Education

Canadian National Committee for Mental Hygiene, Toronto, Canada.....	\$9,212.50
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General Development

American Historical Association, Washington, D. C.....	\$10,786.11
American Schools of Oriental Research, Baghdad and Jerusalem.....	54,109.06
Bermuda Biological Station for Research, Inc., Bermuda.....	6,000.00
Brookings Institution, Inc., Washington, D. C.....	75,000.00
Carlsberg Foundation, Copenhagen, Denmark.....	199,759.24
Economic Foundation, New York City.....	50,000.00
Institute for Comparative Research in Human Culture, Oslo, Norway.....	7,500.00
Institute of Economics and History, Copenhagen, Denmark.....	6,000.00
Institute of Pacific Relations, Honolulu, Hawaii.....	20,000.00
International Institute for the Study of African Languages and Cultures, London, England.....	32,110.48
Jean Jacques Rousseau Institute, Geneva, Switzerland.....	7,000.00
National Bureau of Economic Research, New York City.....	64,861.27
Social Science Research Council, New York City.....	49,999.96
Woods Hole Oceanographic Institution, Massachusetts.....	55,000.00
Miscellaneous.....	2,004.62

\$640,130.74

Research Programs

American Council of Learned Societies, Washington, D. C.....	\$33,166.25
American Law Institute, Philadelphia, Pennsylvania.....	12,309.82
Association for the Study of Negro Life and History, Washington, D. C.....	9,365.63
Australian National Research Council, Sydney.....	20,000.00
Behavior Research Fund, Chicago, Illinois.....	17,592.85
Bernice P. Bishop Museum, Honolulu, Hawaii.....	5,500.00
Canadian National Committee for Mental Hygiene, Toronto.....	23,276.56
Cities Census Committee, New York City.....	5,000.00
Council on Foreign Relations, New York City.....	30,000.00
Economic Foundation, New York City.....	52,535.71
Industrial Relations Counselors, Inc., New York City.....	12,000.00

Institute of International Economics and Maritime Trade, Kiel, Germany.....	\$5,000.00
Institute for Psychiatric Research, Munich, Germany.....	7,500.00
Institute of Social and Political Science, Heidelberg University, Germany.....	11,208.79
Institute of Pacific Relations, Honolulu, Hawaii.....	50,000.00
International Institute of Public Law, Paris, France.....	5,000.00
Massachusetts Department of Mental Diseases, Boston.....	8,289.97
Massachusetts Society for Mental Hygiene, Boston.....	11,661.89
Medical Research Council, London, England.....	12,300.41
National Institute of Industrial Psychology, London, England.....	10,000.00
National Research Council, Washington, D. C.....	74,889.46
New Zealand Department of Scientific and Industrial Research.....	5,000.00
Notgemeinschaft der Deutschen Wissenschaft, Berlin, Germany.....	32,929.46
Royal Anthropological Institute of Great Britain and Ireland, London.....	5,500.00
Royal Institute of International Affairs, London.....	29,440.00
Royal Institution of Great Britain, London.....	7,082.50
Rumanian Institute of Social Science, Bucharest.....	5,000.00
Social Science Research Council, New York City.....	135,685.69
Trudeau Foundation, Trudeau, New York.....	9,655.60
Welfare Council of New York City.....	73,750.00
Miscellaneous.....	11,472.35
Land and Buildings	\$732,112.94
Marine Biological Association of the United Kingdom, Plymouth, England.....	\$5,754.25
SPECIAL COMMITTEES AND COMMISSIONS	
Committee on Costs of Medical Care, Washington, D. C.....	\$60,000.00
International Commission for the Polar Year 1932-33, Copenhagen, Denmark.....	24,086.00
National Institute of Public Administration, New York City.....	7,478.37
Research Committee on Social Trends, Washington, D. C.....	145,989.81
Miscellaneous.....	3,173.76
	\$240,727.94

FELLOWSHIPS AND GRANTS IN AID	
American Council of Learned Societies, Washington, D. C.....	\$147,765.80
Fellowships administered by The Rockefeller Foundation.....	604,493.57
Hungarian Scholarship Council, Budapest.....	5,903.17
Medical Research Council, London, England.....	7,739.09
National Committee for Mental Hygiene, New York.....	5,000.00
National Research Council, Washington, D. C.....	416,536.37
Notgemeinschaft der Deutschen Wissenschaft, Berlin, Germany.....	16,193.12
Peiping Union Medical College, China.....	24,370.27
Research aid funds in medical, natural, and social sciences.....	163,423.73
Social Science Research Council, New York City.....	92,240.98
Trinity College, Dublin, Irish Free State.....	6,708.83
University College, Dublin, Irish Free State.....	5,871.13
Miscellaneous.....	19,814.93
	\$1,516,060.99
MISCELLANEOUS	
Abraham Lincoln Foundation, Dresden, Germany ..	\$15,000.00
American Psychological Association, Princeton, New Jersey.....	6,135.65
Bibliothèque Nationale, Paris, France.....	20,001.23
Bulletins and reprints.....	7,596.07
Encyclopaedia of the Social Sciences.....	154,079.75
National Academy of Sciences, Washington, D. C.....	17,425.00
National Research Council, Washington, D. C.....	84,976.00
Social Science Research Council, New York City.....	54,485.16
Unemployment relief	
Demonstration of a plan for family food production in connection with industrial employment.....	7,247.22
Emergency Unemployment Relief Committee, New York City.....	750,000.00
Miscellaneous.....	20,165.20
	\$1,137,111.28
PUBLIC HEALTH	
Regular program of the International Health Division in state and local health work, public health education, control and investigation of specific diseases.....	\$2,405,311.79
League of Nations, Health Organization, Geneva, Switzerland.....	129,457.86
Miscellaneous.....	4,287.50
	\$2,539,057.15

GENERAL *

Agricultural Club Work in Finland and Sweden....	\$16,779.21
American Library Association, Chicago, Illinois....	6,958.68
American Library in Paris, France.....	5,000.00
Cleveland Foundation, Cleveland, Ohio.....	12,000.00
Commission on Interracial Cooperation, Atlanta, Georgia.....	36,744.93
East Harlem Nursing and Health Service, Inc., New York City.....	41,583.34
Fisk University, Nashville, Tennessee.....	5,000.00
Institute of International Education, New York City	24,000.00
Iowa State College of Agriculture and Mechanic Arts, Ames.....	17,574.04
Joint Vocational Service, Inc., New York City.....	5,400.00
League of Red Cross Societies, Paris, France.....	5,000.00
Peoples Institute, New York City.....	5,000.00
Playground and Recreation Association of America, Inc., New York City.....	50,000.00
Regents of the University of the State of New York, Albany.....	10,000.00
Society of the New York Hospital, New York City.....	395,589.29
State of California. Department of Education, Sacramento.....	7,500.00
State University of Iowa, Iowa City.....	98,172.71
Teachers College, Columbia University, New York City.....	100,000.00
University of California, Berkeley.....	46,153.78
University of Chicago, Illinois.....	9,723.31
University of Minnesota, Minneapolis.....	89,149.06
University of Toronto, Canada.....	10,000.00
Vocational Service for Juniors, New York City.....	13,098.27
Y. M. C. A. College, Chicago, Illinois.....	8,917.20
Miscellaneous.....	16,000.40
	<u>\$1,035,344.22</u>

ADMINISTRATION

Maintenance of New York, European, and Peiping offices.....	\$799,889.51
	<u>\$13,737,858.28</u>

Funds and Property

As of December 31, 1932

PRINCIPAL FUND

Balance in The Rockefeller Foundation	
Principal Fund as of December 31, 1931.....	\$141,375,978.13
Authorizations allowed to lapse, reverting to the Principal Fund.....	2,595,500.00
Contingent Projects cancelled, reverting to the Principal Fund.....	6,075,000.00
	<u>\$150,046,478.13</u>

Less:

Amount transferred to Appropriations Account in accordance with a resolution of the Board of Trustees dated April 13, 1932.....	\$2,509,833.82
Amount transferred to the Reserve for Contingent Projects in accordance with a resolution of the Executive Committee dated February 24, 1932....	14,000.00
	<u>2,523,833.82</u>
Balance, December 31, 1932.....	<u>\$147,522,644.31</u>

LAND, BUILDINGS, EQUIPMENT

In China	
Shanghai. Land for medical school.....	\$298,331.95
In New York	
Furniture and equipment of offices.....	47,935.07
In Paris	
Part interest in building occupied by the Paris office.....	65,981.18
	<u>\$412,248.20</u>

* These appropriations, while administered by The Rockefeller Foundation under the terms of the consolidation agreement, represent items which would not, in general, be included in the present program of the Foundation.

INTERNATIONAL HEALTH DIVISION

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INTERNATIONAL HEALTH DIVISION

General Public Health Program

The present program of The Rockefeller Foundation in public health calls for field research on problems in yellow fever, malaria, tuberculosis, and certain other diseases, with increasing emphasis on careful correlation of studies of disease in its environment with investigations in the laboratory. Through this procedure it becomes possible to define the problems with accuracy and to make headway in the search for more effective and less expensive methods of disease control.

A large amount of money is being spent throughout the world on applied public health, but a relatively small amount on research in connection with definite public health problems.

Governments in general are not able to carry out a great deal of research either in the field or in the laboratory. They may be hampered through lack of personnel with research training, lack of funds for this specific work, or lack of continuity of purpose. The Rockefeller Foundation is in a position to carry out research on disease in its natural environment, in almost

any place in the world. Such research is always conducted in cooperation with government health departments. When the research is successful, the Foundation aims to assist the governments in preparing and trying out plans for the prevention of the so-called preventable diseases through the application of the knowledge gained by the research.

In a statement dealing specifically with insect-borne diseases, Professor P. A. Buxton of the London School of Hygiene and Tropical Medicine has summarized the public health research problem in terms of underlying principles:

The subject may be approached in two ways: it may be studied in the field and the laboratory. The field method has met with most favour in the past. It has been felt that it is important to study the insects under natural conditions, and it has been said that field work brings the investigator closer to the practical problem. On the other hand, it may be urged that field observations can hardly ever be precisely interpreted, because so many factors are varying at once, and because insects certainly react to factors which we cannot perceive and never measure. My own belief is that field observations are a necessary preliminary, but that their function is to set problems which should be solved in the laboratory. The laboratory method will eventually carry us further than we can go by working in the field, because experiments can be devised in which single factors vary. One therefore obtains a result which is precise and repeatable; from this established base further advances in knowledge can be made. Our ultimate objective is the understanding of the laws of physiology and

also of physics, which will give an interpretation of what is seen in the field. But that interpretation, which is synthetic, must be based on work which is essentially analytical.

So long as public health research is limited to isolated stations in the field there will be bafflement from time to time because of the inability to carry promising lines of investigation to a conclusion such as can be arrived at only in a well-equipped base laboratory. The Rockefeller Foundation now has available such a laboratory at the Rockefeller Institute for Medical Research, which has placed adequate space at the disposal of the Foundation in one of its buildings. This laboratory, in which a successful method of vaccination against yellow fever has been devised and many other problems with regard to this disease have been cleared up, is now the backbone of all Foundation work against yellow fever. Work in this laboratory on research problems in other diseases, especially malaria, is under consideration.

In its public health program the Foundation does not follow the same plan for all countries. The various countries with which it cooperates in the promotion of public health have their individual problems, which require different methods of approach. In tropical regions, in the past, it has often been found satisfactory to

approach the general health problem through the initiation of work against hookworm disease. In Europe and the United States the effort is more likely from the beginning to concern the promotion of general public health activities, with emphasis on educational work and the training of personnel. In this connection the Foundation has an extensive program to further the education of health officers and public health nurses through aid to institutes and schools of hygiene and public health and by fellowships. Aid is given also to local, state, and national health administrations by means of an advisory system and by public health demonstrations.

The Foundation continues to carry out a world-wide program in the support of public health activities, with emphasis on research work. More than one hundred papers were published during 1932 and the early part of 1933 in the scientific press, describing research work carried out by members of the Foundation staff or under Foundation auspices. The detailed report which follows contains references to such publications and gives brief summaries of public health work in which the Foundation cooperated in many countries during 1932.

The aim of the public health program is not merely to gain new knowledge of a limited number of diseases and public health problems, but

by concrete demonstrations in the control of these maladies, to fix attention upon problems of public health, to educate the public, and to induce governments to give increased attention to the fundamental health needs of mankind.

Yellow Fever

Summary of Activities

The Rockefeller Foundation started yellow fever work in 1915 with the setting up of a commission, which in 1916 visited Ecuador, Peru, Colombia, Venezuela, and Brazil to make a survey of actual or suspected foci of the disease and to inquire into the possibility of ridding these places of infection. This commission reported its belief that the eradication of the disease was a possibility and that the decrease in shipping and emigration occasioned by the War made the time opportune for beginning the work. On looking back, it may be said that the commission was justified in its conclusions by the information then available. Since 1915, however, our knowledge of yellow fever has greatly increased, and the manner of its spread is more clearly understood. It is realized now that the problem presented by the disease is a larger and more difficult one than sanitarians had been led to believe.

Coming to grips with the disease in the laboratory has meant danger. In the first years of

yellow fever work, after experimental animals became available, thirty-three cases of the disease with six deaths occurred among investigators, who had acquired the infection in the laboratory. A vaccine has now been developed which apparently has stopped all such infections.

In 1932 cases of yellow fever were still occurring in both South America and Africa. But authorities of the countries in which the disease is present have instituted control methods on a more comprehensive scale than at any time in the past. Through the League of Nations and the International Quarantine Office, The Rockefeller Foundation has established contact with various colonial authorities in Africa, for the purpose of making a cooperative epidemiological survey of yellow fever. In Brazil the Foundation is assisting in an extensive program of control. Intensive research is going forward in the three yellow fever laboratories maintained by the Foundation in Lagos, West Africa; Bahia, Brazil; and New York City.

Twenty-one papers on yellow fever were published in the medical press by Foundation staff members during 1932. A brief account of the research work detailed in these papers is given in the following pages.

High lights of the year were the continued

success of vaccination against yellow fever; the verification in the State of Espirito Santo, Brazil, of a mild epidemic of yellow fever occurring in the absence of *Aedes aegypti*, the usual mosquito carrier; the clearing up of a moot point with regard to the virus in the mosquito host by findings tending to show that the virus does not multiply in the mosquito; and finally, discoveries concerning the relationship between the complement fixation test and the protection test in yellow fever which will enable investigators to interpret the results of these tests with greater clarity.

Yellow Fever in Africa

In West Africa blood specimens were collected in Nigeria, Gold Coast, Dahomey, French Niger, French Sudan, Senegal, Sierra Leone, and Liberia for the purpose of ascertaining, by means of the protection test, whether the donors of these specimens had at any time had yellow fever. The sera of 4,368 natives residing in ninety-two cities, towns, and villages were tested. These protection surveys, although incomplete, furnish important evidence on the distribution and epidemiology of yellow fever in Africa. In the regions studied no large area has completely escaped infection. It is clear that widespread unrecognized epidemics have existed in the recent

past in many parts of the interior as well as in the coastal regions. It is also clear that reported cases are no index of the actual occurrence of the disease. But from the evidence it is concluded that there are relatively few places in Africa which may be classed as permanent endemic foci of yellow fever. The important reservoir of yellow fever in West Africa is composed principally of numerous epidemics which come and go in native towns.

It would be a mistake to consider the revelations of this immunity survey as indicating an extension of yellow fever and an increased danger. It is our understanding of the disease rather than the disease itself that is increasing. In general, at the present moment, outbreaks of yellow fever seem to be fewer than usual. A limited number of cases of the disease occurred in British territories in Africa during the year. In French territories the disease was more widespread. Thirty-nine cases, practically all of them in Europeans, with thirty-six deaths, were reported.

It is hoped to continue the epidemiological surveys in Africa until they have included all of West Africa proper and have been extended to certain other parts of the continent, especially the Cameroons, French Equatorial Africa, the Belgian Congo, and Angola.

Sawyer, W. A. The Present Knowledge of Yellow Fever as It Relates to the Problem in Africa. *Quarterly Bulletin of the Health Organization of the League of Nations*, 2:29-40 (March) 1933.

Yellow Fever in South America

Brazil.—Cases of yellow fever were discovered in seven states of Brazil during 1932. These occurred for the most part in sparsely inhabited rural areas of the northeastern section of the country, where the disease can apparently maintain itself for long periods among the scattered population. The existence of the cases was revealed by laboratory examination of liver specimens from persons dying after brief febrile illnesses. Over 13,000 such specimens were obtained throughout the suspected area by means of the viscerotome and were sent to the yellow fever laboratory in Bahia for diagnosis. Blood specimens from persons of various age groups were subjected to mouse protection tests, to discover yellow fever cases of the recent past. From the results of these yellow fever surveys it was concluded that in rural and small town regions of Brazil, even those sparsely settled with drifting populations, the disease cannot be left to burn itself out. It has become necessary to make a thorough study of the epidemiology of the infection in rural regions.

There have been no outbreaks of yellow fever in the Amazon Valley despite the movements

of Brazilian, Colombian, and Peruvian troops through this region, but the results of surveys indicate that the infection has recently been widespread in the valley and that it is probably still present.

Bolivia.—An explosive epidemic of yellow fever occurred in the Santa Cruz area of Bolivia, caused in all likelihood by the passage of non-immune soldiers from the mountains through a yellow fever endemic area. The first case clinically diagnosed occurred in March, 1932; the last death from the disease took place on August 22, 1932, and no further cases were reported. In all, there were thirty-seven known deaths from yellow fever in the city of Santa Cruz, ten of which occurred in February and the last two in July. In addition, there were twenty-four deaths outside of Santa Cruz, but probably the patients had become infected in that city. A campaign against the disease, based on a cooperative contract between The Rockefeller Foundation and the Bolivian Government, was organized July 1, 1932.

Paraguay.—Mouse protection tests with blood specimens obtained from certain sections of Paraguay indicated that five of the twenty-nine donors of the specimens had at some time had yellow fever. It is possible that the infection was brought into the country by Bolivian prison-

ers. As a precautionary measure, an immediate control campaign was inaugurated. Model yellow fever regulations similar to those on the statute books of Brazil and Bolivia were put in force. Control stations were established at Asuncion and four other important ports on the Paraguay River. Special attention was given to camps in which the Bolivian prisoners were interned. An abundant supply of local larva-eating fish was available for the protection of cisterns against the breeding of *Aedes aegypti* mosquitoes.

Colombia.—A survey of a section of the interior of Colombia where a yellow fever epidemic had occurred in 1929 was completed during 1932. This epidemic, which was characterized by a low case mortality rate, had ceased. An investigation of a northern section of Colombia adjoining the Atlantic Ocean and centering around Santa Marta showed that a disease characterized by fever and jaundice, which had been prevalent there, was not yellow fever. There is no evidence, therefore, of the occurrence of actual cases of yellow fever in Colombia during 1932.

Kerr, J. A., and L. Patiño Camargo. Yellow Fever Survey of Muzo and the Santander Region of Colombia. *The American Journal of Tropical Medicine*. In press.

Bauer, J. H., and J. A. Kerr. Una enfermedad pirética confundida con la fiebre amarilla en la costa del Atlántico de Colombia. *Boletín de la Oficina Sanitaria Panamericana*, 12: 696-715 (July) 1933.

Yellow Fever Control Work

In the days before it was known that yellow fever was transmitted by a mosquito, quarantine played the dominant rôle in the control of this disease. Today the main reliance is placed on the prevention of mosquito breeding in cities and towns in strategic positions. The Rockefeller Foundation cooperates in control work in certain parts of South America. The main theater of operations continues to be in Brazil, but during 1932 the work was extended to include the lowlands of Bolivia and the capital and important river ports of Paraguay.

In Brazil, in 1932, a unified control service, embracing all parts of the country where yellow fever has appeared, was for the first time put into operation. Work was carried on in 696 towns and cities in thirteen states, as well as in the Federal District, which, early in the year, was made a part of the Cooperative Yellow Fever Service District. In the Federal area the Brazilian Government has since 1928 done excellent work in practically eradicating the yellow fever mosquito. The aim of the control work in Brazil is either to eliminate yellow fever from the country or to find out through scientific investigations whether epidemiological factors render such elimination impossible. In all control work there is close cooperation with The



Yellow fever laboratory of The Rockefeller Foundation at Lagos, Nigeria.



Obtaining a blood sample from a police officer of Ibadan, Nigeria, to determine, by means of the mouse protection test, whether or not the donor had had yellow fever.

Rockefeller Foundation's yellow fever laboratory in Bahia.

The yellow fever service in Brazil has about four thousand employees. The backbone of the control system is careful inspection for the presence of the yellow fever mosquito (*Aedes aegypti*), and an important element in the control program is the training of inspectors. If the mosquito index can be kept down, yellow fever can be kept down. In addition to the routine house visits of inspectors, special squads are employed to spot unusual mosquito production, especially any breeding that may occur in previously undiscovered or faultily inspected water containers. Besides the inspection of domestic water containers and constant watch of gutters and other possible breeding places about the houses, much attention is devoted to oiling of non-potable water deposits where mosquitoes lay their eggs. The government gives strong support to the control work. In Rio de Janeiro alone, in 1932, legal measures were taken by the service in 38,000 instances in order to obtain mosquito-proofing results.

The antimosquito work at all interior control posts in Brazil was placed on a seven-day cycle throughout the year. All roof gutters were systematically gone over once in three months. Written public health orders were issued in



The Yellow Fever Service of Brazil requires routine inspection of vessels anchored in the harbors or at the mouths of rivers, in order to make sure that the vessels are protected against mosquito breeding. Small boats of the type here shown are used for the inspections.



Barrel of the type approved by the Yellow Fever Service of Brazil for the storage of water on board vessels. It is provided with a spigot, and the opening at the top has a permanent cover of fine copper mesh through which the water is poured into the barrel. The barrel may be cleaned by removing the large plug at one end.

abundance for the repair or removal of faulty water deposits. In observing these orders the population showed excellent cooperation.

Some of the recent outbreaks of yellow fever in Brazil and Bolivia seem to have been the result of the introduction of non-immune persons, usually troops or refugees, into a region in which most of the people were immune. As yet there is no evidence that yellow fever has been carried by aircraft in Central or South America. Nevertheless, the possibility that improved methods of travel, particularly by railway trains, motor vehicles, and aircraft might carry yellow fever through barriers heretofore effective, has caused considerable concern.

During the year a representative of The Rockefeller Foundation attended the conference of the Health Organization of the League of Nations, held in Cape Town, South Africa, November 15 to 25. At this conference the whole subject of the risk of transmission of yellow fever by aircraft was fully discussed. The Permanent Committee of the International Office of Hygiene, whose delegates represent some fifty governments, has been engaged since 1929 in cooperation with the International Sanitary Convention for Aerial Navigation in a study, of which the result is the International Sanitary Convention for Aerial Navigation of

1932, which is to constitute a pendant to the International Sanitary Convention of 1926. This new agreement is available for signature at the Hague. The conference in Cape Town unanimously advised all African governments immediately to accept and apply this International Sanitary Convention for Aerial Navigation. There is every reason to believe that it will be adopted by the various governments and will be worldwide in its application.

Studies of the Virus of Yellow Fever

In The Rockefeller Foundation laboratories studies of the yellow fever virus and methods of dealing with it are being continued. Viruses are distinguished from bacteria by their ability to pass through filters fine enough to retain the smallest ordinary bacteria and by their invisibility even under high magnification, although recent reports suggest that some of them have been made visible by a special technique. Moreover, viruses cannot be cultivated on ordinary non-living media. A large number of diseases of man, animals, and plants are now known to be due to infection by viruses.

In the yellow fever laboratory in New York the earliest specimens of yellow fever virus preserved by drying while in the frozen state are now over three years old, but they still retain

the virus with no appreciable change in virulence. A new machine has been constructed for the automatic regulation of temperature and vacuum conditions during the drying of specimens. This device takes care of the drying of specimens under high vacuum, while frozen, and permits the preparation of larger quantities than was formerly possible. The vacuum is regulated by a pump controlled by a photoelectric cell. The controlling beam of light is cut off by the mercury in the manometer as the pressure in the machine rises, and this starts the pump. The temperature is kept at about -6 degrees Centigrade. The device is manufactured by an engineering firm from specifications furnished by the Foundation's yellow fever laboratory staff.

In the Foundation's Annual Report of last year, it was explained that by the use of mice there had been obtained a new type of yellow fever virus which produces its effects in the brain rather than in the viscera. It is thus a neurotropic virus as opposed to the viscerotropic virus. The neurotropic virus has approximately the same resistance to heat as the corresponding viscerotropic virus.

Researches recently published show that the virus of yellow fever, as adapted to mice, has been maintained through more than one hundred

passages in tissue culture without any change being induced in the property of the virus. It has again been demonstrated that living cells are necessary in the culture medium. The yellow fever virus is neutralized by immune serum in the presence of living cells. But once the virus has become intracellular it is able to withstand the action of concentrated immune serum, and in the cells it maintains a virulence corresponding to the virulence of normal cultures.

Experiments with yellow fever virus gave results which coincide with those obtained with smallpox virus. When the yellow fever virus was mixed simultaneously with monkey immune serum and fresh chicken embryonic tissue, after an incubation period of one to five days no virus was found in the fluid which had been separated from the cells by centrifugation, and very little virus was found in the cells. Only after a six-day cultivation period did definite virulence appear in the cellular part. Quite different results were obtained when the virus was allowed to act on the cells for one or two hours at room temperature before the immune serum was added. In that case the tissue cells, even in the presence of highly concentrated immune serum, retained the same virulence as in normal cultures. In the absence of living cells

or on the addition of killed cells virulence is lost in a short time.

Another important study completed in 1932 dealt with the question as to whether yellow fever virus multiplies in the mosquito host. From analogy with malaria and other insect-borne diseases it was natural to suppose that the disease-producing organism or virus is found in the mosquito because it needs the mosquito as a host in which to develop. This is true in malaria, where the cycle of development of the causal organism within the mosquito is well known. But it appears from the results of a series of delicate measuring experiments that in the highly effective insect host of yellow fever (*Aedes aegypti*) the quantity of virus present never surpasses that originally ingested. The mosquito, in biting the yellow fever patient, takes in, on the average, one million to two million lethal doses of yellow fever virus. This new study clears up an important point in the yellow fever infection cycle.

It was shown that although, exceptionally, the neurotropic yellow fever virus which produces encephalitis can be transferred by *Aedes aegypti*, the fixed neurotropic strain cannot be maintained in the mosquito host so well as the viscerotropic strain. This is probably due in part to the smaller amount of virus ingested by

the mosquito on account of the paucity of the virus in the blood stream of the mammalian host.

Lloyd, Wray, and H. A. Penna. The Preservation of Yellow Fever Immune Serum. *The American Journal of Tropical Medicine*, 13: 291-295 (May) 1933.

Haagen, Eugen, and Max Theiler. Untersuchungen über das Verhalten des Gelbfiebersvirus in der Gewebekultur. Mit besonderer Berücksichtigung seiner Kultivierbarkeit. *Zentralblatt für Bakteriologie, Parasitenkunde, und Infektionskrankheiten*, 125: 145-158, 1932.

Haagen, Eugen. Weitere Untersuchungen über das Verhalten des Gelbfiebersvirus in der Gewebekultur. *Zentralblatt für Bakteriologie, Parasitenkunde, und Infektionskrankheiten*, 128: 13-21, 1933.

Frobisher, Martin, Jr. A Comparison of Certain Properties of the Neurotropic Virus of Yellow Fever with Those of the Corresponding Viscerotropic Virus. In press.

Davis, N. C., Martin Frobisher, Jr., and Wray Lloyd. The Titration of Yellow Fever Virus in *Stegomyia* Mosquitoes. *The Journal of Experimental Medicine*, 58: 211-226 (August) 1933.

Davis, N. C., Wray Lloyd, and Martin Frobisher, Jr. The Transmission of Neurotropic Yellow Fever Virus by *Stegomyia* Mosquitoes. *The Journal of Experimental Medicine*, 56: 853-865 (Dec.) 1932.

Vaccination against Yellow Fever

In the Foundation's Annual Report for last year there was described the present method of vaccination against yellow fever. This requires the injection of a small amount of living neurotropic yellow fever virus and the simultaneous administration of an adequate amount of blood serum from a person who has had yellow fever and who has recovered. An account was given of first vaccinations among yellow fever workers in the laboratory and in the field.

It is now possible to vaccinate small numbers of persons against yellow fever with reasonable

safety. The virus used has almost completely lost its power to produce illness in monkeys. The immune serum prevents the circulation of the virus in the blood, and it is inconceivable that vaccinated persons might become a menace to their fellow men through the transfer of the altered virus by the mosquito. Although the disease is not produced in the vaccinated persons, a high degree of immunity develops in the course of two or three weeks.

Tests have been made which indicate that the preservation of yellow fever immune serum by rapid desiccation in a vacuum while frozen, and subsequent storage at refrigerator temperatures for a considerable period of time, cause no discernible reduction in the protective power of the serum.

The number of vaccinations against yellow fever performed up to May 11, 1933, by methods worked out in the Foundation's yellow fever laboratory in New York was as follows:

Vaccinations in the New York laboratory.....	31
Vaccinations in the Bahia laboratory or with material sent from Bahia.....	15
Vaccinations in England.....	25
Vaccinations in Lagos.....	3
Total.....	74

The blood of twenty-eight of the persons vaccinated in New York was tested for power to neutralize yellow fever virus in mice, and all

gave this evidence of immunity. Fourteen of these persons were tested as long as one year after vaccination, and one was tested at the end of eighteen months. In each case the serum was found to have definite protective power.

Although considerable research has failed to unearth any practical objection to the use of neurotropic virus in immunization against yellow fever if an adequate amount of immune serum is given also, it is obvious that the ideal vaccine virus would be one whose specific reactions had no relation to vital tissue. If a strain of yellow fever virus could be developed which would be incapable of producing harmful effects on any vital organ, this would be of importance in yellow fever control. With this in mind an attempt was made to adapt the neurotropic yellow fever virus to some tissue other than the brain or the tissues of the principal viscera. In the experiments conducted it was shown that the mouse-adapted neurotropic virus could live in the testicular tissues of mice but that the virus was not appreciably changed by a moderate number of passages in these tissues. These experiments have as yet offered no solution to the problem of finding a virus which is completely harmless. They point to the possibilities of further development of the work recounted above, which consists of growing neurotropic

yellow fever virus in tissue cultures, entirely apart from living animals.

There are still distinct limitations to the application of the present method of vaccination. It cannot be used in a country into which the introduction of living virus would be dangerous or has been prohibited. In the second place it would be difficult to secure enough immune human serum from recovered or vaccinated persons to satisfy a large demand. A beginning has been made by vaccinating persons who desire protection against unusual exposure to yellow fever, especially those who are actively investigating the disease in the field or in the laboratory. Work is going forward in connection with the simplification of the process of vaccination. If simplification could be achieved the road would be open toward a more extensive use of this protective measure.

It seems probable that vaccination may be useful for the crews of aeroplanes making stops in infected regions and for certain travelers if they can thereby avoid quarantine restrictions placed on persons not immune to yellow fever.

Lloyd, Wray, and A. F. Mahaffy. The Survival of Neurotropic Yellow Fever Virus in Testicular Tissues. In press.

Sawyer, W. A. The Present Knowledge of Yellow Fever As It Relates to the Problem in Africa. *Quarterly Bulletin of the Health Organization of the League of Nations*, 2: 29-40 (March) 1933.

Yellow Fever without *Aedes aegypti*

Although *Aedes aegypti* seems to be the only vector of yellow fever which ordinarily need be considered, several other mosquitoes have been shown in laboratory experiments to be capable of transmitting the infection by biting. Three additional species of *Aedes* in Brazil, and five additional species of *Aedes* in West Africa, as well as two other species of mosquito, have been incriminated. *Mansonia africanus* appears to be important as a possible vector of the disease in Nigeria because of its preference for human blood and its house-haunting habits. In experiments with *Mansonia titillans* in Brazil it was found that this mosquito did not transmit yellow fever virus in infective or immunizing quantities by its bite, but one insect of the species harbored the virus in its body for as long as thirty days, and others were proved to contain potent virus when injected into monkeys after shorter periods. *Mansonia titillans* is very common and widely distributed in tropical and subtropical America from Florida to Peru. Because of its fondness for human blood it is a great pest in Panama.

It has been felt that the possibility of transmission of yellow fever in nature by the mosquitoes other than *Aedes aegypti* which have been incriminated as vectors in laboratory experi-

ments should be kept in mind, particularly if the common stegomyia does not seem to be sufficiently numerous to account for the presence of the disease. During 1932 there was verified the actual occurrence of mild epidemic yellow fever in a region in which *Aedes aegypti* was not present. This epidemic occurred in a rural community in the Chanaan Valley, in the State of Espirito Santo, Brazil. The disease was discovered in this valley early in March, 1932, and was confirmed by findings in three autopsied cases. For three months cases were widespread in a strictly rural district in which, even after thorough and prolonged search, begun six weeks before the spontaneous disappearance of the disease from the district, *Aedes aegypti* was not found. The only two mosquitoes on the suspicious list seen in the infected area were *Aedes (Ochlerotatus) scapularis* Rondani and *Aedes (Taeniorhynchus) fluviatilis*. *Aedes scapularis* was found more frequently and is believed to be the more dangerous species. In spite of the existing epidemic and a rumor of previous epidemics, immunity to the disease as indicated by mouse protection tests, although widely disseminated in the area, was limited to a surprisingly low percentage of the persons whose blood was tested. The spontaneous disappearance of yellow fever in this area is attributed to the ineffi-

ciency of the insect vector rather than to failure of the human host.

The yellow fever laboratory at Bahia, Brazil, since its establishment in 1928, has devoted considerable attention to the fate of yellow fever virus in various species of mosquitoes and other insects which, in addition to *Aedes aegypti*, might transmit yellow fever in nature. Since ticks were found to be numerous in certain sections of the State of Pernambuco where sporadic cases of yellow fever were occurring, transmission of yellow fever by these insects was taken up as a definite laboratory problem in March, 1932. It was found that the yellow fever virus may remain alive in ticks for considerable periods. But there was no indication that the virus was transmitted by the bites of infected ticks at any stage of life, nor was any evidence secured that yellow fever virus was passed from one generation of ticks to another through the egg, or that the virus persisted during the transformation of larva into nymph.

In the body of the bedbug (*Cimex hemipterus*) the virus of yellow fever appeared to die off so rapidly that the disease could not be transmitted by injection of the ground-up insects later than the second day after their infecting meal. It is possible that some active virus was eliminated in the feces during the first and second days, but

not later. In general, the bedbug was not incriminated as a vector of yellow fever.

A colony of *Triatoma magista* (a large black insect of tropical America, which transmits *Trypanosoma* (*Schizotrypanum*) *cruzi*) was established in the yellow fever laboratory at Bahia, and experiments were made which showed that the *Triatoma* was unable to transmit yellow fever by biting. This insect might conceivably, in rare instances, act as agent in the transfer of yellow fever in nature, but only if, after an infective blood meal, it should be mashed on the skin of a susceptible person. Such instances would be entirely fortuitous however, and the occurrence of mechanical transmission of yellow fever in nature by means of *Triatoma magista* is improbable.

Further experiments were made to determine whether yellow fever might be transmitted by dog fleas or biting stable flies. *Macacus rhesus* monkeys were used as the source of the virus. Experiments were of two kinds: interrupted feeding experiments in which the fleas and flies were allowed to bite an infected monkey and to finish their feeding on a normal monkey, and experiments in which fleas and flies, after having fed, were ground up and the ground mixture was injected intraperitoneally into a normal monkey.

Dog fleas did not transmit the virus of yellow fever in interrupted feeding experiments. The virus was not demonstrable in the bodies of the insects eighteen hours after an infective blood meal. But fleas which had fed seven hours previously on an infected animal caused the death from yellow fever of a normal monkey into which they were injected. Stable flies transmitted yellow fever virus to a *rhesus* monkey in an interrupted feeding experiment six hours after an infective blood meal, but not sixteen hours after such a meal. Flies which had fed as early as forty-two hours previously on an infected monkey caused the death from yellow fever of a normal monkey into which they were injected. Thus the possibility that these two insects, the dog flea and the biting stable fly, might transmit yellow fever virus by interrupted feedings in nature is remote. The fact that the virus dies out rapidly in the bodies of both insects decreases the probability of their being carriers of importance.

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Studies of the Seasonal Variation, the Distribution, and the Bionomics of Certain *Aedes* Mosquitoes

A study was made of the influence of climatic conditions on the life of *Aedes aegypti* in West Africa. In Southern Nigeria, where there is little variation in climate throughout the year, conditions are favorable for the permanent maintenance of yellow fever infection. In the northern part of the country conditions are suitable for mosquito breeding during only a limited period each year. It seems probable, therefore, that the numerous epidemics of yellow fever which have developed in many places in the north have occurred only during favorable periods of epidemic years. It is doubtful whether yellow fever can exist in an endemic state in Northern Nigeria, where the climate makes the mosquito at times an ineffective vector. The chief factor in the climate is temperature. The degree of humidity may also play a rôle. *Aedes aegypti* varies little in its length of life at different times of the year in the uniform climate prevailing throughout the year in Southern Nigeria.

An analysis of the occurrence of *Aedes aegypti* in water containers and a discussion of bionomical information together with relative weather conditions were presented in a paper on mosquito species breeding in "test" water containers in West Africa.

Additional information was obtained on the distribution of *Aedes taeniorhynchus*. Although considered a coastal species, this mosquito was found in the interior of the State of Bahia, Brazil, in a locality 300 kilometers from the sea-coast. Its larvae were seen in rockholes within 30 yards of houses, and adults were captured inside of the houses. Since this mosquito has been shown to transmit yellow fever in the laboratory, these observations may be of some importance in connection with the epidemiology of the disease.

A new species, *Aedes jacobinae*, was described. Further observations are necessary to determine the blood-feeding habits and the range of distribution of this species. Notes were published on certain South American mosquitoes with complete descriptions for identification purposes and information on habitat and habits. The descriptions include both *Anopheles* and *Aedes* mosquitoes. The presence in Brazil of *Aedes oligopistus*, previously known from Trinidad, was noted for the first time.

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- Davis, N. C. Notes on Some South American Mosquitoes. *Annals of the Entomological Society of America*, 26: 277-284 (June) 1933.

Studies of Yellow Fever in Laboratory Animals

There has been no discovery of an animal other than man that becomes infected with yellow fever under natural conditions and that may be acting as a reservoir of the virus of the disease. But there are animals which may be successfully infected with yellow fever in the laboratory. The most important of these are monkeys and mice. The usefulness of mice in connection with immunity tests has been amply confirmed.

Immunity tests are fast becoming indispensable in the epidemiologic studies of several diseases of man. In diphtheria, scarlet fever, and tuberculosis, skin tests are commonly used. In poliomyelitis and yellow fever, the serum is tested in animals. If a result indicating im-

munity is obtained by any of these procedures, it is assumed that the person tested has been previously infected with the disease in question.

During 1932 there was undertaken an investigation of the specificity and accuracy of the immunity test now being widely used in epidemiological studies of yellow fever, namely, the intraperitoneal protection test in mice. Sera of persons in Canada and China who could never have been exposed to yellow fever virus were tested for protective power against this virus, and the results were compared with results of protection tests in countries where yellow fever is known to exist. The conclusion was that the test is highly specific and useful as an indicator of past infection.

During the year Dr. Max Theiler published another paper on the yellow fever protection test in mice by direct intracerebral injection. This method has certain advantages in that only small quantities of serum and virus are required. The possibility of using a simple intracerebral test in mice for determining quantitatively the amount of protective antibodies in yellow fever immune serum was investigated. Two methods of preparing the virus were used. In the first the virus was prepared fresh each time. There was found to be a great range in the amount of brain tissue containing one

minimum lethal dose. The rate of deterioration of virus preparations, although these were made in accordance with a uniform technique, varied considerably. In the second method, preserved virus preparations were used. The limitations of the method of preserving the carefully standardized virus by drying it in the frozen state make the procedure unsuitable for use in the routine testing of sera by the method here presented. Before means are found for standardizing and preserving the virus in large amounts, it would be premature to advocate this method for the routine testing of yellow fever sera in epidemiological work.

During the course of the work the great importance of the diluent used in making virus suspensions became manifest. After a number of experiments, it was found that a 2.5 per cent solution of egg albumin in distilled water was a satisfactory diluent, but further experience will be necessary before it will be considered safe to substitute this for the diluted normal serum now used in routine practice.

The successful use of the mouse as a laboratory animal for yellow fever work led to the employment of the same technique with the guinea-pig. It was found that guinea-pigs are susceptible to intracerebral injections of yellow fever virus fixed for mice, but relatively insusceptible to

intracerebral injections of yellow fever virus of monkey origin. The course of the disease produced in guinea-pigs is essentially the same as in mice, but the concentration of virus in the brain of the guinea-pig is much less. The blood plays no part in the distribution of the virus. At death, damage is confined to the nerve tissues. Continued passage of virus in the guinea-pig leads to no alteration in its disease-producing capacity for mice. It was shown also that intracerebral inoculation of neurotropic virus of mouse origin produces typical fatal encephalitis in the agouti, a small South American rodent (*Dasyprocta agouti*). However, the agouti is relatively resistant to the virus. The order of susceptibility in the case of these animals, namely mouse, guinea-pig, and agouti, may be due in part to the fact that the virus used in the experiments had been adapted to the mouse.

The susceptibility of various Asiatic, African, and South American monkeys to intracerebral inoculation with mouse-brain-adapted yellow fever virus was also repeatedly demonstrated. It was shown that this neurotropic virus produces a well-marked encephalitis in monkeys, which runs a typical clinical course and causes characteristic lesions. Neurotropic yellow fever virus was transferred by intracerebral inoculation through three passages in *Callithrix* mon-

keys, with the production of uniformly fatal encephalitis. Intracerebral inoculation of another monkey, *Leontocebus ursulus*, with neurotropic yellow fever virus was followed by febrile reaction and in some instances by neurological symptoms and death. No success was obtained in an effort to transfer the virus in series to *L. ursulus*. It was found that encephalitis can exceptionally be caused in monkeys by the bites of stegomyia mosquitoes carrying neurotropic virus.

Aedes aegypti mosquitoes feed readily on certain species of bats. Attempts to transmit yellow fever virus to these bats by means of *Aedes aegypti* mosquitoes and later to obtain the virus from the bats were negative in result. Immediate mechanical transmission of yellow fever was obtained in two experiments by the bite of the common South American vampire bat, but such mechanical transmission is probably of little importance in the epidemiology of yellow fever. It seemed of practical value to determine whether bats could serve as a reservoir for yellow fever virus, but great difficulty was experienced in keeping the bats alive in captivity. It would seem that the bats would be of importance as reservoirs of yellow fever in nature only if they could be infected by *Aedes aegypti* mosquitoes and if normal mosquitoes of this

species could later obtain the virus from them. This apparently does not occur.

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Complement Fixation and Precipitin Tests

The search for a yellow fever test which would not involve the use of animals has been mentioned in previous annual reports of The Rockefeller Foundation. One such test, carried out with laboratory apparatus and no animals, is known as the complement fixation test. This test has been brought to a high degree of delicacy and standardization. Although the test is of aid in outlining areas recently epidemic, extensive studies have led to the conclusion that it is of no assistance in determining endemic areas of yellow fever. Results obtained by it have been

less constant than those of protection tests with either monkeys or mice.

Work done during the year has served to throw light on the reasons for the discrepancy between the results of the complement fixation test and those of the protection test. A precipitin test was evolved and found to be closely related to the complement fixation test. Positive results obtained from the complement fixation test or the precipitin test were found to be due not to the detection of the antibody which protects against the yellow fever virus itself, but to the presence of an entirely different antibody (precipitin), produced in response to the presence of a protein substance (precipitinogen) resulting from cellular injury during the course of a severe attack of yellow fever. The precipitinogen disappears with recovery, and the corresponding antibody (precipitin) tends to disappear more rapidly than the protective antibodies resulting from the presence of living virus. In making the precipitin or complement fixation test, the antigen selected for use should be rich in precipitinogen.

There are really four substances, two pairs of two, that enter into the picture. One pair is the virus and its antibody. Soon after the virus is introduced the protective antibody is formed, regardless of the severity of the symptoms, and

its presence in the blood can be detected by means of tests in mice or monkeys. If severe symptoms of yellow fever develop, another substance comes on the scene, a protein precipitinogen. The antibody, or precipitin, which is later formed as the result of the presence of this precipitinogen, is revealed by the precipitin test or the complement fixation test. If this is a correct account, it becomes clear why the complement fixation test does not cover the same ground as the immunity test. Complement fixation can discover only substances formed as the result of a severe attack of yellow fever. But all persons on whom the virus takes do not have severe symptoms, and therefore all would not be discoverable by precipitin or complement fixation tests.

The precipitin test promises to be of some value in the diagnosis of acute infections. By reversing the process, it is possible to test for precipitinogen during the acute disease, with a serum containing much precipitin. Since the test requires no extensive laboratory equipment, it is one that should be well adapted to field work.

Hughes, T. P. Precipitin Reaction in Yellow Fever. In press.

Pathology of Yellow Fever

Certain studies of chemistry and metabolism in experimental yellow fever in *Macacus rhesus*

monkeys were completed in 1932. The work reported during the year dealt with the chemistry of liver changes which accompany the decline in liver function caused by yellow fever.

A paper was published on the pathological effects of neurotropic virus on *Macacus rhesus* monkeys. Intracerebral or intraspinal inoculation of mouse-brain-adapted yellow fever virus was followed by an encephalitis with characteristic symptoms and definite pathologic lesions. The causal relationship of the brain virus to the ordinary yellow fever virus was demonstrated by immunological reactions. It was found that after various periods of life, up to seven months, in the nervous tissues of monkeys, the virus retains the essential characteristics of mouse-brain-adapted virus. In fact it is indistinguishable in its effects from the pure mouse strain.

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Malaria

The Malaria Problem

The general principles of malaria propagation have been known for a third of a century; yet

malaria prophylaxis is still a perplexing problem, and malaria remains the king of tropical diseases, sovereign of a vast domain, destroying millions of men.

Malaria control through eradication of the mosquito vector is comparatively simple if expense need not be considered. But to control this disease when expenditures must be kept within the average public health budget is a far more difficult task. The problem is to bring control work within the economic means of the community.

To determine the logical procedure necessary in combating malaria in any particular area a careful study must be made. An important part of all malaria control work is malariometry. By noting parasite, spleen, sporozoite, and mosquito indexes during and after the administration of prophylactic measures, it is possible to make a fair estimate of the return that is being obtained for antimalaria expenditures.

If patients could be segregated it would be possible to apply the slogan "Do not infect the mosquito and the mosquito won't infect you." Unfortunately such segregation is usually impossible.

Generally speaking, the drugs that are specific for malaria are expensive and are not easily administered on a large scale. Quinine is ex-

tensively used, but it has marked limitations. It is effective against symptoms; it has saved innumerable lives; but it is not a preventive of the disease. In areas where attempts have been made to control malaria by means of quinine, better food, better housing, and better hospitals, the effect on the prevalence of the disease has been practically nil. On the other hand, wherever efforts have been directed against the mosquito vector, malaria has decreased and its spread has been controlled.

Some results can be obtained by killing adult mosquitoes through such methods as swatting, catching, spraying, fumigating, trapping, the use of poison baits, and the encouragement of natural enemies. However, not a great deal can be expected from such methods, because they require the systematic and continuous cooperation of the individuals of a community, and this, except under army conditions, is rarely possible of achievement.

Other methods aim to prevent the mosquito from biting. These include screening, special clothing, bed nets, chemical or mechanical repellents, removal of houses from malarious districts, provision of animal barriers, and best of all, the killing of mosquito larvae.

The destruction of larvae can be accomplished in a number of ways. One of them consists in oil-

ing the surface water in which mosquitoes breed. But such oiling can serve only as a temporary measure. Continued for many years, it is frequently found to be more expensive than permanent control measures, such as draining or filling. Larvae can also be killed by dusting Paris green on the water in which they are found. This measure is effective even if the Paris green is extensively diluted with road dust or some similar substance. There is no evidence of the danger of Paris green, when used in this way, to life other than that of mosquito larvae. It has never poisoned human beings, live stock, or even fish in the waters in which it has been used. It has no ill effects on rice or other crops. On the other hand, it does not kill mosquito eggs or pupae. It is also not so easily visible as oil, and is therefore more difficult to control by means of inspection.

Encouragement of the multiplication of the natural enemies of the mosquito, especially small larva-eating fish, is a simple and effective way of controlling mosquito production. The top minnow is particularly useful for this purpose, but in few places in the world have fish alone been able to control malaria. They are of use chiefly as an adjunct.

The larvae of the yellow fever mosquito can be trapped, because the mosquito which carries this

disease breeds chiefly in artificial water containers found around houses; but trapping of the larvae of the malaria-carrying mosquito would not be feasible, since this mosquito will breed wherever suitable water or moisture can be found.

The more radical and most successful methods of combating the malaria mosquito consist in destroying its breeding places by means of drainage, clearing, cleaning, channeling, emptying, filling, flushing, and drying; impounding, salting, or altering the composition of the water; and above all, by the orderly progress of agricultural cultivation, which tends to do away with swamps and breeding areas. The economic improvement represented by progressive cultivation supplemented by the passage of the necessary sanitary laws, which usually follows enlightened public interest, is in the long run the most effective means of abolishing malaria.

In no single region is it necessary or feasible to apply all the antimalaria measures known. Each region presents a special problem. For this reason, as the late Sir Ronald Ross, greatest of malariologists, pointed out, success depends "on the intelligence, enthusiasm, and energy of those who are responsible for sanitary affairs."

Russell, P. F. Lectures on Malaria Prophylaxis and Mosquito Control. *The Journal of the Philippine Islands Medical Association*, 13: 277-288 (June) 1933.

Rockefeller Foundation Malaria Work

In 1915 antimalaria work was added to the program of The Rockefeller Foundation. At first malaria prevention was undertaken on a modest scale. Theoretically malaria control seemed quite simple. In actual practice it has proved to be very complex. In the Southern United States, studies were made of the effects of quinine therapy alone or in combination with such measures as screening, minor drainage, and the control of mosquito breeding by means of larva-eating fish. The quinine control study gave inconclusive results and was discontinued.

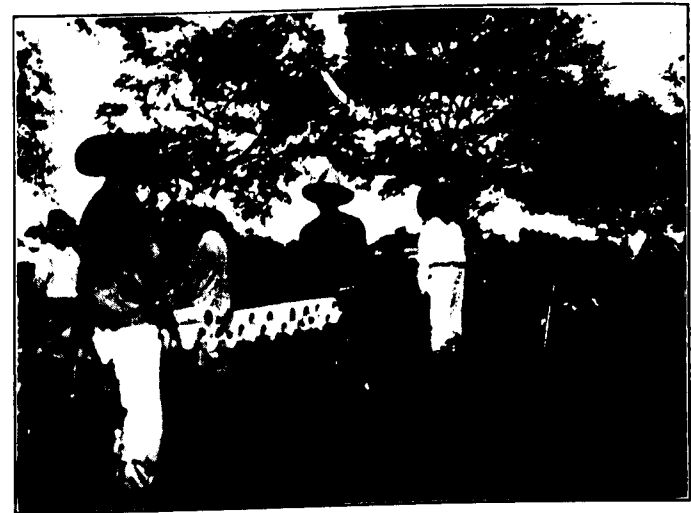
The early demonstrations of malaria control in the United States were successful, because malaria was at that time epidemic rather than endemic and because there was only one malaria-transmitting mosquito (*Anopheles quadrimaculatus*), which was relatively easy to control.

The War caused a great increase in malaria all over the world. The Foundation increased its malaria work in the United States, and gradually extended its program to Mexico, Central America, Puerto Rico, Argentina, Brazil, Italy, Spain, Corsica, Yugoslavia, Bulgaria, Albania, Greece, the Philippine Islands, and India. Good progress in control was made in many of these places.

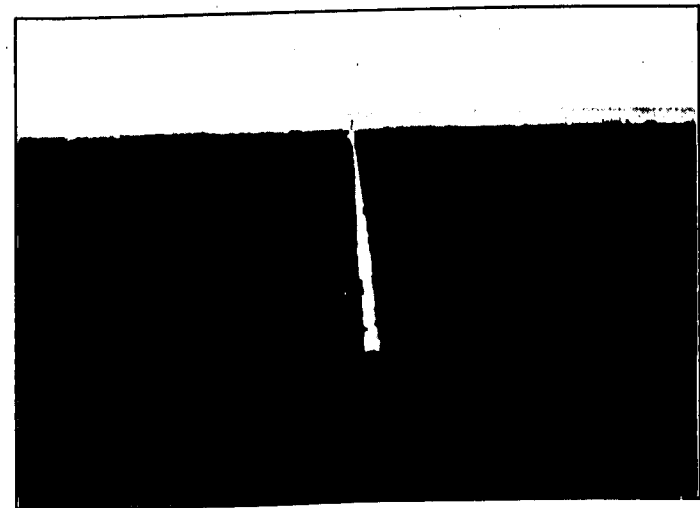
To illustrate the Foundation's plan of action in

malaria control, the campaign in Italy may serve as an example. The work was begun in 1923. The first year was devoted to a survey. In the second year, studies were begun in Calabria and Sardinia, and later in the neighborhood of Rome and in the region of the Pontine Marshes. The work was extended until there was cooperation in studies or in control work in twenty-five localities. In most places, control was attained within two years. In Sardinia and the Pontine Marshes, where the situation presented unusual difficulties, success was obtained only after five or six years. The topography of Italy is so varied that no general rule could be followed in control work. Each locality was studied and a suitable program elaborated. In Istria fish alone were used to prevent mosquito breeding, but nowhere else was this method practicable. In every instance it proved to be less expensive to abolish malaria than to treat it with quinine. The control methods employed in this work were, as far as it was possible to do so, embodied in national laws, and these laws are now in full force. But extensive malaria studies are still going on in Italy in an attempt to solve the many problems that have arisen in the course of control operations.

Until the War, Europe, and particularly Italy, had led the world in malaria research, but most



Laying a tile drain in Managua, Nicaragua, as a malaria control measure.



An outlet ditch which carries the discharge from tile drains into the lake, Managua, Nicaragua.



A member of the malaria survey staff in Laguna province, Philippine lands, collecting mosquito larvae from a well with a dipper of special construction.



Dipper used in the Philippine Islands for collecting mosquito larvae from wells for studies in connection with malaria control. The joint in the handle permits angulation.

European malariologists had become pessimistic about the possibility of controlling the disease. Recent developments have changed this attitude, so that the outlook for a large measure of malaria control is brighter now than it has been since Ross discovered the mosquito carrier in 1897.

During 1932 The Rockefeller Foundation assisted four states in the United States and the health administrations of seventeen foreign governments in conducting antimalaria work. The states of the United States receiving aid were Florida, Georgia, Louisiana, and Mississippi. The foreign countries in which assistance was given were Grenada, Jamaica, Puerto Rico, Costa Rica, Guatemala, Nicaragua, Panama, Colombia, Venezuela, Albania, Bulgaria, Greece, Italy, the Netherlands, Spain, India, and the Philippine Islands.

Malaria Surveys

Malaria attacks may be intense or light, abrupt or gradual. In an attempt to discover the cause of this variation in the intensity and nature of the disease, a survey was made of the distribution of malaria in the Southeastern United States, where it is characterized by both local and general variations. Close study revealed that the peculiarities of malaria distribu-

tion had something to do with the nature of the soil. The soluble limestone underlying certain areas is partly dissolved by the percolation of water through it, forming extensive underground passages which develop into caverns of various lengths and dimensions. A large proportion of the precipitation is diverted to these underground passages, so that this type of land fails to develop to any great extent the superficial erosion channels by which surface water is usually drained off. Instead there are produced many shallow basin-shaped depressions devoid of outlet, capable of retaining surface water, and providing ample opportunity for the breeding of *Anopheles quadrimaculatus*. Thus malaria in these areas is intensified in years with wet summers and, following the distribution of limestone, appears to wax and wane according to the fluctuations in the water level.

In the Philippine Islands death rates for malaria decreased from 588 per 100,000 in 1904 to 124 per 100,000 in 1930. However, there were still some 15,000 deaths from the disease in 1930. A survey made in 1932 in certain areas of the islands selected for study, disclosed a spleen index of 17.9 per cent, which indicated that malaria is a disease of great, although not of paramount, importance in the islands. It is found chiefly in the foothill region and is transmitted

principally by mosquitoes of the *funestus-minimus* subgroup, which tend to breed in small rivers or streams or in flowing ditches of clear, shaded, fresh water. Seasonal variations in malaria incidence are due to the drying up of these streams or to an increase of their velocity and volume which makes mosquito breeding impossible. In the Philippines, malaria is a disease of transitional seasons and regions. The very wet and the very dry seasons are not malarious, nor are the flat lands, or the areas above 2,000 feet in altitude, or the low coastal plains. Since control of malaria is a serious economic problem in these islands all feasible measures are utilized to achieve this end. Bearing in mind the fact that time is more available there than money, the emphasis is on the long-term measures aimed at the destruction of larvae and the prevention of mosquito breeding.

An epidemic type of malaria (the benign tertian variety) was studied in Southern Italy. The two places where investigations were made were Porto Torres and Posada. A study was made of the seasonal peaks of the disease and of acquired immunity.

In Jamaica an outbreak of malaria in the town of Falmouth and surrounding districts was thoroughly studied. Among a population of 8,000, there were 4,400 cases and 138 deaths. After

consideration of ways and means of controlling this epidemic, the expedient was adopted of letting sea-water into the marshes, thus changing the water there from fresh to salt. Mosquito breeding was thereby checked, and the epidemic subsided. The responsible mosquito, *A. albimanus*, was breeding in permanent swamps in which, after heavy rainfalls and the closing of the channel through which the sea water had passed, the water had become fresh. With the reopening of the channel the swamp again became brackish and the breeding of *A. albimanus* ceased.

In Campo Lugar, Cáceres, Spain, malaria was studied with the triple object of ascertaining the incidence of the disease during the year, the distribution of anopheline larvae, and the feeding habits of the adult mosquito. Meteorological conditions were closely studied; capture stations were established; female mosquitoes were dissected; and parasite and spleen indexes were made of the children living in the community.

Cáceres, with its 1,200 inhabitants, offers a typical malaria problem. The region is surrounded by gardens with shallow wells, which are uncovered and thus provide convenient breeding places for mosquitoes. Water is conserved throughout the year in containers, which furnish more breeding places. Small indigenous fish

make little headway against the larvae, since much of the mosquito breeding occurs in rivers and gutters. It was discovered that the great majority of the mosquitoes fed on animals. This was considered a significant occurrence, since throughout Europe there are places where the mosquito responsible for malaria seems to be changing its habits in the direction of feeding on animals rather than on man. An intensive antimalaria campaign is projected for this region, to be extended over a period of several years.

As a contribution to public health education, a member of the Foundation's staff prepared a brochure entitled *Malaria: An Account of Its Cause, Cure, and Prevention*. This was published by the Bureau of Science, in Manila, for the use of students and teachers in the Philippine Islands. It is in the nature of a profusely illustrated elementary handbook.

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Studies of the Malaria Organism

The employment of naturally induced malaria in the treatment of paresis affords a unique opportunity for the study of many phases of malarial infection under controlled conditions such as have hitherto not been available. The utilization of infected anophelines in the transmission of malaria for paresis therapy is a highly technical procedure which requires special protozoological and entomological training. The technique employed in this work has been described in detail in a paper published during the year. A paper was also published on clinical characteristics of benign tertian malaria in relation to the dosage of sporozoites.

Malaria is caused by a single-celled organism belonging to the order of protozoa and the genus *Plasmodium*. A series of studies of benign tertian malaria was made during 1932 with the cooperation of the Florida State Board of Health and the Florida State Hospital. There were available three strains of *Plasmodium vivax* secured in the late spring from persons living in widely separated localities within a twenty-five mile radius of Tallahassee, Florida. Experiments with these plasmodia showed that persons

infected with benign tertian malaria acquire tolerance to the strain of *Plasmodium vivax* which produced the original infection, but that this tolerance does not apply to strains derived from other sources. Further studies confirmed the fact that patients harboring one strain of latent benign tertian malaria do not possess tolerance to other strains of the parasite.

The influence of temperature on the duration of the extrinsic incubation period of the parasite was also studied. Curves were established to show that as the temperature goes down from 24 to about 19.5° Centigrade, the incubation period rises from eleven to twenty-one days. In the area of the laboratory, in Florida, where these studies were made, the local *Plasmodium vivax* would not complete its sporogonous cycle in less than eleven days.

Negroes usually exhibit a high degree of tolerance of *Plasmodium vivax* inoculations. In most individuals this resistance seems to be absolute. The evidence suggests that this tolerance or resistance is a racial rather than an acquired characteristic.

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to the Dosage of Sporozoites. *The American Journal of Hygiene*, 17: 666-685 (May) 1933.

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Boyd, M. F., and W. K. Stratman-Thomas. Studies on *Plasmodium vivax*. 2. The Influence of Temperature on the Duration of the Extrinsic Incubation Period. *The American Journal of Hygiene*, 16: 851-853 (Nov.) 1932.

Boyd, M. F., and W. K. Stratman-Thomas. Studies on Benign Tertian Malaria. 4. On the Refractoriness of Negroes to Inoculation with *Plasmodium vivax*. *The American Journal of Hygiene*. In press.

Studies of Mosquitoes

An insectary was established in connection with the malaria research station at Tallahassee, Florida, for the rearing of mosquitoes in captivity. Five successful lineal generations of *A. quadrimaculatus* were obtained between February 18 and July 17, 1932. Abundant propagation took place in captivity. In the published reports of these cage-rearing experiments information is given on the apparatus and methods necessary to insure success. The most important item is the exercise of scrupulous care. Laboratory workers who wish to keep on hand a

good supply of mosquitoes infected with malaria must give close and conscientious daily attention to the breeding of these mosquitoes. When handled or manipulated, the mosquito should be treated with all possible gentleness. Rough handling raises the mortality rate. Overcrowding is bad. Chilling during transportation is another danger. The containers in which the mosquitoes are kept and the methods of handling the insects after they have become infected need careful consideration. Certain improvements in dissection technique make possible the permanent preparation of positive specimens of infected salivary glands from the mosquito.

An uncommon mosquito was found to be capable of carrying the malaria organism. The usual vector of malaria in the United States is *A. quadrimaculatus*, but it was found that *Anopheles walkeri* could be an efficient and definitive host for *Plasmodium vivax*. About a dozen female imagines of this mosquito were allowed to develop from larvae taken in the vicinity of Ithaca, New York. They were shipped to the malaria research station at Tallahassee, Florida, where they were reared and used in experiments which demonstrated their effectiveness as malaria vectors.

A note was published on the transmission of quartan malaria by *Anopheles quadrimaculatus*.

Anophelines had previously been successfully infected with the species of malaria parasite known as *Plasmodium malariae*, but this work represents the first recorded instance of the experimental transmission of the organism by anopheline mosquitoes.

A malaria and *Anopheles* reconnaissance was made in 214 towns in forty of the forty-eight provinces of the Philippine Islands. Twenty-two of the twenty-four species of *Anopheles* known in the Philippines were encountered. All collections made were analyzed as to type of breeding place and frequency of occurrence of the species. A report of the survey was published in which there is presented a discussion of the classification and biology of Philippine *Anopheles*.

A brief paper was published on the terminology of the *funestus-minimus* subgroup in the Philippines. A new classification of these anophelines has been worked out which seems to be more satisfactory than any previous arrangement and which is likely to become the accepted system of classification of this difficult group.

A report was made on the daytime resting places of anopheline mosquitoes in the Philippines. The results of a year's routine daytime catches in houses and under buildings and elsewhere are presented, and the relation between the housing problem and malaria is discussed.

The larvae of *Anopheles minimus*, the important malaria carrier in the Philippines, which are found typically at the edges of small clear-flowing streams in shady places, as well as at the margins of large rivers or in irrigation ditches, had not previously been observed in wells. But in the course of investigations made during 1932 it was found that *A. minimus* sometimes does breed in wells; and these might therefore become a factor in continuing the propagation of the species during the dry season.

The morphology of certain Philippine mosquitoes is described in a paper published during the year. Four rare species are discussed in detail. A special study was made of the breeding places of these mosquitoes.

A key was published to serve as an aid in identifying the *Anopheles* of Italy. This consists of a table giving the characteristics of adult and larval mosquitoes by means of a dichotomous key useful for purposes of identification.

The presence of *A. plumbeus* was noted in the Pontine Marshes, Italy. This species is usually found much farther north, in England and in certain parts of Germany. Three specimens, one male and two females, were captured.

Considerable attention is being devoted to studies of the various races of *A. maculipennis* in Europe, where a number of dissimilar mosquitoes

are classified under the name of *A. maculipennis*. The work of differentiating them has begun. In the Foundation's Annual Report of last year an account was given of the early findings. Work on this problem continued during 1932.

Observations in connection with races of *maculipennis* have been made by various authors in the Netherlands, Germany, Denmark, Italy, and the Balkans. The most clearly defined differential characteristics are still found in the egg. Adult females show no structural differences, although they do differ with respect to food and shelter preferences, favorable climatic and hydrological conditions, domesticity, hibernation, and sexual habits. Six types of eggs have been differentiated and have been described in detail. These include five variations of *A. maculipennis*. In addition, it is possible that *A. elutus* as well as the American *A. maculipennis* are distinct species.

A study of the larvae was also made. The early confusion between the two dappled-egg races, *atroparvus* and *labranchiae*, created the erroneous impression that the malaria in the Netherlands and North Germany was caused by the same mosquito as was responsible for malaria in Sardinia and Southern Italy. It is now known that neither *atroparvus* nor *messeae* are dangerous



Dusting a stream with Paris green in the Drama area, Greece, where a malaria control demonstration is being conducted.



Entomologists and malariologists of The Rockefeller Foundation staff and members of the malaria division of the School of Hygiene in Athens making a mosquito survey near Kavalla, Greece.



A group of students at the Superior School of Malariology of the Malaria Experiment Station, Rome, Italy.



Station for the study of malaria, Jassy, Rumania, toward the building and equipping of which The Rockefeller Foundation has contributed.

mosquitoes. These are cattle feeders and only occasionally bite human beings. *Typicus* is associated least of all with man. *Labbranchiae* and *elutus*, however, bite man and animals impartially. All races of *A. maculipennis* frequent stables more than bedrooms.

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Boyd, M. F. A Note on the Preparation of Anopheline Dissections for Examinations. *The American Journal of Hygiene*, 16: 836-838 (Nov.) 1932.

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Boyd, M. F., and W. K. Stratman-Thomas. A Note on the Transmission of Quartan Malaria by *Anopheles quadrimaculatus*. *The American Journal of Tropical Medicine*, 13: 265-271 (May) 1933.

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Russell, P. F. Daytime Resting Places of *Anopheles* Mosquitoes in the Philippines. (Second Report.) *Proceedings of the Entomological Society of Washington*, 34: 129-138, (Nov.) 1932.

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- La Face, L. Sull'esistenza di razze diverse di *Anopheles maculipennis*. *Rivista di Malariologia*, 10: 673-683 (Nov.-Dec.) 1931.
- Hackett, L. W. *Maculipennis* Races: Their Morphological and Biological Characters. In press.
- Martini, E., F. Mayer, and F. Weyer. Ueber die Durchwinterung unserer *Anopheles maculipennis*. *Rivista di Malariologia*, 11: 753-784 (Nov.-Dec.) 1932.
- Missiroli, A., L. W. Hackett, E. Martini. Le razze di *Anopheles maculipennis* e la loro importanza nella distribuzione della malaria in alcune regioni d'Europa. *Rivista di Malariologia*, 12: 1-56 (Jan.-Feb.) 1933.

Malaria in Animals

Experimental studies were made of malaria in monkeys. In reports on this work the possibility that relapses are due to temporary cessation of the macrophage activity is discussed. This permits the parasites to increase in number and to accumulate in the blood. Such a condition is likely to occur when general bodily resistance is low. The canary has been found to be susceptible to four distinct types of malaria caused by four types of *Plasmodium*. A species of *Culex* mosquito which has a wide distribution and which feeds readily on birds was found to be infected with all four types of *plasmodium*.

Recent observers have inclined to the view that after an initial attack of malaria birds continue to suffer from a latent or chronic infection which renders them immune to superinfection. This view is confirmed in a paper published in 1932. Chronic infection with one particular type of *Plasmodium* is associated with partial cross immunity to other types.

A brief paper was published on the malaria organism found in a species of owl. An incidental study was made of certain microorganisms encountered in sparrows, which were morphologically similar to the so-called *toxoplasma*, but which differed from *toxoplasma* in method of reproduction and in other ways. A complete description of these parasites appears in the published report of this study.

The mosquito, *Lutzia fuscana*, which had not previously been reported infected with avian malaria, was found to be a vector of the bird malaria organism. This species may transmit malaria in nature among Philippine birds.

A study was made of the bleeding time in birds. In the standard technique for ascertaining the bleeding time in human beings, a small incision is made in the lobe of the ear and at half minute intervals all the blood which flows out is blotted up on absorbent paper. This produces a series of blots. From the decreasing size of the

blots the rate of decrease in the intensity of the hemorrhage can be ascertained at a glance. The duration of such a hemorrhage is called the bleeding time. Normally, in man, it is from 1 to 4 minutes. In certain diseases it is prolonged from 10 to 90 minutes. The bleeding time in birds suffering from acute avian malaria has been found to be longer than in normal birds. The blood picture is of importance in malaria because in this disease the red blood corpuscles are attacked.

An article published during the year deals with plasmochin simplex as a prophylactic drug in avian malaria. The conclusions of the paper are that plasmochin is not a true prophylactic, even in birds. It seems that what has been achieved through the use of this drug is probably successful early therapy rather than true prophylaxis.

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Huff, C. G. Further Infectivity Experiments with Mosquitoes and Bird Malaria. *The American Journal of Hygiene*, 15: 751-754 (May) 1932.

Gingrich, W. Immunity to Superinfection and Cross-Immunity in Malarial Infections of Birds. *The Journal of Preventive Medicine* 6: 197-246 (May) 1932.

Raffaele, G. Il *Plasmodium* della civetta (*Athene noctua*). *Rivista di Malariologia*, 10: 684-688 (Nov.-Dec.) 1931.

Raffaele, G. Sulle cosiddette toxoplasmosi dei passeri. *Rivista di Malariologia*, 11: 825-838 (Nov.-Dec.) 1932.

Nono, A. M. Avian Malaria Studies. VI. Susceptibility of *Lutzia fuscana* (Wiedemann) Edwards to Avian Malaria. *The Philippine Journal of Science*, 49: 225-228 (Oct.) 1932.

Russell, P. F. Avian Malaria Studies. VIII. The Bleeding Time in Canaries: Normal and in Malaria. *The Philippine Journal of Science*, 49: 627-649 (Dec.) 1932.

Russell, P. F., and A. M. Nono. Avian Malaria Studies. VII. Plasmochin as a Prophylactic Drug in Sporozoite Infections of Avian Malaria. *The Philippine Journal of Science*, 49: 595-625 (Dec.) 1932.

Research in Malaria Control

Plasmochin has received widespread attention since 1926, when it was first placed on the market for use in the treatment of malaria. A number of investigators have shown that this drug possesses a valuable tendency to attack the gametocytes of malaria in such a way that they become devitalized and non-infective to mosquitoes. Combined with quinine, under the name of chinoplasmin, it has been used extensively in antimalaria work.

In 1932 a field experiment was undertaken to determine the efficacy of chinoplasmin as a malaria prophylactic. The number of cases included in the experiment was small, but nevertheless some valid conclusions could be drawn. Plasmochin combined with quinine sulphate in the proportions used in the experiment was insufficient to prevent the appearance of malaria parasites in the blood during simple exposure.

Chinoplasmin, although not completely successful in the dosage used, seems to have a beneficial effect in preventing symptoms and in lowering the blood index rate.

An article was published dealing with malaria control in West Africa, where the application of antimosquito measures meets with overwhelming obstacles. It is difficult to apply the usual antimalaria measures in a country like Nigeria, where there is a population consisting of 18,000,000 blacks and only 5,000 whites and where there are few, if any, regulations regarding sanitation. In the coastal region situated between the Senegal and Congo Rivers, rainfall is abundant and the breeding of mosquitoes, including those which carry malaria, continues over long periods of the year. As a result, the population is practically saturated with malaria. On a plantation in Liberia, there was found an adult parasite rate of about 80 per cent. Quinine is widely used as a preventive of malaria in West Africa, chiefly in the form of 5-grain daily doses. It is recognized that this drug is not a true prophylactic, but there is a general opinion that small daily doses prevent serious manifestations of the disease.

One of the larvicides extensively used for the destruction of the larvae of malaria mosquitoes is Paris green. A note was contributed on the

dilution of Paris green with charcoal for dusting purposes. It is commonly stated that one of the chief disadvantages of Paris green as a larvicide is that it does not affect the larvae of *Culex*, the ordinary mosquito which does not carry malaria, but which nevertheless is a general nuisance. These larvae are not surface feeders, like the *Anopheles*, but feed below the surface and at the bottom of shallow water. Paris green, if supported by charcoal, will destroy not only anopheline larvae but also a large percentage of *Culex* larvae.

A special machine for the automatic distribution of Paris green was described. It is a mechanically efficient automatic blower, motivated by the flow of water in the stream under treatment. It has the advantage of lowering the cost of control by reducing labor and inspection to a minimum.

Difficulties connected with the use of screens in Puerto Rico were reported. The malaria problem is so difficult in this island that all possible control methods, including screening, must be used. Experimental studies were made to determine the best types of screening and screening materials.

A paper discussing housing as a factor in malaria control was published. It is often stated that houses with clean, well ventilated, and well

lighted rooms would be unattractive to anophelines. Such standards of housing are desirable on their own account in the general interests of hygiene, but they are of no practical value as a specific protection against malaria. Anophelines are drawn to houses at night not by their structural features, but because they offer a certain kind of food supply. Antilarval campaigns and mosquito proofing will still be required, regardless of improvements in housing.

Russell, P. F., and R. L. Holt. Malaria Prophylaxis with Chinoplasmin. A Field Experiment. *The American Journal of Tropical Medicine*, 12: 369-379 (Sept.) 1932.

Barber, M. A. Malaria Control Work in West Africa. *The Southern Medical Journal*, 25: 649-651 (June) 1932.

Russell, P. F., and A. P. West. The Effect on *Culex* Larvae of Paris Green Diluted with Charcoal, and Notes on the Feeding Habits of *Culex quinquefasciatus*. Larvicide Studies, V. *The Philippine Journal of Science*, 49: 651-675 (Dec.) 1932.

Russell, P. F. Automatic Distribution of Paris Green for Malaria Control. *The Journal of Parasitology*, 19: 215-224 (March) 1933.

Earle, W. C. Some Observations of Antimosquito Screening and Screening Materials. *The Puerto Rico Journal of Public Health and Tropical Medicine*, 8: 227-242 (Dec.) 1932.

Hackett, L. W., and A. Missiroli. Housing as a Factor in Malaria Control. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 26: 65-72 (June) 1932.

Hookworm Disease

Early Campaigns

The work of The Rockefeller Foundation in public health had its origin in the Rockefeller

Sanitary Commission for the Eradication of Hookworm Disease, which began activities on October 26, 1909. At the start certain administrative principles were adopted which have proved to be well founded and which have been followed ever since. Work was undertaken only with state or government cooperation. Activities were carried out as far as possible through existing agencies. Each country has its own system of organized medicine, its own public press, public schools, and public health service. These four established institutions, rooted in the life and traditions of the people, are fundamental to all health education. To enlist these agencies in an undertaking is to assure permanency of work from the beginning. An outside agency can be helpful only in so far as it aids the state in organizing and bringing into activity its own forces.

The first field work of the Sanitary Commission was in the control of hookworm disease. By the time The Rockefeller Foundation was established, May 14, 1913, the Commission had treated or caused to be treated more than 500,000 hookworm sufferers in the United States. The Foundation took over the work of the Commission and prepared to extend the hookworm campaign to other countries.

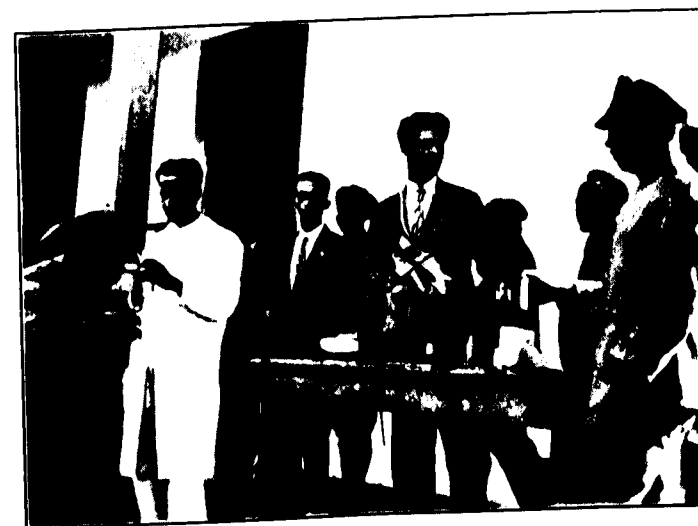
The plan adopted in 1913 was to make a sur-

vey of the geographic distribution of hookworm disease and the approximate degree of infection obtaining in infested areas; then to undertake microscopical examination of feces and treat persons who were found to be infected; and finally to set in operation and make effective such sanitary measures as would put a stop to soil pollution. Hookworm work was rapidly extended throughout the Southern United States and then to the British colonies and to a large part of tropical Latin America. The work was most successful in bringing about cures and improving sanitation, and it also served as a foundation on which a general health service could be built up.

As hookworm control measures were extended, the need for more investigative work was felt; and this was started when Dr. S. T. Darling, Dr. M. A. Barber, and Dr. H. P. Hacker were commissioned, in 1915, to make studies in the Orient on hookworm disease. The program of research work combined with field work thus initiated has never been abandoned. Research work, which casts light on the nature of the problem and leads to the improvement of methods, has been emphasized more and more. As a result, better work at diminishing cost can now be carried out. The opportunity for productive studies is not exhausted.



Group assembled for hookworm treatment at the office of the National Health Department in Cagua, Venezuela.



Army recruits receiving treatment for hookworm disease at Cúcuta, Colombia.



Technical demonstration on the building of latrines which is maintained by the Public Health Service of the Netherlands East Indies.



A microscopical demonstration of hookworm eggs and larvae, Java.

Research Work

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Recent investigations indicate that the reaction of the host to the presence of hookworms is something in addition to the attempt to compensate for the blood loss and other injuries. Dogs acquire the power to throw off the worms. A similar self-cure has been observed in sheep. The findings suggest that there is a kind of immunity to helminth infestations. This perhaps accounts for the fact that usually among wild animals under natural conditions there seems to be little effect from the presence of a number of parasites. Occasionally this protective mechanism fails.

It is possible that certain human beings develop an acquired immunity which protects them from the acquisition of overwhelming worm burdens. Certain facts point to the development in man of a protective reaction to the hookworm. If this hypothesis were accepted, it would explain the heavy infestation and clinical disease of certain individuals on the basis of a breakdown of resistance.

The severest cases of hookworm disease occur in undernourished or otherwise debilitated populations. Severity of infection may depend largely on the prevalence of inadequate diet. By the correction of undernourishment and the elimination of chronic malaria and other debili-

tating factors it may be possible to reduce the incidence of hookworm disease greatly. This does not mean that sanitation measures can be neglected. All preventive and remedial measures should be employed.

A further study was made of the relation of diet to the susceptibility of dogs to the dog hookworm. As the result of an undernourished condition experimentally induced in these animals, there occurred the breaking-down of resistance to infection and a consequent increased rate of acquisition of the worms, with an increase of egg production. On reestablishment of a good diet, there was a recovery of resistance. In certain cases there was a spontaneous loss of worms amounting practically to a cure.

All the puppies of two litters born to mothers infected with hookworm larvae during pregnancy acquired prenatal infestations. This indicates widespread migration of the hookworm larvae after oral infection. All the prenately infected puppies died within twenty-five days. The suggestion is made that there may be a relation between human hookworm infection during pregnancy and infant mortality.

A new pipette was described for use in counting hookworm and other parasite eggs in human feces for the purpose of estimating the degree of infection. It was developed in connection with

work done in the public health laboratories of Cairo, Egypt. The use of the pipette eliminates the possibility of the contamination of successive specimens by the accidental filling of the rubber bulb.

An account was given of the administration of 1,784 treatments with hexylresorcinol under field conditions in Guatemala, with no resulting toxic symptoms. Details on administration are presented, and the excellence of the drug for ascaris infections is stressed. Attention is called to precautions to be taken in administering this drug, in order to prevent superficial burns of the mucosa of the mouth.

In the course of ten years, more than a quarter of a million persons were treated for hookworm disease in the South Pacific. In a recent article, a general survey of this work is made, with special reference to the vermifuges (tetrachlorides) used in mass treatment.

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Foster, A. O., and W. W. Cort. The Relation of Diet to the Susceptibility of Dogs to *Ancylostoma caninum*. *The American Journal of Hygiene*, 16: 241-265 (July) 1932.

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Scott, J. A. A Pipette for the Dilution Counting of Hookworm Eggs. *Science*, 76: 170-171 (Aug. 19) 1932.

Molloy, D. M. The Treatment of Hookworm and Other Intestinal Helminth Infections with Hexylresorcinol under Field Conditions in Central America. A Preliminary Report. *The Southern Medical Journal*, 26: 575-583 (July) 1933.

Lambert, S. M. Hookworm Disease in the South Pacific. Ten Years of Tetrachlorides. *The Journal of the American Medical Association*, 100: 247-248 (Jan. 28) 1933.

Control Work

In 1932 The Rockefeller Foundation assisted the health administrations of ten foreign governments in antihookworm work, comprising field studies and control programs. These governments were Jamaica, Puerto Rico, Venezuela, Colombia, Netherlands East Indies, Ceylon, India, Philippine Islands, South Pacific Islands, and Egypt.

In the United States funds were made available for the continuation of field investigations and a certain amount of laboratory work at Andalusia, Alabama, in Mississippi, at the Johns Hopkins School of Hygiene and Public Health, Baltimore, and at Vanderbilt University, Nashville, Tennessee.

Antihookworm work has achieved a recognized place in the public health program of nearly every tropical or semitropical country in which the disease occurs. Such work is now, as a rule, part and parcel of a fairly complete and closely coordinated sum total of public health activities, into which it enters as an important part of the general scheme.

In Costa Rica the Foundation began a program of cooperation in health work as early as

1914. At first most of the work consisted of hookworm treatments. But four years ago a new program was arranged providing for the development of public health laboratory service, malaria work, improved water supply, and a program of public health work in general, in which hookworm work took its place as one activity.

In Panama in the last five years a large number of well-trained and dependable scientific inspectors have devoted much of their time to the control of soil pollution, an essential element in the program for the eradication of hookworm disease. Their work has been extended to all the larger towns and villages, and to many rural areas.

In Colombia a Rockefeller Foundation representative is chief of the hookworm section of the public health service. A health program, in which the treatment of hookworm disease occupies an important place, has been elaborated for the entire country. The emphasis is on health education and latrine building. In Venezuela work in rural sanitation and general hygiene is going forward.

In Jamaica a representative of the Foundation is director of the Hookworm Commission, supervising two units engaged in latrine construction and two engaged in treatment. At present this commission has reached 85 per cent of the

population of the colony, and it intends to continue operations until the entire population has been reached. Special attention is given to health education.

Infestation with hookworm is still one of the most serious health problems in Puerto Rico. Control is closely associated with activities of rural sanitation and the hygiene of rural homes. In municipalities where public health units are now operating, treatment is in some cases repeated annually to prevent the development of heavy infestation in growing children. Treatment is also given to infested persons who apply for it. The Bureau of Rural Sanitation carries out treatment in areas where rural latrine building has been brought to a satisfactory state. In general, in Puerto Rico, the hookworm incidence is still extremely high and the disease is present in severe form, but probably in no other single country has the control of soil pollution in rural areas made such rapid progress. In this country, as in Jamaica, the stress is on health education.

In the Netherlands East Indies, where a Foundation representative acts as adviser to the public health service, this service is being decentralized. Strong reliance is to be placed on local boards and organization, and the value of educational work is to be greatly emphasized. Bored-

hole latrine installations were continued during 1932.

In Ceylon and in the Madras Presidency, India, where the percentage of hookworm infection is very high, treatment for this disease is given to all persons who apply to hospitals or dispensaries for any type of relief. A special problem which has been taken up by the authorities of the Madras Presidency has to do with the prevention of the spread of hookworm disease through emigration of hundreds of thousands of persons annually to Burma, Ceylon, Malaya, Fiji, Trinidad, and other countries. In Ceylon there are now in operation eight health units which are developing modern programs of disease prevention among a population of 522,750 persons. These units serve as models and are visited by representatives from many countries. The testing of field installations of bored-hole latrines is being continued. These installations are rapidly increasing in a number of villages, towns, and plantations.

Upon request of the Department of Health of Palestine, a member of the Foundation's staff made a survey of hookworm infection in certain areas where this disease seemed to be gaining a foothold. This has resulted in an active latrine campaign by the Palestine Government, to be followed by hookworm treatment.

In Egypt the effect of soil pollution control in relation to hookworm infection, schistosomiasis, typhoid fever, dysentery, and intestinal diseases generally, was the subject of an experimental field study conducted in several villages. To supplement this work the Foundation has provided the services of two parasitologists, who in the fall of 1929 began a program of field studies and research in parasitology, with special reference to the possible control of bilharziasis. These researches have continued throughout the year.

In the Straits Settlements the hookworm campaign has resulted in genuine efforts at soil pollution control and finally in the creation of successful health centers.

In Siam a long hookworm campaign resulted in a complete reorganization of the health department, and the establishment of both rural and urban health centers.

Further Researches in Public Health

The Common Cold

Investigations of the common cold were continued during 1932, and a report was issued of an epidemiological and bacteriological study in an Arctic community. This completes a series of studies of nasopharyngeal flora of persons living in isolated communities. Reports on investiga-

tions in a rural district in Alabama, a trading post in Labrador, and a small tropical island in the West Indies were published in previous years.

A year's observation of a community of approximately 500 persons at Spitzbergen, a mountainous Arctic archipelago about midway between Norway and the North Pole, showed that the incidence of the common cold in this region is about one attack per person per year. There is an annual epidemic of colds following the arrival of the first boat of the brief summer shipping season. The explosive onset of the epidemic is followed by a gradual falling off in the number of cases for about six weeks. Then there is a slight rise in the number of fresh colds, due chiefly to second attacks. After that the number diminishes steadily, as though transmission of the infection became increasingly difficult; and colds practically disappear. In fact only four were recorded in the last three months before the next shipping season. The observations suggested that the colds were initiated by an infectious agent other than the observed bacterial flora of the nasopharynx, and that this was spread by direct contact. The incubation period appeared to be about forty-eight hours. The immunity developed during an attack seemed to be of short duration, for the average time between successive attacks in the same person was about

seven weeks. Moreover, the community again became highly susceptible in the interval between epidemics.

Paul, J. H. An Epidemiological and Bacteriological Study of the Common Cold in an Isolated Arctic Community (Spitzbergen). *The American Journal of Hygiene*, 17: 517-535 (May) 1933.

Undulant Fever

Investigations of undulant fever were continued in France. Studies of the disease in communities in two southern departments indicated that sheep and goats are the principal if not the only source of infection in this part of the country. It was concluded that undulant fever is a serious health problem in this region. In addition, the disease is a heavy economic burden, since it produces abortions among animals. A paper was published giving in detail two case histories, representing human infections from a cow, which was probably in turn infected from goats or sheep.

Studies of the organism (*Brucella*) which causes undulant fever were also continued. An organism which was called *Micrococcus melitensis* was first discovered in the organs and blood of a patient suffering from a disease then known as Maltese fever. A second organism, *Bacterium abortus*, was isolated in connection with abortions among cattle. For a long time the two organisms were considered different species, but as

biologists continued to study them, it was discovered that they were two forms of the same organism (*Brucella*), which has since drawn extensive attention from bacteriologists. Three varieties of this organism are now recognized, among which the one now called *Brucella melitensis* holds first place in virulence for man. A paper was published during 1932 giving the laboratory technique used in the differentiation of these varieties and describing methods of culture. *Brucella melitensis* predominates in Southern France; another variety, *Brucella abortus bovis*, occurs in the northwestern section.

Taylor, R. M., M. Lisbonne, and G. Roman. Recherches sur l'identification des *Brucella* isolées en France par l'action bactériostatique des matières colorantes et la production d'hydrogène sulfuré (Huddleson). *Annales de l'Institut Pasteur*, 49: 284-302 (Sept.) 1932.

Taylor, R. M., and R. H. Hazemann. Recherches épidémiologiques en cours sur la fièvre ondulante en France. Rapport préliminaire. *Revue d'Hygiène*, 54: 481-524 (July) 1932.

Parisot, J., L. F. Vidal, and R. Lévy. Deux cas de fièvre ondulante humaine en rapport avec une brucellose bovine du type melitensis. *Revue d'Hygiène*, 54: 525-530 (July) 1932.

Yaws

The study of yaws in Jamaica, of which an account was given in the Annual Report of the Rockefeller Foundation for 1931, was continued during 1932. A central laboratory was established and equipped in Kingston. With the cooperation of the Jamaican Government, a Yaws Commission was organized, and a field

survey was undertaken around the village of Bath, St. Thomas. Preliminary clinical and epidemiological studies were carried out, with special attention to the relative merits of certain remedies for yaws. During the year, 1,500 persons were examined, of whom 917 were found to have yaws. Facts concerning the clinical course of the disease, the nature and extent of the infectious lesions, and the value and limitations of certain therapeutic drugs were brought out, and a method of survey based on case histories and serological tests was developed.

A preliminary article was published on bone lesions in yaws.

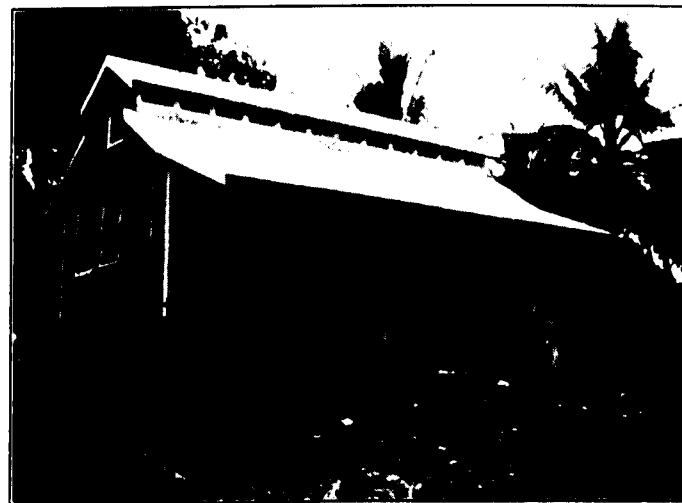
Turner, T. B., and G. M. Saunders. Bone Lesions in Yaws. In press.

Tuberculosis

In Jamaica there was completed in 1932 a tuberculosis survey of the population in three areas in Kingston, embracing in all 3,500 persons. Eighty-five per cent of this population has been examined. Early in 1932 a forty-bed tuberculosis hospital was completed. Prior to this there were no facilities for isolating patients outside of parish poorhouses. By now the clinical aspects of tuberculosis in Jamaica are fairly well defined. The incidence and social aspects of the disease have been studied. Educational work has widely increased. The stage has been set for



Patients arriving for x-ray treatment at the office of the mobile tuberculosis unit at Montego Bay, Jamaica.



A new ward for tuberculosis patients, Port Antonio, Jamaica.



Snails of the species responsible for the spread of schistosomiasis in Egypt. These snails survive drying during the winter closure of the irrigation canals, a period of from thirty to fifty days.



A member of the schistosomiasis survey staff in Egypt collecting snails from the dry bed of an irrigation canal during the winter closure of the canal.

the elaboration of a definite program of relief and control.

The activity of the tuberculosis clinics in Puerto Rico continued during 1932. Nurses made many visits to the homes of tuberculous patients. A tuberculosis study was started in the District of Eisenstadt, Austria. The physician in charge of the research work which is being carried on in this district received a Foundation fellowship, enabling him to spend some time at the Henry Phipps Institute for the Study, Treatment, and Prevention of Tuberculosis, in Philadelphia. In Denmark, it was found that bovine infection in tuberculosis was much more widespread than was formerly thought. In Spain, tuberculosis work was given due emphasis. Work was continued in the South Pacific Islands, where, as opportunities present themselves, tuberculosis surveys are carried on in accordance with methods recommended by the Henry Phipps Institute.

A paper was published on the epidemiology of tuberculosis in relation to the pathological anatomy and pathogenesis of the disease. Observations indicate that slightly less than 1 per cent of the population in places where examination was feasible are suffering from clinically manifest tuberculosis and are known to be ill. But roentgenographic examinations have re-

vealed that an approximately equal number of persons who seem to be well have relatively advanced tuberculous lesions at the apices of the lungs. The epidemiology of tuberculosis with reference to incidence and mode of spread cannot be limited to recognizable disease consequent upon tuberculous infection, but must include a study of the occurrence and slow progression of lesions not disclosed by symptoms or physical signs. The discovery of these lesions is made possible by the tuberculin test and roentgenographic examination.

Of two tests commonly used to measure the incidence of tuberculous infection it is concluded that the intracutaneous tuberculin test is more sensitive than the Pirquet test. Upon the exactness of the methods of carrying out tuberculin tests depends the accuracy of statistical and other information on tuberculous infection and also, to a certain extent, the efficiency of case-finding procedures.

By means of the intracutaneous tuberculin test on 12,028 colored children and adults living in four counties of Alabama, in two counties of Florida, and in the rural districts of a county of South Carolina, and on 612 white persons living in a county of Alabama and a county in Florida, the incidence of tuberculous infection was determined. It was found that from birth to one

year of age, none of the colored children reacted to tuberculin. With advancing age the percentage of those reacting increased until a minimum of 92 per cent at the age of forty-seven years was reached. A larger percentage of colored than of white persons were found to react to tuberculin.

The counties included in this investigation differed in geographical location, concentration of population, proportion of white and colored races, accessibility to main highways and railroads, economic conditions, type of industry, and mortality from tuberculosis. In spite of these variable conditions the incidence of tuberculous infection in all of the counties has a uniform trend, with sharp rises between the ages of five to nineteen years, and more gradual increases thereafter.

The incidence discovered in these counties was conspicuously lower than that found in colored children in Philadelphia, Pennsylvania, and that found in rural communities of Tennessee and Mississippi. But it was far greater than the percentages found in rural districts in Minnesota and northern New York.

Opie, E. L. The Epidemiology of Tuberculosis in Relation to the Pathological Anatomy and Pathogenesis of the Disease. *Emanuel Libman Anniversary Volumes*, 3:901-915 (Oct.) 1932.

Aronson, J. D., D. Zacks, and J. J. Poutas. The Comparative Sensitivity of the Pirquet and the Intracutaneous Tuberculin Tests. *The American Review of Tuberculosis*, 27: 465-473 (May) 1933.

Aronson, J. D. Further Studies on the Incidence of Tuberculous Infection in Some Rural Communities of the South. In press.

Miscellaneous Studies

A New Species of Parasitic Protozoon.—In a study of some 700 specimens of *Phlebotomi* captured in Italy, there was encountered one specimen exhibiting a new species of parasitic protozoon. A complete description of the parasite was published, with charts showing its development. To this protozoon was assigned the name *Monocistis mackiei*.

Resistance to Drying of Snails Involved in the Spread of Schistosomiasis.—A paper was published on the effect of the winter rotation of water upon snails involved in the spread of schistosomiasis in Egypt. Through the ages the Nile flood has taken on the regularity of a sequence of seasons, to which the snails have adjusted themselves. Closure of the canals kills off many snails. In order to survive, the snails have had to accept the conditions attendant upon drying and have been forced to adapt themselves to these changes. It has been shown that snails resist the drying to the extent of being able to survive the winter closure, a period of from thirty to fifty days. None of the present rotation periods of drying were lethal to significant snails. It does not seem practical, therefore, to

use the winter closure or summer rotations as a means for the extermination of mollusks concerned in the spread of schistosomiasis, a serious disease in Egypt.

Typhoid Fever.—A study was made of the occurrence of typhoid fever in Knoxville, Tennessee, between the years 1925 and 1930, a period during which the death rate for the disease dropped from 20 to 2 per 100,000 in that city. This drop was accompanied by an extensive program of sanitary improvements, sewer extension, and the fly-proofing of privies. The study was especially concerned with the factors that favored the disease and the control measures that brought about its reduction. The work done involved a complete house-to-house survey of sanitary conditions.

A further survey was made to ascertain whether typhoid fever was more prevalent in the small towns than in the large urban centers, and it was found that the highest mortality occurs among populations where the environment is not subject to municipal sanitary control.

Water Analysis.—Examination of water samples is important for the detection of possible pollution from fecal deposits. Incidental to investigations of pollution, certain studies were made of water analysis. An improved laboratory technique showing marked superiority in

the recovery of certain organisms is presented in connection with the handling of water samples.

The desirability of obtaining a sanitary appraisal of a given water sample in the shortest possible time is recognized. In this connection a paper was published containing further technical details of methods of water analysis.

Results obtained in the bacteriological analysis of water samples from naturally infected pumps in controlled experimental fields point to the production of cultural variants from the predominating infecting strains of colon-aerogenes group organisms. A study was made of the factors influencing bacterial variations. Whether or not the types produced are stable and what their bearing is on the species relationship is still to be determined. An interesting case of bacterial variation under more nearly natural conditions than usually obtain in this kind of work was discussed.

Appreciation by the sanitarian of the possibilities of pump and pipe infections and the conditions influencing their inception and persistence should be of aid in the correct appraisal of waters tested and should result in the use of parts and processes free from the possibility of such infection.

Endamoeba histolytica.—The investigation of *Endamoeba histolytica* mentioned in the Annual

Report of last year was continued. In the New Hope Community in Jackson County, Tennessee, consisting of 374 persons living on 75 farms, investigation revealed that 38 per cent of the inhabitants harbored *Endamoeba histolytica*. At the same time there was little evidence of clinical amebic dysentery. This raised the question as to the course and mode of transmission of this parasite. Flies and various domestic animals were investigated as possible means of spread and sources of infection. The study showed that the house-fly may act as a vector of the parasite.

In a survey in which 20,237 persons in the rural portions of sixty-nine counties of Tennessee were examined for intestinal protozoa, it was found that the variations in incidence of *Endamoeba histolytica* in different parts of the state seemed to be associated with differences in physiographic features, the highest incidence occurring in general in more isolated hilly regions having fewer resources and less advancement, and the lowest incidence in more level country where contact with progressive influences is greater. It seems probable that the habits of the people, as influenced by their physiographic environment, have an influence upon the incidence of the protozoon.

Health Conditions of a Group of Philippine Employees.—A report printed during the year

summarized an investigation into the health and personal habits of Philippine employees at the Bureau of Forestry, Manila. A high percentage of these men had been immunized against smallpox, dysentery, typhoid, and cholera.

- Missiroli, A. Sullo sviluppo di una gregarina del *Phlebotomus*. *Annali d'Igiene*, 42: 373-377 (June) 1932.
- Barlow, C. H. The Effect of the "Winter Rotation" of Water upon Snails Involved in the Spread of Schistosomiasis in Egypt, 1930-1931, and 1931-1932. *The American Journal of Hygiene*, 17: 724-742 (May) 1933.
- Milam, D. F., and W. H. Enneis. Typhoid Fever in Knoxville, 1925-1930. In press.
- Milam, D. F., and E. Sibley. Relative Incidence of Typhoid Fever in Urban and Rural Areas of Tennessee. *U. S. Public Health Reports*, 47: 839-844 (April 8) 1932.
- Caldwell, E. L., and L. W. Parr. Present Status of Handling Water Samples. *American Journal of Public Health*, 23: 467-472 (May) 1933.
- Parr, L. W., and E. L. Caldwell. A Comparison by Direct Inoculation of Brilliant Green Bile, Two Per Cent, and Lactose Broths; Including Combination of the Parallel Planting Method of Water Analysis. In press.
- Parr, L. W., and E. L. Caldwell. Variation within the Colon-Aerogenes Group As Found in Bacteriologic Analysis of Water from Contaminated Pumps. In press.
- Caldwell, E. L., and L. W. Parr. Pump Infection under Normal Conditions in Controlled Experimental Fields. In press.
- Frye, W. W., and H. E. Meleney. Investigations of *Endamoeba histolytica* and Other Intestinal Protozoa in Tennessee. IV. A Study of Flies, Rats, Mice, and Some Domestic Animals as Possible Carriers of the Intestinal Protozoa of Man in a Rural Community. *The American Journal of Hygiene*, 16: 729-749 (Nov.) 1932.
- Meleney, H. E., E. L. Bishop, and W. S. Leathers. Investigations of *Endamoeba histolytica* and Other Intestinal Protozoa in Tennessee. III. A State-Wide Survey of the Intestinal Protozoa of Man. *The American Journal of Hygiene*, 16: 523-539 (Sept.) 1932.
- Russell, P. F., and R. L. Holt. Physical Examination of the Employees of a Government Bureau in Manila, P. I. *The Military Surgeon*, 71: 322-329 (Oct.) 1932.

Public Health Problems

A number of articles dealing with some of the general problems of public health administration were written by a member of the staff, who during the year occupied the position of president of the American Public Health Association. One of these dealt with the ages of health officers in relation to professional training.

The majority of the health officers in the United States are between the ages of 55 and 65, which seems to indicate that in general this position goes to older men, and is probably still to a large extent a political office. The total number of public health officers with diplomas in public health is still limited, but shows a yearly increase.

In the United States and Canada there are 862 full-time health officers, of whom 47.2 per cent are over 50. Of the 208 health officers under 41, 18.2 per cent have attended schools of public health. In the age group under 35, there are 124 health officers, of whom 20.2 per cent have had university training in public health. These data are of interest to physicians recently graduated from medical schools who are considering taking up the job of health officer as a profession.

Another paper concerned the public health training needed by technical experts, other than medical men, in that section of the public health

field dealing with child health. It is maintained that this instruction should be supplied by universities. At present the situation cannot be met by university training alone. Hence some of the larger health organizations operate training stations.

Health problems peculiar to the southern part of the United States, where, owing to the presence of an extensive negro population, death rates are higher than in other parts of the country, were the subject of another article, in which these death rates were carefully analyzed. The rate of growth in public health expenditures has been more rapid in the South than elsewhere in the United States during the past twenty years, although the average per capita wealth in the Southern States is considerably lower than in other parts of the country. In general, the death rates among Southern whites compare favorably with the death rates in other parts of the country.

A further article presents information on facilities in the United States for the training and education of health officers. There is a discussion of professionalization and the establishment of professional standards for public health personnel. Definite standards of this sort would be a guide to the appointing authorities, an aid to universities offering courses of instruction, and a protection to the public.

An article written by Foundation representatives in Europe gives an account of a public health survey in several French rural communities. A complete picture of health conditions is presented. The survey demonstrated the need for improved water supply and sewage disposal, as well as the usefulness of periodic visits by public health personnel.

Ferrell, John A., and P. A. Mead. Ages of Health Officers in Relation to Professional Training. *American Journal of Public Health*, 22: 904-908 (Sept.) 1932.

Ferrell, John A. Training in Administrative Procedures of Personnel for Child Health Work. *American Journal of Public Health*, 22: 705-709 (July) 1932.

Ferrell, John A. Health Problems Peculiar to the Southern States. *American Journal of Public Health*, 23: 441-449 (May) 1933.

Ferrell, John A. Professionalization in Public Health Service. *The Journal of the American Medical Association*, 100: 1379-1382 (May 6) 1933.

Hazemann, R. H., and R. M. Taylor. Les inventaires sanitaires. Documentation recueillie dans plusieurs communes. *Revue d'Hygiène et de Médecine Préventive*, 55: 81-159 (Feb.) 1933.

Aid to State and Local Health Services

Europe

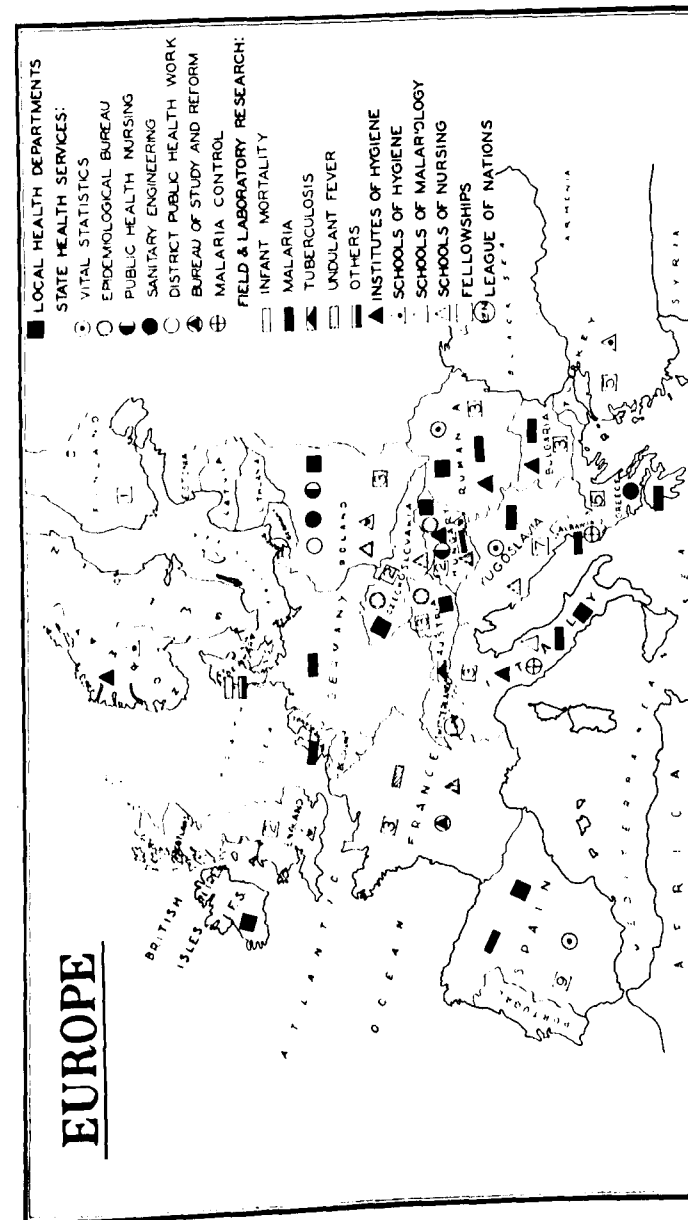
During 1932 The Rockefeller Foundation aided twenty-two European countries in their public health work. The map on page 127 indicates the various types of assistance given.

The Foundation's public health work in Europe exemplifies its shift of emphasis from application of knowledge to interest in research work. However, it should not be inferred that so far as Europe is concerned, the Foundation's program

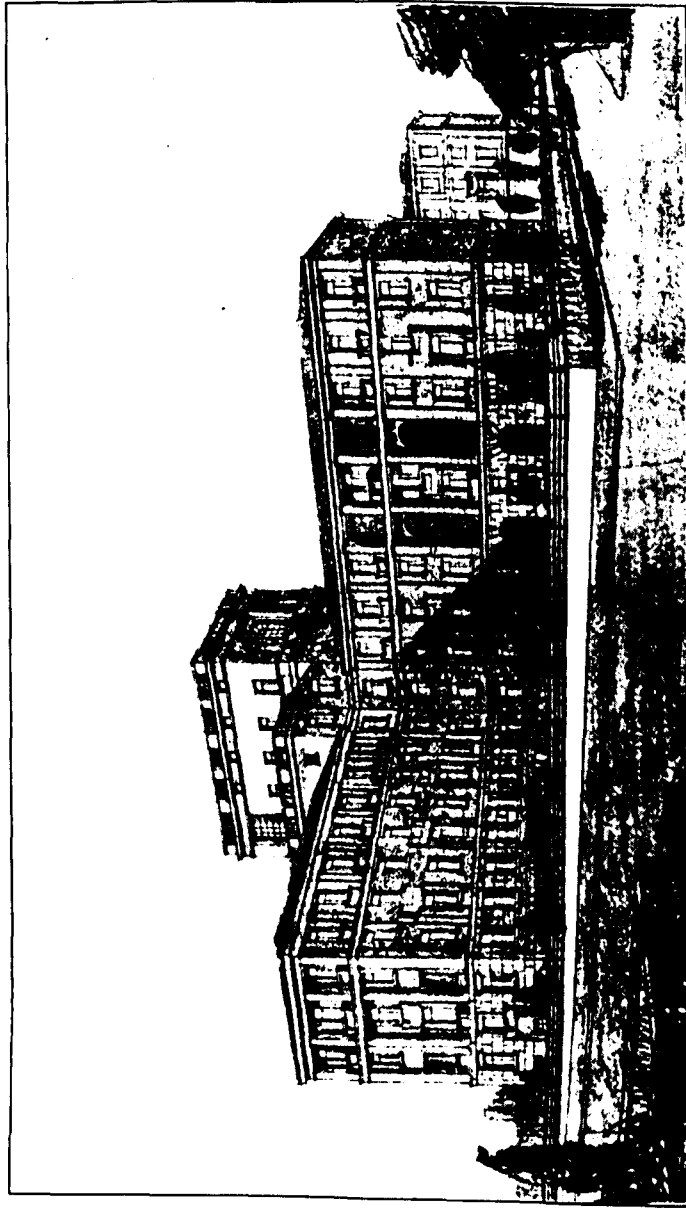
of aid in the application of knowledge is waning or that the potentialities of this program have been exhausted. There are widespread needs for such assistance. An attempt is made to maintain a balanced program of both types of work.

Aid in conducting demonstrations in public health was given to seventeen units in eight European countries. All of the demonstration units are fundamentally similar in character. The personnel in charge of the work varies in number from seven to thirty-six. The individuals served by each unit vary from a little over a thousand to about nine thousand. The most important element in the demonstrations is the home visiting conducted by public health nurses. Next in importance come laboratory service and work in the control of communicable diseases. In all demonstrations vital statistics and general health information are carefully collected. Public health education is conducted by a variety of means, such as lectures, informal talks, newspaper publicity, posters, and moving pictures. As to type of activity, the program is usually divided into such subjects as infant welfare, preschool hygiene, school hygiene, prenatal hygiene, dental clinics, and work in tuberculosis and venereal diseases.

Three years of successful work have been com-



Types of health work in which The Rockefeller Foundation is assisting in Europe.



Architect's drawing of the Institute of Hygiene and Public Health, Rome, Italy, toward the construction and equipment of which The Rockefeller Foundation is contributing.

pleted by the local health department of the district of Eisenstadt in Austria. This district has a population of 42,000 living in twenty-nine villages and served by six health centers. Encouraging results were obtained in lowering infant mortality, which fell from 14 per cent in the period from 1925 to 1929 to 8 per cent in 1931. In Hungary a mass immunization program was carried out in which over 280,000 children received inoculations against diphtheria. This work has resulted in a law making diphtheria immunization compulsory. In Poland a new Ministry of Social Welfare has been established which includes divisions of labor, social insurance, social welfare, and health. The local health department of Lwow is making special efforts to preserve the health of preschool children. Work is also done in connection with the improvement of water supply. In spite of poor economic conditions in Poland, the number of health centers is on the increase.

During 1932 preliminary steps were taken to extend cooperation in health work to Portugal. A survey of the health organization and accomplishments in that country was carried out.

In general, despite the economic stress with concomitant budgetary retrenchment prevalent in Europe, governments are continuing their public health work. By the judicious use of

small amounts of emergency aid to safeguard pivotal activities, the essential framework of public health in Europe has been conserved. The aim has been to hold the ground so far gained in public health until the development of local support once more assumes normal proportions.

In the support of state health services the Foundation cooperated with eleven European countries. Departments aided include those of vital statistics, epidemiology, sanitary engineering, district health work, public health nursing, and the control of specific diseases, especially malaria.

Field and laboratory research constituted an important item in the European program. An infant mortality study was carried out in three areas of Denmark. Malaria investigations were conducted in Albania, Bulgaria, Germany, Greece, Italy, the Netherlands, Rumania, Spain, and Yugoslavia. A tuberculosis study was started in the district of Eisenstadt, Austria. Research on undulant fever was continued in France.

Work in the East

Owing to the economic depression, the disturbance of public order, and reduction of personnel and appropriations, public health work throughout the East has encountered a difficult

situation. Notwithstanding discouraging circumstances much progress has been made. During 1932 The Rockefeller Foundation contributed to budgets for public health work under supervision of Foundation representatives in the following countries: Ceylon, India, China, Egypt, Netherlands East Indies, the Philippine Islands, and the South Pacific Islands.

During the year there was published an account of the health units which the Government of Ceylon is establishing in rural and semirural areas of the island. The organization of an official unit is described, and an account is given of its work, methods of operation, and manner of budgeting. Experience indicates that the needs of a rural area are well met by such units, and their establishment has aroused considerable interest among health workers and the general public.

In the State of Mysore in India, a Foundation representative continues to serve as a consultant to the government on health matters. A local health unit started in 1930 with assistance from the Foundation is operating under government auspices and with government funds. In 1932 the Bureau of Sanitary Engineering, which is under the direction of a Foundation representative, carried on experiments in composting night soil and refuse.

Five visits were made to the State of Travancore by the Foundation representative stationed in Ceylon. At a town situated 12 miles from the capital city of Trivandrum, a health unit organized in 1931 with Foundation aid is making favorable progress under the supervision of a former Foundation fellow. A comprehensive public health program is carried out by trained personnel. Special efforts are directed against malaria and hookworm disease. A Division of Public Education was started in 1932, toward the budget of which the Foundation made a contribution. The officer in charge is provided with cinema apparatus, a motor truck, and other material for health propaganda.

In order to test the possibility of successfully maintaining a local health unit under Indian conditions, the Foundation is cooperating with the health services of the United Provinces in the establishment of a health center in Partabgarh, an area of 60 square miles with a population of 50,000. The health center is organized along the lines of those in Ceylon. The work is directed by a former Foundation fellow.

In China a Foundation representative serves as professor of public health and preventive medicine at the Peiping Union Medical College, acting at the same time as adviser to the National Health Administration at Nanking. He also

supervises the work of the Sanitary Engineering Division of the National Health Administration and has assisted the government in organizing training courses in Nanking and Peiping for subordinate health personnel. Sanitary problems arising out of the Yangtze Valley flood and the military operations in Shanghai multiplied the health problems and occasioned many conferences between Foundation representatives and the national health service. Flood relief, disinfection of wells, safeguarding of water supplies, and camp sanitation were dealt with. Chinese engineers were given practical training. Inspection was made of various Chinese universities where sanitary engineering is taught.

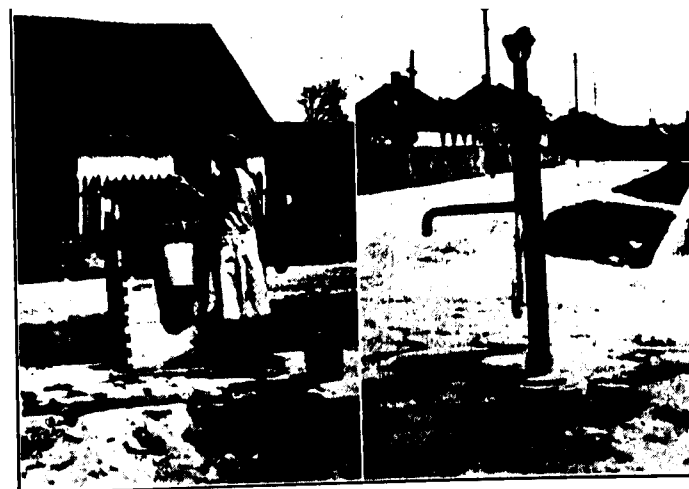
The Peiping Health Demonstration Station, which was established in 1925, continues to serve as a practical training center for medical students, sanitary inspectors, and nurses, furnishing them an opportunity to study practical health work under Chinese conditions. The First Midwifery School in Peiping, which opened in 1929 and is receiving aid from the Foundation over a five-year period, is making good progress in providing training courses in skilled midwifery service.

In Egypt, early in 1932, a study was made of the effect of winter closure of irrigation canals upon snails which are significant in the produc-

tion of schistosomiasis, a disease prevalent in Egypt. Research work in connection with this problem has been discussed elsewhere in this report. Various surveys of snails and the problems presented by them in a number of localities were made.

In the Netherlands East Indies a Foundation representative acts as adviser to the Public Health Service. The Public Health Education Division of this service is continuing its important work on a reduced scale. Activities have included erection of museums of hygiene, preparation of films and models, and a comprehensive campaign of illustrated public lectures, in which megaphones, moving pictures, and lantern slides have been employed and which have been successful in attracting large audiences. The lectures have been supplemented by home visits and public health educational work on a more intimate scale. The object of the work has been to lay the foundation for a general rural health program, supported by appropriations from local governing bodies. The government in the Netherlands, responsible for a population of about seventy-five million in the Netherlands East Indies, is earnestly seeking practical methods to promote modern health work.

In the Philippine Islands a Foundation representative continues to act as adviser to the



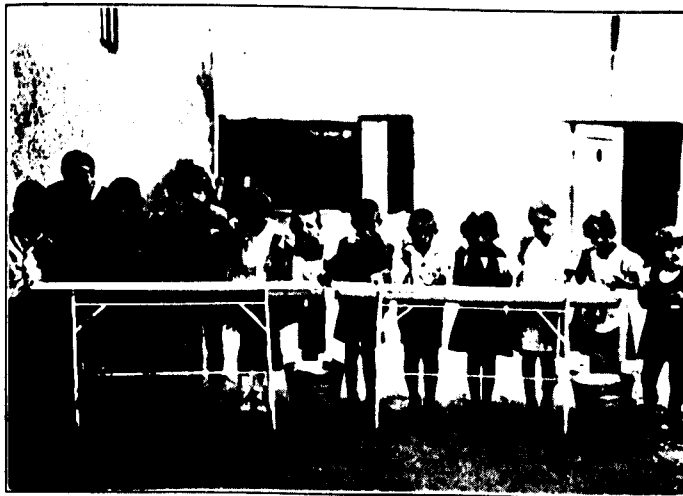
Type of public well used in Lwow, Poland, before the establishment of the local health department. Type of public well introduced in Lwow by the local health department.



Children cared for at the day camp for children of preschool age maintained by the local health department of Lwow.



School children of Mezokovesd district, Hungary, receiving a quartz lamp treatment at the local health center.



A class in dental hygiene at the Mezokovesd health center.

Director of the Bureau of Science in the development of a public health laboratory service. More and more doctors in private practice are showing dependence upon this laboratory work. Many cases of communicable disease, such as had formerly been overlooked, are now coming to the attention of the health authorities at an early stage.

In the South Pacific Islands a Foundation representative serves as consultant to the health service of the island groups under the administration of the Western Pacific High Commission of the British Government. Headquarters are at Suva, Fiji. This representative of the Foundation also occupies a teaching position in the Central Medical School located there, which has as its purpose the training of selected native students as medical practitioners for the various islands.

Jacocks, W. P. Ceylon Health Units. *The Indian Medical Gazette*, 68: 332-338 (June) 1933.

The Caribbean Region

In the Caribbean area The Rockefeller Foundation cooperates in certain aspects of public health work in Jamaica, Puerto Rico, the Virgin Islands, Grenada, Central America, Colombia, and Venezuela.

The scope of cooperative work in Jamaica has been extended until it includes ten separate

types of activity, varying all the way from work in rural sanitation to a campaign against yaws. In 1921 the death rate in Jamaica was 28.3 per thousand; in 1930 it was 17 per thousand. Infant mortality rates during this period fell from 197 to 141 per thousand births. This decrease has resulted largely from public health activities such as general improvement in sanitation and water supply, smallpox vaccination, antityphoid work, and campaigns against malaria, hookworm disease, yaws, and syphilis. School hygiene has been extensively developed. Housing and building regulations have been enacted to prevent crowding and to improve ventilation. The people have to a considerable degree become public health minded.

A Bureau of Health Education, established in 1926, is partly supported by The Rockefeller Foundation. It conducts an educational campaign throughout the island. Bulletins, slides, and material for public lectures are distributed. The prenatal division sends letters to expectant mothers. There is a monthly health publication with a circulation of 20,000 copies per month.

The final step in public health organization in Jamaica is represented by the establishment of parochial health departments. The first cooperative parochial health department of the island was started in October, 1928. Others followed.

In three parishes demonstration units were set up. In 1930 there was organized a plan to provide each parish with a trained full-time health officer, paid and supervised by the Central Board of Health. By 1934 these departments will all be supported entirely from local funds.

During the year a Foundation representative made a visit to Jamaica to survey the system of vital statistics in operation there. Methods in use were found to suit local conditions. Defects in mortality statistics were due to lack of medical attendance and consequent unreliability of diagnoses, rather than to the system of registration. A closer linkage between vital statistics registration and public health and medical service, and a rectification of vague designations were recommended.

In Puerto Rico there were at the end of 1932 eighteen district health units serving a population of more than 900,000. These health units are under the supervision of a Foundation representative. They carry out programs similar to the standard type of county health unit in the United States. A severe hurricane devastated a part of the island on September 26, 1932, but owing to emergency work, of which the public health units bore the brunt, no epidemic outbreaks of transmissible disease occurred after the storm. The injured were given speedy relief.

During 1932 the director of the Foundation's work in Puerto Rico made two visits to the Virgin Islands in the capacity of adviser to the Medical and Health Department, and a representative in charge of malaria activities in Puerto Rico paid two visits to the island of Grenada, where the government is especially interested in malaria work.

In Central America cooperation with The Rockefeller Foundation started in Costa Rica in 1914 and was gradually extended to other countries. In no single country has active cooperation been continuous since 1914. During the earlier years the work took the form of hookworm treatment campaigns. Four years ago a new program of work for Central America was arranged, stressing active health educational work, training of health personnel, development of a sanitary department in each country which would engage in closely supervised field activities, development of a public health laboratory service, malaria investigations, gradual progress toward a unit form of work such as is represented by county health units in the United States and elsewhere, emphasis on urban and rural water supply, with attention given to drainage projects directed toward malaria control.

In Colombia the entire health service was reorganized during 1932. Tuberculosis dispen-

saries, child health clinics, and prenatal clinics are being established in the larger cities. Sanitary engineering has made excellent progress, and many deep wells have been installed which take the place of rivers as sources of drinking water, thus reducing the incidence of diseases caused by water pollution, such as typhoid fever and dysentery.

The central agency in Colombia through which The Rockefeller Foundation has cooperated is the Hookworm Section of the Public Health Service. For a number of years the activities of this section consisted mainly of treatment for hookworm disease, coupled with health education dealing with soil pollution. During the last three years the scope of field activities directed through this section has been widely extended. A general health program has been adopted. There has already been developed a sufficient nucleus of trained sanitary inspectors to organize a federal bureau of sanitation. A program of public health education has been elaborated, and a monthly publication is issued.

The Foundation has given assistance to a well-housed and well-equipped public health laboratory at Bogota. Difficulties of transportation make it impossible for this central laboratory to render service to the entire country. A branch

public health laboratory has therefore been established in the city of Barranquilla, on the Magdalena River, near the Caribbean Coast. This laboratory is under the direction of a former fellow of The Rockefeller Foundation.

In Venezuela the activities in which the Foundation cooperated during 1932 included rural sanitation, health education, investigations of malaria and training of personnel for malaria work, and maintenance of an advisory relationship to the health authorities on matters of sanitation and hygiene.

Mexico

In Mexico during the year, the Foundation cooperated with the central health administration and gave direct aid to five health units. It also participated in studies on anthelmintics, malaria, and yellow fever.

The United States

In the United States aid was given to the central health administrations of eleven states and to the county health work of 164 counties in twenty-two states. In addition, assistance was given to the epidemiological services of thirteen states and one city, to departments of sanitary engineering in four states, to public health laboratories in three states, to divisions of

vital statistics in two states, for malaria control work in four states and one county and for library service, tuberculosis work, and child hygiene in one state each.

Special field studies dealing chiefly with specific diseases were carried on in the following localities: Alabama and Mississippi, hookworm; Florida, malaria; Massachusetts, cancer; Tennessee, *Endamoeba histolytica*, tuberculosis, smallpox vaccine virus; Enrico County, Virginia, diarrhea and dysentery; Richmond, Virginia, scarlet fever.

Canada

In Canada Foundation cooperation in 1932 included direct aid to the health organizations of eighteen counties in five provinces and assistance to the central health administration of one province. In two provinces the provincial health services received aid in epidemiology.

Public Health Education

Aid to Institutions

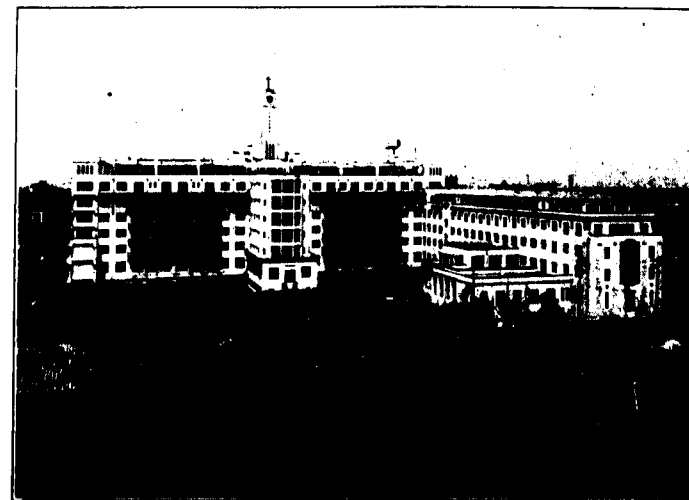
For many years The Rockefeller Foundation has given special attention to the educational side of public health. Through aid to institutions and by the provision of fellowships, it carries on a program for the education of health officers and public health nurses.

When the Foundation began its work in public health the right sort of facilities for public health education did not exist in any of the universities. Training stations for health workers were set up, but the conclusion was reached that what was needed most was a new type of university school. A committee was appointed to study the question, and in 1917 a school of hygiene and public health was established at the Johns Hopkins University with Foundation aid. This school was opened for students in 1918. Subsequently, similar schools have been aided at Harvard and Toronto universities, and in London and Rome. Smaller schools have been established, with Foundation cooperation, in Czechoslovakia, Poland, Yugoslavia, Turkey, and Brazil. Some of these schools are still receiving assistance.

A feature of the work in public health education in 1932 was the support given to various institutions for the training and education of nurses, with special emphasis on public health nursing.

Education and Training of Nurses

College of Nursing, St. Luke's International Medical Center, Tokyo, Japan.—Early in 1932 an appropriation of \$8,000 was made for the educational work of the College of Nursing of St. Luke's International Medical Center, Tokyo.



The two completed buildings of the new plant of St. Luke's International Medical Center, Tokyo, Japan. At the right is the College of Nursing, toward the endowment of which The Rockefeller Foundation made an appropriation in 1932. In the background is the in-patient hospital.



Class of student nurses in the science laboratory, St. Luke's International Medical Center, Tokyo.



Instruction in public health nursing at the School of Nursing of the University of Toronto. A supervisor and student at work.



Bandaging class, State Central School of Nursing, Budapest, Hungary.

This grant was a continuation of former aid and was made in order to provide for the educational work of the college during the period from October 1, 1931, to the completion of its new building, at which time its endowment would become available. A fourth year, for training in public health, has been established in the college, and the city has assigned a district for field service.

On October 14, 1932, the sum of \$400,000 was appropriated to St. Luke's International Medical Center for the endowment of the College of Nursing. Interest from the fund is to be used to maintain the work of the college, the clinical teaching in the wards of the hospital, the public health service, and the special clinics for sick and well babies. There are at present about 175 undergraduate and graduate nurses in the hospital. This training center has been licensed by the Japanese Government and is the only college of nursing in Japan now receiving official recognition.

School of Nursing, University of Lyon.—An appropriation of \$160,000 has been made toward the construction and equipment of a building for the School of Nursing of the University of Lyon, which has now become an institute of the university. A site for the building has been provided by the university, adjacent to the new medical school building, which was a gift of The

Rockefeller Foundation. The Government of France has made a liberal contribution toward the cost of the nursing school building.

The school has a hundred students and a curriculum organized to meet modern requirements. The new building will provide for the education and living needs of 150 students. The school is developing a health center for district public health work, which will give it unique facilities. The Foundation in 1932 made a payment on an appropriation of \$50,000 made in 1928 for the establishment of a health center for the field training of the public health nurses of the Lyon School of Nursing.

School of Nursing, University of Toronto, Canada.—Toward the development of public health nursing education at the University of Toronto School of Nursing during a five-year period, beginning July 1, 1932, an appropriation of \$87,500 has been made. The program in nursing education conducted in this school includes three courses: a course for graduate nurses, to prepare them for teaching in schools of nursing; a course to prepare graduate nurses for public health nursing; and an undergraduate course for the education of public health nurses. A reorganization of this program is now under way. An extensive development of the first two courses is planned. The third course will at

first be carried on as at present, but in time it is to be reduced in length. The School of Nursing will be closely affiliated with the Faculty of Medicine of the university and with public health departments and organizations.

School of Nursing, Vanderbilt University, Nashville, Tennessee.—Since 1925 the Foundation has been contributing to the support of educational features and a course in public health nursing at the School of Nursing of Vanderbilt University. In 1929 a further contribution was made for a period of three years from July 1, 1930, to June 30, 1933, for the school's program for stimulating proper recruitment and training of nurses in the South. During 1932 the sum of \$35,000 was made available for this work.

East Harlem Nursing and Health Service, New York City.—The sum of \$90,000 was appropriated to the East Harlem Nursing and Health Service toward general expenses during the four-year period beginning December 1, 1932, payments to be made on a tapering basis.

The East Harlem Nursing and Health Service grew out of the East Harlem Health Center, founded in 1922. It was organized as a separate entity in December, 1925. As a service agency it has each year reached, on the average, 3,065 families and 6,999 individuals in a population unit of approximately 85,000 persons. Primary

service objectives are parental education and child health supervision. As an educational agency it represents a practice field for graduate public health nurses and other students from allied professional fields. The educational service has been extended to 528 students who have come from thirty-nine states and the District of Columbia, in the United States, and from Cuba, Hawaii, the Philippine Islands, and thirty-two other countries. Twenty-seven students from Teachers College and twenty-five Rockefeller Foundation fellows received training with this service during 1932.

Survey of Nursing in India.—During the year the associate director of the International Health Division in charge of nursing made a survey of public health nurse training and training facilities in India.

Fellowships in Public Health

A system of fellowships in public health was inaugurated by The Rockefeller Foundation in 1917. This program has grown until it is one of the most important functions of Foundation public health work. It is more and more realized by the public that health officials need a high grade of special education, such as is required in all other specialties.

During 1932 there were under administration

225 Foundation fellowships in public health. One hundred and twenty-four of the fellows were training for positions in public health administration; thirty-five for public health nursing; thirteen for public health laboratory work; nineteen in sanitary engineering; two in vital statistics; six in industrial hygiene; twenty-six in special studies.

Of the 225 fellows, ninety-five were from the United States; sixteen each from Canada and China; fifteen from India; eleven from Japan; nine from Spain; seven from Yugoslavia; five each from Greece and Turkey; four from the Philippine Islands; three each from Austria, Brazil, Bulgaria, France, Italy, Mexico, Poland, and Rumania; two each from Czechoslovakia, Egypt, England, Hungary, Jamaica, and Puerto Rico; and one each from the Bahamas (Nassau), Finland, Honduras, Java, Panama, and the Virgin Islands (St. Thomas). Of these fellows, 173 studied in the United States; five in the United States and Canada; two in the United States and Puerto Rico; one in the United States and Jamaica; two in the United States and England; four in the United States and Europe; two in the United States, Europe, India, and Ceylon; seventeen in Canada; four in various countries of Europe; eight in England; two in Germany; one in the Philippine Islands; and four in India.

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 John F. Kendrick, M.D. Clark H. Yeager, M.D.

¹ Died February 4, 1932.

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 Willard V. King Allen M. Walcott, M.D.
 Stuart F. Kitchen, M.D. Loring Whitman, M.D.
 Frederick W. Knipe Daniel E. Wright

CONSULTANTS

Alpheus M. Goodman Eugene L. Opie, M.D.

Status of Personnel During 1932

	January 1	December 31
TOTAL STAFF.....	81	76
Regular Members.....	47	46
Special Members.....	32	29
Part-time Consultants.....	2	1
ON DUTY. TOTAL.....	70	70
Regular Members.....	41	41
Special Members.....	29	29
ON LEAVE. TOTAL.....	7	4
Regular Members.....	4	3
Special Members.....	3	1
ON STUDY LEAVE. TOTAL.....	2	1
Regular Members.....	2	1
Special Members.....	..	..
ON SICK LEAVE. TOTAL.....	..	1
Regular Members.....	..	1
Special Members.....	..	..

ADDITIONS TO THE STAFF DURING THE YEAR

Regular Members
None

Special Members

Loring Whitman, M.D. Thomas B. Turner, M.D.

LOSSES FROM THE STAFF DURING THE YEAR

Regular Members

Louis Schapiro, M.D.¹

Special Members

John S. Cunningham, M.D. Martin Frobisher, Jr.
W. Thurber Fales Willard V. King
Edward J. Scannell, M.D.

Consultants

Alpheus M. Goodman

ON LEAVE AT THE END OF THE YEAR

Regular Members

Marshall C. Balfour, M.D. F. Elisabeth Crowell
Fred. L. Soper, M.D.

Special Members

Warren K. Stratman-Thomas, M.D.

ON STUDY LEAVE AT THE END OF THE YEAR

Regular Members

Henry P. Carr, M.D.

Special Members

None

ON SICK LEAVE AT THE END OF THE YEAR

Regular Members

Richard M. Taylor, M.D.

Special Members

None

¹ Died February 4, 1932.

* Table of Expenditures for Public Health Work for the Years

ACTIVITY, COUNTRY, AND STATE	July 1, 1913- Dec. 31, 1925	1926	1927	1928
Grand Total	\$26,108,180.64	\$3,624,123.08	\$3,839,959.40	\$3,074,732.83
GENERAL BUDGET				
State and Local Health Services.....	1,293,668.91	339,642.51	474,442.73	600,519.77
Public Health Administration.....	7,044.75	11,447.75	12,842.73	19,257.68
Vital Statistics.....	18,070.58	11,053.47	18,913.30	22,802.67
Epidemiology.....	114,645.71	28,030.34	27,391.79	25,489.57
Public Health Laboratories.....	92,439.95	19,109.36	20,831.69	13,525.09
Public Health Nursing.....	11,585.07	5,374.33	5,510.53	8,242.06
Sanitary Engineering.....	2,223.74	354.46	1,454.41	30,052.16
Other State Health Services.....	954,847.68	233,628.58	353,107.38	454,495.95
Local Health Departments.....	92,811.43	30,644.22	34,390.90	26,654.59
Bureaus for Study and Reform of Public Health Activities.....	444,457.63	126,942.14	124,321.20	123,497.81
Health Organization of League of Nations.....	1,071,830.84	357,872.42	360,284.53	325,936.61
Public Health Education.....	8,109,369.42	828,081.90	672,110.20	558,064.41
Control and Investigation of Specific Diseases.....	3,080,981.94	175,977.76	143,638.71	94,245.99
Hookworm.....	743,549.25	177,801.93	201,343.68	188,553.09
Malaria.....	1,895,113.19	474,302.21	326,085.60	266,783.21
Yellow Fever.....			1,042.21	2,680.32
Respiratory Diseases.....				1,295.82
Verruga Peruana.....	2,389,725.04			4,100.97
Tuberculosis.....				
Epidemiological Studies.....				
Sanitation.....				405.01
Yaws.....				
Undulant Fever.....				
Public Health Surveys.....				
Field Service.....	3,964,122.12	666,773.33	678,066.41	712,918.89
Miscellaneous.....	191,933.37	10,760.61	16,988.76	19,279.89

* Annual reports for 1929 and prior years included statements of expenditures with salaries and as a separate item.

1913-1932 Inclusive, Covering All Activities

1929	1930	1931	1932	Total
\$3,561,891.09	\$2,644,178.73	\$3,244,249.14	\$2,342,885.24	\$48,440,200.15
659,704.25	561,170.63	458,978.55	388,361.90	4,776,489.25
	10,936.01	14,418.98	13,965.16	39,320.15
42,616.57	24,319.72	16,692.19	10,169.62	144,391.01
36,276.00	37,202.56	42,132.41	52,488.31	238,939.30
21,678.48	13,822.79	11,056.59	10,670.26	252,785.53
17,945.78	12,711.93	8,343.58	3,937.46	188,844.84
11,170.54	11,087.69	14,077.25	17,316.84	84,364.31
26,189.19	36,523.59	15,205.99	15,935.35	127,938.89
485,532.77	402,771.55	327,229.32	263,878.90	3,475,492.13
18,294.92	11,794.79	9,822.24	.....	224,413.09
123,905.27	.....	.....	.....	943,124.05
440,643.91	382,862.97	375,030.16	320,254.45	3,634,715.89
593,285.61	626,026.55	805,941.73	887,827.33	13,080,707.15
77,678.29	55,396.04	52,452.43	58,913.04	3,739,284.20
189,310.29	154,478.13	172,702.11	162,764.46	1,990,502.94
314,288.37	366,648.42	440,632.39	534,749.11	4,618,602.50
4,442.37	8,765.36	8,989.07	1,153.26	27,072.59
				1,295.82
5,786.58	31,103.27	71,386.12	62,474.98	2,564,576.96
	6,739.87	43,198.11	32,161.93	82,099.91
1,466.61	773.24	4,807.23	7,388.95	14,841.04
			14,454.29	14,454.29
	1,891.86	11,774.27	13,767.31	27,433.44
313.10	230.36	.....	.....	543.46
705,208.08	705,511.22	743,053.77	729,637.77	8,905,291.59
12,031.36	14,503.63	13,147.10	11,803.79	290,448.51

penses of field staff prorated to specific budgets. In this statement, the cost of field service is reported

Table of Expenditures for Public Health Work for the Years

ACTIVITY, COUNTRY, AND STATE	July 1, 1913- Dec. 31, 1925	1926	1927	1928
BUILDINGS, EQUIPMENT, AND ENDOWMENT				
Schools and Institutes of Hygiene and Pub- lic Health	\$11,032,798.35	\$1,263,839.32	\$1,414,262.06	\$734,515.45
Schools of Nursing		30,210.85	99,483.51	
GENERAL BUDGET				
State and Local Health Services	1,293,668.91	339,642.51	474,442.73	600,519.77
Public Health Ad- ministration				
United States				
Arkansas				
South Carolina				
Tennessee				
Virginia				
Foreign Countries				
Central America				
Guatemala				
The East				
Ceylon and India				
West Indies				
Jamaica				
Puerto Rico				
Vital Statistics	7,044.75	11,447.75	12,842.73	19,257.68
United States	7,044.75	9,866.56	9,234.97	7,656.16
Alabama	665.00	847.50	990.00	
Arkansas		1,350.00	750.00	
Georgia	400.00			1,200.00
Iowa		2,100.00	1,500.00	
Massachusetts				3,270.50
Mississippi	700.00	882.38	2,204.97	902.73
Montana	1,250.00	2,500.00	1,250.00	
New Mexico				600.00
Oklahoma		686.68	500.00	
Oregon				
South Carolina			290.00	1,250.00
Tennessee	1,273.09	1,500.00	1,750.00	1,000.00
Texas				2,703.43
West Virginia	2,756.66			
Foreign Countries		1,581.19	3,607.76	11,601.52
Europe		1,581.19	2,744.09	11,601.52
Bulgaria			1,139.50	
Denmark		1,581.19	1,604.59	1,608.31
France				

* Reports incomplete.

1913-1932 Inclusive, Covering All Activities—Continued

1929	1930	1931	1932	Total
\$1,027,112.61	\$354,103.73	\$848,097.83	\$5,000.00	\$16,679,729.35
				129,694.36
659,704.25	561,170.63	458,978.55	388,361.90	4,776,489.25
	10,936.01	14,418.98	13,965.16	39,320.15
			2,737.50	2,737.50
			*975.00	975.00
			*900.00	900.00
			*237.50	237.50
			*625.00	625.00
	10,936.01	14,418.98	11,227.66	36,582.65
	2,116.45	4,272.72		6,389.17
			373.65	373.65
	8,819.56	10,146.26	10,854.01	29,819.83
			642.52	642.52
	8,819.56	10,146.26	10,211.49	29,177.31
42,616.57	24,319.72	16,692.19	10,169.62	144,391.01
16,593.29	3,435.00	4,383.78	6,992.90	65,207.41
				2,502.50
				2,100.00
				2,800.00
				3,600.00
	1,960.00	2,989.54	3,120.00	8,069.54
	3,270.50		900.00	8,860.58
				5,000.00
				3,000.00
				1,186.68
	375.00	187.50		562.50
				1,540.00
1,050.00	1,100.00	1,206.74	2,972.90	11,852.73
8,672.79				11,376.22
				2,756.66
26,023.28	20,884.72	12,308.41	3,176.72	79,183.60
26,023.28	20,884.72	12,308.41	3,176.72	78,319.93
				1,139.50
2,401.95	789.48	402.72		8,388.24
4,111.51				4,111.51

Table of Expenditures for Public Health Work for the Years

ACTIVITY, COUNTRY, AND STATE	July 1, 1913- Dec. 31, 1925	1926	1927	1928
GENERAL BUDGET (Cont.)				
State and Local Health Services (Cont.)				
Vital Statistics (Cont.)				
Foreign Countries (Cont.)				
Europe (Cont.)				
Rumania	\$	\$	\$	\$
Spain				
Yugoslavia				9,993.21
South America				
Colombia			863.67	
Epidemiology	18,070.58	11,053.47	18,913.30	22,802.67
United States	18,070.58	11,053.47	16,772.78	17,925.40
Alabama	7,278.72	2,277.26	3,977.77	
Arizona				
Georgia				
Iowa				
Kansas	236.62	406.72	228.96	
Kentucky				1,788.28
Louisiana			1,930.25	
Maryland				
Massachusetts				
Michigan				
Mississippi		1,819.08	3,337.50	1,490.92
Montana				2,625.00
New York				
North Carolina				3,543.75
North Dakota				1,108.74
Rhode Island	537.68	1,653.79	854.58	
South Carolina		193.75	775.00	3,175.00
South Dakota		1,142.32	1,275.00	
Tennessee	924.33	2,701.05	2,453.23	2,250.00
Utah	5,437.07	859.50	600.00	1,943.71
Virginia	3,656.16			
Conference of epidemiolo- gists			1,340.49	
Foreign Countries				
Canada			2,140.52	4,877.27
Europe			2,140.52	4,877.27
Austria				
Czechoslo- vakia				

* Reports Incomplete.

1913-1932 Inclusive, Covering All Activities—Continued

1929	1930	1931	1932	Total
\$	\$11,764.18	\$8,581.63	*\$	\$20,345.81
8,175.14	4,719.98	2,559.05	1,718.44	17,172.61
11,334.68	3,611.08	765.01	1,458.28	27,162.26
				863.67
36,276.00	37,202.56	42,132.41	52,488.31	238,939.30
25,939.33	28,862.58	33,584.76	36,744.79	188,953.69
				13,533.75
	2,612.50		*	2,612.50
812.50		1,729.37	4,148.72	6,690.59
	2,200.00	2,100.00	788.89	5,088.89
				872.30
				15,773.66
3,500.00	3,500.00	3,500.00	3,485.38	1,930.25
				5,672.71
		3,030.99	2,641.72	675.00
				675.00
		4,600.00	6,044.53	10,644.53
5,172.50	4,200.00	4,433.35	3,961.98	24,415.33
3,500.00	3,500.00	3,500.00	3,393.81	16,518.81
	340.00	541.64		881.64
				8,268.75
4,725.00				8,602.29
2,700.00	2,700.00	1,600.00	493.55	3,046.06
				9,944.25
2,500.00	2,100.00	900.50	300.00	10,128.35
1,004.33	2,300.00	2,176.55	2,230.15	26,001.97
2,025.00	5,410.08	5,200.45	5,037.83	8,840.28
				7,471.30
		271.91	3,543.23	
				1,340.49
				49,985.61
10,336.67	8,339.98	8,547.65	15,743.52	8,456.79
876.93	1,654.32	1,229.72	4,695.82	41,435.82
9,459.74	6,685.66	7,317.93	10,954.70	3,865.17
		2,152.02	1,713.15	
			4,500.00	4,500.00

Table of Expenditures for Public Health Work for the Years

ACTIVITY, COUNTRY, AND STATE	July 1, 1913- Dec. 31, 1925	1926	1927	1928
GENERAL BUDGET (Cont.)				
State and Local Health Services (Cont.)				
Epidemiology (Cont.)				
Foreign Countries (Cont.)				
Europe (Cont.)				
Denmark.....	\$.....	\$.....	\$2,140.52	\$4,877.27
Spain.....				
The East				
India, Tra- vancore.....				
Public Health Labo- ratories.....	114,645.71	28,030.34	27,391.79	25,489.57
United States.....	79,935.42	18,331.20	16,387.39	12,757.31
Alabama.....	33,274.35	7,494.53	5,403.75	
Arkansas.....	6,707.96			
Connecticut.....	2,175.00			
Delaware.....	1,500.00			
Florida.....				
Kansas.....	10,701.90			
Louisiana.....				
Maine.....	600.00	1,300.00	780.00	444.43
Mississippi.....				
Missouri.....	4,713.88	2,049.17	3,600.00	4,350.00
Montana.....	3,826.74			
Oregon.....	4,708.69	340.98		
South Carolina.....	498.92	300.00		
Tennessee.....	3,317.82	938.13	985.00	1,754.36
Texas.....	70.83	2,789.82	2,992.40	650.00
Utah.....	4,675.00	2,868.92	2,626.24	3,058.52
Virginia.....	2,949.00	249.65		1,500.00
Demonstrations	215.33			
Foreign Countries	34,710.29	9,699.14	11,004.40	12,732.26
Central America	34,710.29	9,288.64	6,107.41	7,821.77
Costa Rica.....	6,930.65	2,757.05	175.00	
Guatemala.....	5,773.19	1,572.68	1,268.24	4,446.99
Honduras.....	698.37			
Nicaragua.....	16,587.39	4,958.91	4,664.17	3,374.78
Salvador.....	4,720.69			
Europe				
Hungary.....				
Rumania.....				

* Reports incomplete.

1913-1932 Inclusive, Covering All Activities—Continued

1929	1930	1931	1932	Total
\$ 5,355.91	\$ 5,374.54	\$ 5,165.91	\$ 4,741.55	\$ 27,655.70
4,103.83	1,311.12			5,414.95
			93.00	93.00
21,678.48	13,822.79	11,056.59	10,670.26	252,785.53
9,456.49	7,035.83	4,559.39	2,954.05	151,417.08
				46,172.63
				6,707.96
				2,175.00
				1,500.00
				1,350.00
	900.00	450.00		10,701.90
				444.43
				2,680.00
				9,278.99
3,753.99	3,600.00	1,575.00	350.00	16,513.05
1,800.00				3,826.74
				5,049.67
				4,598.92
1,000.00	600.00	600.00	600.00	15,772.08
2,902.50	1,935.83	1,934.39	2,004.05	6,503.05
				13,228.68
				4,698.65
				215.33
12,221.99	6,786.96	6,497.20	7,716.21	101,368.45
5,492.55	1,000.00	600.00	944.62	65,965.28
			150.00	10,012.70
			290.45	13,844.10
492.55				2,698.37
1,000.00	1,000.00		300.00	34,485.25
4,000.00		600.00	*204.17	4,924.86
			1,185.36	3,999.78
1,870.00	944.42			2,814.42
1,870.00	944.42		*1,185.36	1,185.36

Table of Expenditures for Public Health Work for the Years

ACTIVITY, COUNTRY, AND STATE	July 1, 1913- Dec. 31, 1925	1926	1927	1928
GENERAL BUDGET (Cont.)				
State and Local Health Services (Cont.)				
Public Health Laboratories (Cont.)				
Foreign Countries (Cont.)				
South America				
Colombia	\$	\$ 410.50	\$ 4,896.99	\$ 4,910.49
West Indies				
Puerto Rico				
Public Health Nursing	92,439.95	19,109.36	20,831.69	13,525.09
Europe	25,738.73	3,599.07	3,562.06	2,483.16
Denmark				
France	25,738.73	3,599.07	3,562.06	2,483.16
Hungary				
Poland				
Yugoslavia				
South America				
Brazil	66,701.22	15,510.29	17,269.63	11,041.93
Nursing Films				
Sanitary Engineering	11,585.07	5,374.33	5,510.53	8,242.06
United States	11,585.07	5,374.33	5,510.53	8,242.06
Alabama		1,447.85	1,334.12	
Colorado	2,000.00			
Connecticut	375.00			
Idaho	1,600.00	1,578.67	1,600.00	1,599.89
Indiana				2,756.15
Iowa		58.33	349.98	
Maine	350.00	700.00	350.00	
Mississippi				
Missouri	1,418.43			
Montana	3,732.58			
North Dakota	477.73			
Oregon		1,214.30	733.10	536.02
South Carolina				
South Dakota				3,350.00
Tennessee		375.18	1,143.33	
Utah	1,631.33			
Foreign Countries				
Central America				
Costa Rica and Nicaragua				

* Reports incomplete.

1913-1932 Inclusive, Covering All Activities—Continued

1929	1930	1931 .	1932	Total
\$ 4,859.44	\$ 4,842.54	\$ 4,897.55	\$ 4,817.16	\$ 29,634.67
		999.65	*769.07	1,768.72
17,945.78	12,711.93	8,343.58	3,937.46	188,844.84
11,993.65	9,984.04	6,783.91	680.38	64,825.00
4,678.35	5,626.39	3,883.74		14,188.48
5,674.99	2,705.88			43,763.89
	250.00	1,578.56	680.38	2,508.94
1,140.31	1,308.72	1,321.61		3,770.64
500.00	93.05			593.05
5,952.13	2,727.89	1,559.67	2,605.07	123,367.83
			652.01	652.01
11,170.54	11,087.69	14,077.25	17,316.84	84,364.31
8,261.01	5,861.85	5,993.04	7,209.82	58,037.71
				2,781.97
				2,000.00
				375.00
800.00				7,178.56
2,573.37				5,329.52
				408.31
				1,400.00
			900.00	900.00
				1,418.43
				3,732.58
1,500.00	1,452.36	1,950.00	2,369.04	8,285.15
2,500.00	2,100.00	1,800.00	1,775.00	11,525.00
887.64	2,309.49	2,243.04	2,165.78	7,605.95
				1,518.51
				1,631.33
2,909.53	5,225.84	8,084.21	10,107.02	26,326.60
			*3.76	3.76

Table of Expenditures for Public Health Work for the Years

ACTIVITY, COUNTRY, AND STATE	July 1, 1913- Dec. 31, 1925	1926	1927	1928
GENERAL BUDGET (Cont.)				
State and Local Health Services (Cont.)				
Sanitary Engineering (Cont.)				
Foreign Countries (Cont.)				
Europe	\$	\$	\$	\$
Greece				
Poland				
The East				
Egypt				
India				
Mysore				
Travancore				
Other State Health Services	2,223.74	354.46	1,454.41	30,052.16
United States			900.00	7,742.22
Florida				50.00
Illinois			100.00	236.67
Iowa			800.00	1,500.00
Nevada				
New York City				
New York State				
North Carolina				4,805.55
North Dakota				
South Carolina				1,100.00
Foreign Countries	2,223.74	354.46	554.41	22,309.94
Canada	577.93			
Europe				10,249.55
British Colo- nial Office				
Bulgaria				704.69
Hungary				9,206.71
Norway				
Poland				338.15
The East	1,645.81			11,469.42
Ceylon				
India				
Netherlands				
East Indies				11,469.42
Philippine Is- lands	1,645.81			
West Indies				
Jamaica		354.46	554.41	590.97

* Reports incomplete.

1913-1932 Inclusive, Covering All Activities—Continued

1929	1930	1931	1932	Total
\$1,145.93	\$2,566.34	\$6,899.81	\$5,726.55	\$16,338.63
1,145.93	2,566.34	4,192.39	5,726.55	9,918.94
1,763.60	2,659.50	2,707.42		6,419.69
		1,184.40	4,376.71	9,984.21
			2,352.33	2,352.33
1,763.60	2,659.50	1,184.40	*1,184.40	6,791.90
			839.98	839.98
26,189.19	36,523.59	15,205.99	15,935.35	127,938.89
5,685.41	18,325.43	6,618.25	6,423.21	45,694.52
			1,350.00	1,350.00
50.00				386.67
1,833.33				4,233.33
468.75	750.00	750.00	750.00	2,718.75
	17,250.00	1,750.00		19,000.00
		1,000.00	2,000.00	3,000.00
3,333.33				8,138.88
	325.43	3,118.25	2,323.21	5,766.89
				1,100.00
20,503.78	18,198.16	8,587.74	9,512.14	82,244.37
3,278.37	6,124.98	3,932.35	4,150.72	577.93
				27,735.97
		2,435.00	1,520.00	3,955.00
				704.69
1,973.19	4,703.46			15,883.36
			2,630.72	2,630.72
1,305.18	1,421.52	1,497.35		4,562.20
16,533.54	9,889.84	2,484.39	3,629.05	45,652.05
		420.84		420.84
		141.92	1,403.08	1,545.00
16,533.54	9,889.84	1,921.63	2,225.97	42,040.40
				1,645.81
691.87	2,183.34	2,171.00	1,732.37	8,278.42

Table of Expenditures for Public Health Work for the Years

ACTIVITY, COUNTRY, AND STATE	July 1, 1913- Dec. 31, 1925	1926	1927	1928
GENERAL BUDGET (Cont.)				
Local Health Depart- ments.....	\$954,847.68	\$233,628.58	\$353,107.38	\$454,495.95
United States.....	827,861.44	152,793.57	226,921.68	304,880.03
Alabama.....	71,214.35	8,276.84	5,969.07	7,337.80
Arizona.....				
Arkansas.....	1,335.10	2,367.78	2,038.45	1,771.20
California.....	21,145.82	5,249.98	6,291.67	6,583.33
Colorado.....	1,875.00	2,500.00	2,000.00	2,000.00
Florida.....	1,759.83			
Georgia.....	11,773.28	3,447.57	3,961.03	5,924.57
Idaho.....				
Illinois.....	6,141.65	750.00		
Indiana.....	3,891.66			
Iowa.....	4,168.99	3,600.00	3,100.00	3,300.00
Kansas.....	33,214.44	3,747.28	2,525.00	2,343.76
Kentucky.....	75,923.85	11,710.60	11,892.46	11,744.10
Louisiana.....	50,829.78	5,499.61	7,464.69	7,979.57
Maryland.....	15,380.80			
Michigan.....				6,605.13
Minnesota.....	5,999.97			
Mississippi.....	70,940.00	8,256.25	13,389.00	11,554.18
Missouri.....	31,148.33	7,322.13	5,195.00	5,064.00
Montana.....				1,283.34
New Mexico.....	42,146.78	5,691.68	3,179.07	2,795.26
North Carolina.....	50,442.57	7,500.00	5,000.00	
Oklahoma.....	14,066.90	12,995.48	11,786.18	12,245.81
Oregon.....	21,723.16	9,396.77	9,077.41	5,795.18
South Carolina.....	70,221.87	10,191.39	9,802.26	11,108.94
South Dakota.....	8,645.82	2,702.77	1,312.50	1,698.25
Tennessee.....	58,691.02	12,555.63	12,565.67	16,595.12
Texas.....	47,551.51	6,668.13	3,245.23	1,150.00
Utah.....	3,620.58	3,678.47	4,434.80	3,687.50
Virginia.....	55,146.93	7,943.43	14,583.15	16,326.00
Washington.....	4,791.66			
West Virginia.....	38,708.90	9,819.24	15,258.61	16,374.38
Wyoming.....	5,360.89	922.54	856.80	890.73
Mississippi Flood Area.....			71,993.63	142,721.88
Arkansas.....			7,443.28	37,186.11
Illinois.....				1,750.84
Kentucky.....			6,404.93	19,414.39
Louisiana.....			6,623.11	41,198.13
Mississippi.....			6,639.55	13,969.72
Missouri.....			1,354.86	4,198.28

* Reports incomplete.

1913-1932 Inclusive, Covering All Activities—Continued

1929	1930	1931	1932	Total
\$485,532.77	\$402,771.55	\$327,229.32	\$263,878.90	\$3,475,492.13
313,774.56	247,377.26	180,873.51	164,873.89	2,419,375.94
25,862.46	8,151.32	4,112.34	*12,464.71	143,388.89
	2,045.82	7,291.64	*8,124.94	17,462.40
			6,278.40	15,590.93
1,800.00			2,750.00	61,900.99
7,562.50	7,972.31	4,345.38		9,875.00
1,000.00	500.00			1,759.83
			5,359.46	57,269.49
10,067.57	9,649.05	7,086.96		4,837.50
375.00	2,062.50	1,200.00	1,200.00	6,891.65
				3,891.66
				26,766.91
2,150.00	2,894.58	4,001.93	3,551.41	54,138.09
3,541.67	5,052.05	2,925.00	*788.89	144,874.13
10,737.22	9,799.58	5,975.00	*7,091.32	87,687.33
6,417.22	2,981.16	1,000.00	5,515.30	22,597.71
		1,935.36	5,281.55	49,570.63
10,010.02	9,599.37	13,614.41	9,741.70	5,999.97
				164,727.39
20,294.88	17,824.22	9,899.91	*12,568.95	67,979.46
4,637.50	5,850.00	4,500.00	4,262.50	5,553.34
600.00	1,200.00	1,200.00	1,270.00	53,812.79
			4,867.14	67,809.71
			*375.00	66,519.65
8,546.11	5,120.83	1,383.34		50,342.52
4,350.00				150,741.12
14,700.00	16,608.33	10,425.00	7,683.33	14,953.85
594.51				150,513.63
16,093.75	15,763.92	8,220.46	10,028.06	73,016.56
100.00	3,146.75	4,958.34	*6,196.60	16,171.35
750.00				130,291.61
14,805.88	9,389.80	6,204.55	5,891.87	4,791.66
				132,362.62
15,274.47	16,242.87	10,486.50	10,197.65	8,030.96
133,503.80	95,522.80	70,107.39	33,405.11	547,254.61
35,601.84	24,271.29	18,317.57	7,263.96	130,084.05
1,273.63				3,024.47
19,965.14	15,544.78	10,953.24	6,426.58	78,709.06
44,755.59	30,629.47	20,257.61	9,446.88	152,910.79
17,385.55	14,387.75	12,808.82	5,724.80	70,916.19
1,960.00	725.62	160.72		8,399.48

Table of Expenditures for Public Health Work for the Years

ACTIVITY, COUNTRY, AND STATE	July 1, 1913- Dec. 31, 1925	1926	1927	1928
GENERAL BUDGET (Cont.)				
Local Health Departments (Cont.)				
United States (Cont.)				
Mississippi Flood area (Cont.)				
Tennessee	\$.....	\$.....	\$1,574.86	\$2,307.36
Training Station			41,953.04	22,697.05
Foreign Countries ..	126,986.24	80,835.01	126,185.70	149,615.92
Canada	54,000.00	6,875.36	15,199.57	26,138.45
Central America				
Guatemala				
Santa Rosa				
Europe	20,326.08	36,818.70	78,362.35	86,729.80
Austria	2,823.85	4,678.31	4,136.98	3,631.88
Bulgaria			3,007.46	1,374.91
Czechoslovakia		297.62	4,318.76	10,730.74
France	3,441.75	18,657.19	24,486.47	19,728.57
Hungary		498.52	500.00	5,675.90
Irish Free State				5,675.80
Italy				
Poland	14,060.48	12,687.06	27,912.68	19,912.00
Rumania				
Spain				
Yugoslavia			14,000.00	20,000.00
Mexico				2,239.15
South America	52,296.82	36,533.64	27,934.56	27,673.62
Brazil	52,296.82	36,533.64	27,934.56	27,673.62
Paraguay				
The East	363.34		194.12	1,545.47
Ceylon			144.10	166.56
Fiji				
India				
Philippine Islands	363.34		50.02	
China, Shanghai				
Siam				1,378.91
West Indies		607.31	4,495.10	5,289.43
Puerto Rico		607.31	4,495.10	4,710.16
Jamaica				579.27
Bureaus for Study and Reform of Public Health Activities	92,811.43	30,644.22	34,390.90	26,654.59
Czechoslovakia	62,990.44	7,720.00	7,594.47	

* Reports incomplete.

1913-1932 Inclusive, Covering All Activities—Continued

1929	1930	1931	1932	Total
\$2,465.06	\$750.00	\$500.00	\$250.00	\$7,847.28
10,096.99	9,213.89	7,109.43	*4,292.89	95,363.29
171,758.21	155,394.29	146,355.81	98,985.01	1,056,116.19
38,806.84	43,697.19	36,818.97	*33,758.95	255,295.33
		510.00	*.....	510.00
93,231.81	79,080.36	77,626.73	41,174.55	513,350.38
7,081.63	7,509.94	5,156.00	*.....	35,018.59
1,273.28				5,655.65
7,627.25	6,414.99	6,410.85	*999.89	36,800.10
17,101.22	13,143.20	4,793.12		101,351.52
10,716.28	16,430.06	24,004.37	*20,818.80	78,643.93
10,195.82	12,912.38	16,246.10	*3,172.76	48,202.86
		3,930.34	3,413.86	7,344.20
23,669.70	15,781.91	6,971.00	*.....	120,994.83
15,566.63	6,887.88	4,927.85	3,977.61	8,905.46
		5,187.10	8,791.63	36,433.24
				34,000.00
4,402.03	4,672.60	9,794.52	*7,705.37	28,813.67
16,770.99	3,683.15			164,892.78
16,710.77	3,683.15			164,832.56
60.22				60.22
10,530.22	13,120.88	10,337.24	11,333.11	47,424.38
				310.66
			3,676.78	3,676.78
3,168.91	6,410.76	5,205.14	5,500.26	20,285.07
491.63	900.62	2,824.42	2,156.07	6,786.10
6,869.68	5,809.50	2,307.68		14,986.86
				1,378.91
8,016.32	11,140.11	11,268.35	5,013.03	45,829.65
5,232.06	5,704.93	5,469.10	*2,135.23	28,353.89
2,784.26	5,435.18	5,799.25	*2,877.80	17,475.76
18,294.92	11,794.79	9,822.24		224,413.09
				78,304.91

Table of Expenditures for Public Health Work for the Years

ACTIVITY, COUNTRY, AND STATE	July 1, 1913- Dec. 31, 1925	1926	1927	1928
GENERAL BUDGET (Cont.)				
Bureaus for Study and Reform of Public • Health Activities (Cont.)				
France.....	\$18,638.69	\$10,614.56	\$12,212.76	\$11,932.79
Hungary.....	4,987.67	5,000.00	4,991.74	4,993.83
Poland.....	6,194.63	7,309.66	9,591.93	9,727.97
Health Organization of League of Nations..	444,457.63	126,942.14	124,321.20	123,497.81
Interchange of Public Health Personnel..	269,319.71	73,484.58	49,817.98	51,206.90
Epidemiological In- telligence and Public Health Sta- tistics Service, and Center of Public Health Documen- tation.....	141,797.18	40,810.43	49,503.22	58,587.35
Epidemiological In- telligence Bureau, Far East.....	26,802.27	12,647.13	25,000.00	13,703.56
Travel expenses of delegate to public health conference	3,087.38			
Conference in Singa- pore.....	3,451.09			
Public Health Educa- tion.....	1,071,830.84	357,872.42	360,284.53	325,936.61
Fellowships.....	825,050.41	270,661.77	262,109.47	289,078.69
Study and training courses and travel of visiting scien- tists and health workers.....	86,736.26	48,174.21	42,498.76	46,407.49
Training Stations...	20,340.44	8,568.24	12,702.46	25,214.71
United States...	20,340.44	8,568.24	12,702.46	19,784.90
Johns Hopkins University...				
Alabama.....	20,340.44	8,568.24	6,024.80	11,795.11
Michigan.....				
Ohio.....			6,677.66	7,989.79
Foreign Countries				5,429.81
Canada.....				
India.....				
Italy.....				5,429.81
Nigeria.....				

* Reports incomplete.

† Appropriations for 1930 and subsequent years were made direct by The Rockefeller Foundation.

1913-1932 Inclusive, Covering All Activities—Continued

1929	1930	1931	1932	Total
\$11,794.97	\$11,794.79	\$9,822.24	*\$.....	\$86,810.80
1,500.00				21,473.24
4,999.95				37,824.14
123,905.27	†.....			943,124.05
49,830.39				493,659.56
53,780.97				344,479.15
20,293.91				98,446.87
				3,087.38
				3,451.09
440,643.91	382,862.97	375,030.16	320,254.45	3,634,715.89
328,126.24	287,157.19	*275,992.80	*204,555.90	2,662,732.55
52,602.05	46,640.85	43,001.46	*29,769.25	395,830.33
8,514.60	14,678.86	19,771.69	32,536.39	142,324.39
2,859.06	6,466.69	2,723.00	8,832.88	82,277.67
			6,923.88	6,923.88
				46,728.59
1,831.31	6,466.69	2,723.00	1,909.00	12,930.00
1,027.75				15,695.20
5,655.54	8,209.17	17,048.69	23,703.41	60,046.62
456.62	4,250.36	4,875.00		9,581.98
			50.66	50.66
5,198.92	3,958.81	2,982.56	2,940.68	20,510.78
		9,191.13	20,712.07	29,903.20

Table of Expenditures for Public Health Work for the Years

ACTIVITY, COUNTRY, AND STATE	July 1, 1913- Dec. 31, 1925	1926	1927	1928
GENERAL BUDGET (Cont.)				
Public Health Educa- tion (Cont.)				
Teaching of hygiene in medical schools	\$34.69	\$5,500.00	\$5,899.46	\$.....
Committee of As- sociation of American Medi- cal Colleges.	34.69	.....	.....	.....
Study.....	.....	.....	.....	.....
Harvard Medical School .....	.....	.....	.....	.....
Preparation of syllabus .....	.....	5,500.00	5,899.46	.....
Central Medical School for Native Medical Students, Suva, Fiji .....	.....	.....	9,660.00	25,752.59
First Midwifery School, Peiping, China .....	.....	.....	.....	.....
Schools of Hygiene and Institutes of Public Health,				
Maintenance	139,669.04	24,968.20	27,414.38	19,483.13
Brazil, São Paulo	91,906.92	25.95	.....	.....
England, London	35,962.12	20,262.25	19,414.38	19,483.13
Hungary, Buda- pest .....	.....	.....	3,680.00	.....
Norway, Oslo .. (School) .....	.....	.....	.....	.....
Norway, Oslo (Institute) ..	.....	.....	.....	.....
Poland, Warsaw	11,800.00	4,680.00	4,320.00	.....
Schools of Nursing ..	.....	.....	.....	.....
University of Washington, Seattle .....	.....	.....	.....	.....
Washington Uni- versity, St. Louis	.....	.....	.....	.....
Control and Investiga- tion of Specific Dis- eases	8,109,369.42	828,081.90	672,110.20	558,064.41
Hookworm	3,080,981.94	175,977.76	143,638.71	94,245.99
Control	2,899,453.51	149,047.17	108,725.75	60,806.83
United States †	439,111.04	.....	.....	.....
Alabama	29,825.82	.....	.....	.....
Arkansas	1,520.03	.....	.....	.....

* Reports incomplete.

† In September, 1917, the hookworm work in the Southern States began to be absorbed into the some states than in others, it was not possible to announce until the end of 1920 that in all the states for all efforts directed toward the relief and control of hookworm and other soil-borne diseases.

1913-1932 Inclusive, Covering All Activities—Continued

1929	1930	1931	1932	Total
\$.....	\$.....	\$.....	\$.....	\$11,434.15
.....	.....	.....	.....	34.69
.....	.....	.....	.....	11,399.46
20,867.30	15,388.56	6,531.64	621.58	78,821.67
1,982.51	11,488.50	5,317.36	5,564.72	24,353.09
28,551.21	7,512.01	17,848.64	39,800.88	305,247.49
.....	.....	.....	.....	91,932.87
24,295.83	.....	.....	25,000.00	144,417.71
2,807.02	2,122.56	8,066.01	*728.73	17,404.32
.....	1,277.85	2,353.08	.....	3,630.93
1,448.36	4,111.60	7,429.55	*1,075.23	14,064.74
.....	.....	.....	12,996.92	33,796.92
.....	.....	6,566.57	7,405.75	13,972.32
.....	.....	2,499.91	4,278.94	6,778.85
.....	.....	4,066.66	3,126.81	7,193.47
593,285.61	626,026.55	805,941.73	887,827.33	13,000,707.15
77,678.29	55,396.04	52,452.43	58,913.04	3,739,284.20
39,498.14	11,600.47	9,863.15	11,561.44	3,290,556.46
.....	.....	.....	.....	439,111.04
.....	.....	.....	.....	29,825.82
.....	.....	.....	.....	1,520.03

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

Table of Expenditures for Public Health Work for the Years

ACTIVITY, COUNTRY, AND STATE	July 1, 1913- Dec. 31, 1925	1926	1927	1928
GENERAL BUDGET (Cont.)				
Control and Investiga- tion of Specific Dis- eases (Cont.)				
Hookworm (Cont.)				
Control (Cont.)				
United States				
(Cont.)				
Georgia	\$37,561.08	\$.....	\$.....	\$.....
Kentucky	30,536.72	.....	.....	.....
Louisiana	6,309.34	.....	.....	.....
Mississippi	66,106.48	.....	.....	.....
North Carolina	37,754.96	.....	.....	.....
South Carolina	65,072.26	.....	.....	.....
Tennessee	54,649.32	.....	.....	.....
Texas	53,688.83	.....	.....	.....
Virginia	51,289.28	.....	.....	.....
County dis- pensary work in the South	4,796.92	.....	.....	.....
Foreign coun- tries	2,460,342.47	149,047.17	108,725.75	60,806.83
Caribbean Area	585,213.49	21,647.96	12,252.21	15,090.67
British Gui- ana	73,957.52	.....	.....	.....
Dutch Guiana	60,073.91	.....	.....	.....
West Indies				
Antigua	15,870.14	.....	.....	.....
Grenada	39,307.32	.....	.....	.....
Haiti	10,095.96	.....	.....	.....
Jamaica	81,021.66	15,902.41	9,648.49	6,436.07
Puerto Rico	87,312.14	5,745.55	2,603.72	8,654.60
St. Lucia	82,009.02	.....	.....	.....
St. Vincent	22,889.48	.....	.....	.....
Trinidad	101,645.23	.....	.....	.....
Administration	11,031.11	.....	.....	.....
Central America	604,877.27	15,050.40	9,919.77	6,618.89
Costa Rica	121,354.32	750.00	.....	.....
Guatemala	119,800.59	4,474.41	3,138.04	1,740.21
Honduras	11,662.70	.....	.....	.....
Nicaragua	109,780.90	.....	.....	.....
Panama	195,294.50	9,825.99	6,781.73	4,878.68
Salvador	45,366.89	.....	.....	.....
Administra- tion	1,617.37	.....	.....	.....

1913-1932 Inclusive, Covering All Activities—Continued

1929	1930	1931	1932	Total
\$.....	\$.....	\$.....	\$.....	\$37,561.08
.....				30,536.72
.....				6,309.34
.....				66,106.48
.....				37,754.96
.....				65,072.26
.....				54,649.32
.....				53,688.83
.....				51,289.28
.....				4,796.92
39,498.14	11,600.47	9,863.15	11,561.44	2,851,445.42
14,206.28				648,410.61
.....				73,957.52
.....				60,073.91
.....				15,870.14
.....				39,307.32
.....				10,095.96
3,403.28				116,411.91
10,803.00				115,119.01
.....				82,009.02
.....				22,889.48
.....				101,645.23
.....				11,031.11
2,772.17				639,238.50
.....				122,104.32
.....				129,153.25
.....				11,662.70
.....				109,780.90
2,772.17				219,553.07
.....				45,366.89
.....				1,617.37

Table of Expenditures for Public Health Work for the Years

ACTIVITY, COUNTRY, AND STATE	July 1, 1913- Dec. 31, 1925	1926	1927	1928
GENERAL BUDGET (Cont.)				
Control and Investiga- tion of Specific Dis- eases (Cont.)				
Hookworm (Cont.)				
Control (Cont.)				
Foreign Coun- tries (Cont.)				
Europe.....	\$5,647.57	\$939.00	\$1,517.39	\$3,155.86
Spain.....	5,647.57	939.00	1,517.39	3,155.86
Mexico.....	40,077.93	13,606.00	6,855.39	
South America.....	875,076.16	54,266.75	39,723.68	20,939.45
Brazil.....	781,056.12			
Colombia.....	65,465.65	34,920.11	24,762.95	14,813.01
Paraguay.....	28,554.39	19,346.64	12,436.98	5,544.72
Venezuela.....			2,523.75	581.72
The East.....	349,450.05	43,537.06	38,457.31	15,001.96
Australia.....	94,578.73			
British North Borneo.....	4,782.10			
Ceylon.....	48,817.73	332.21		
China.....	8,099.03			
Egypt.....	16,769.60			
Fiji Islands.....	15,595.94			
India.....	19,925.85	4,497.94	4,258.40	3,547.80
Java.....	7,985.03	10,410.92	8,471.49	
Mauritius.....	4,315.60			
Sarawak.....			584.42	
Seychelles Is- lands.....	18,047.31	229.38		
Siam.....	79,355.11	15,890.97	12,279.42	5,120.44
South Pacific Islands.....	230.04		800.00	
Straits Settle- ments.....	4,436.38	12,175.64	12,063.58	6,333.72
Administra- tion.....	26,511.60			
Investigations.....	106,541.90	26,822.10	34,881.55	33,375.05
Alabama.....	12,057.15	3,630.34	3,839.46	6,226.18
Mississippi.....				
Brazil.....	1,227.31			
Ceylon.....	460.91			
Egypt.....			5,236.79	
India.....				
Western Samoa (hookworm and yaws).....				

1913-1932 Inclusive, Covering All Activities—Continued

1929	1930	1931	1932	Total
\$2,806.91	\$2,015.61	\$213.05	\$.....	\$16,295.39
2,806.91	2,015.61	213.05	.....	16,295.39
				60,539.32
13,899.15	6,981.08	5,472.45	11,561.44	1,028,020.16
				781,056.12
13,725.26	6,981.08	5,472.45	10,803.54	176,944.05
				66,156.62
			757.90	3,863.37
5,713.63	2,603.78	4,177.65		458,941.44
				94,578.73
				4,782.10
				49,149.94
				8,099.03
4,692.69	2,603.78	4,177.65		28,243.72
				15,595.94
				32,229.99
				26,867.44
				4,315.60
				584.42
				18,276.69
1,020.94				113,666.88
				1,030.04
				35,009.32
				26,511.60
38,180.15	43,795.57	42,589.28	47,351.60	373,537.20
8,021.32	9,734.28	16,160.58	14,638.80	74,308.11
			1,557.70	1,557.70
				1,227.31
				460.91
4,244.06	4,562.43	5,381.80	4,122.89	23,547.97
			102.04	102.04
			4,117.91	4,117.91

Table of Expenditures for Public Health Work for the Years

ACTIVITY, COUNTRY, AND STATE	July 1, 1913- Dec. 31, 1925	1926	1927	1928
GENERAL BUDGET (Cont.)				
Control and Investiga- tion of Specific Dis- eases (Cont.)				
Hookworm (Cont.)				
Investigations (Cont.)				
Research in life history of hookworm eggs and larvae.....	\$35,774.65	\$18,903.19	\$7,876.34	\$7,152.85
Research on car- bon tetrachlo- ride.....	16,208.21	4,288.57	17,928.96	19,996.02
Study of meth- ods of diag- nosing hook- worm disease	1,302.52	.....	.....	.....
Study of hook- worm in the pig	515.93	.....	.....	.....
Uncinariasis Commission to Orient.....	38,995.22	.....	.....	.....
Surveys.....	40,127.82	.....	.....	.....
United States.....	28,309.39	.....	.....	.....
Georgia.....	28,309.39	.....	.....	.....
Foreign Coun- tries.....	11,818.43	.....	.....	.....
Central America				
British Hon- duras.....	2,982.17	.....	.....	.....
South America				
Colombia....	1,984.82	.....	.....	.....
The East				
British Solo- mon Islands	841.65	.....	.....	.....
West Indies....	6,009.79	.....	.....	.....
Barbadoes....	515.04	.....	.....	.....
Cayman Is- lands.....	222.93	.....	.....	.....
Dominica....	930.14	.....	.....	.....
Jamaica.....	1,671.82	.....	.....	.....
Montserrat- Nevis.....	322.42	.....	.....	.....

* Reports incomplete.

13-1932 Inclusive, Covering All Activities—Continued

1929	1930	1931	1932	Total
\$6,837.13	\$6,268.61	\$4,661.98	\$3,526.31	\$90,981.06
19,097.64	23,230.25	16,384.92	*19,285.95	136,420.52
.....				1,302.52
.....				515.93
.....				38,995.22
.....				40,127.82
.....				28,309.39
.....				28,309.39
.....				11,818.43
.....				2,982.17
.....				1,984.82
.....				841.65
.....				6,009.79
.....				515.04
.....				222.93
.....				930.14
.....				1,671.82
.....				322.42

Table of Expenditures for Public Health Work for the Years

ACTIVITY, COUNTRY, AND STATE	July 1, 1913- Dec. 31, 1925	1926	1927	1928
GENERAL BUDGET (Cont.)				
Control and Investiga- tion of Specific Dis- eases (Cont.)				
Hookworm (Cont.)				
Surveys (Cont.)				
West Indies				
(Cont.)				
Puerto Rico...	\$525.52	\$.....	\$.....	\$.....
Santo Do- mingo.....	388.09	.....	.....	.....
St. Kitts.....	1,007.92	.....	.....	.....
Tobago.....	425.91	.....	.....	.....
Miscellaneous.....	34,858.71	108.49	31.41	64.11
Conferences of health officers	7,552.87	.....	.....	.....
Motion picture film on hook- worm disease	4,437.13	108.49	31.41	64.11
Thymol for dis- tribution to field stations	15,476.21	.....	.....	.....
Salvador				
Portable house and office.....	6,623.04	.....	.....	.....
Loss from earthquake	406.46	.....	.....	.....
Dutch Guiana				
Care and stor- age of mo- tor-boat....	363.00	.....	.....	.....
Malaria.....	743,549.25	177,801.93	201,343.68	188,553.09
Control.....	545,785.98	136,299.27	157,255.10	155,587.51
United States...	494,344.84	58,314.44	55,596.92	34,534.83
Alabama.....	32,943.69	6,306.38	7,540.95	.....
Arkansas.....	33,736.47	.....	.....	.....
Florida.....	1,125.00	.....	.....	.....
Georgia.....	14,830.71	2,841.52	2,755.04	5,443.28
Illinois.....	5,472.24	.....	.....	.....
Louisiana.....	51,538.03	4,383.12	3,642.04	2,860.36
Mississippi....	171,157.01	12,983.13	12,749.59	12,232.64
Missouri.....	11,825.25	1,367.75	.....	.....
North Caro- lina.....	45,688.17	4,404.42	4,555.60	.....
South Caro- lina.....	57,332.97	9,700.00	10,800.00	5,800.00
Tennessee....	15,046.09	5,978.95	4,108.34	1,500.00
Texas.....	16,158.25	.....	.....	.....
Virginia.....	37,490.96	10,349.17	9,445.36	6,698.55

1913-1932 Inclusive, Covering All Activities—Continued

1929	1930	1931	1932	Total
\$.....	\$.....	\$.....	\$.....	\$525.52
.....	.....	.....	.....	388.09
.....	.....	.....	.....	1,007.92
.....	.....	.....	.....	425.91
.....	.....	.....	.....	35,062.72
.....	.....	.....	.....	7,552.87
.....	.....	.....	.....	4,641.14
.....	.....	.....	.....	15,476.21
.....	.....	.....	.....	6,623.04
.....	.....	.....	.....	406.46
.....	.....	.....	.....	363.00
189,310.29	154,478.13	172,702.11	162,764.46	1,990,502.94
154,109.42	120,805.21	112,062.79	103,354.50	1,485,259.78
28,988.30	15,396.07	12,114.22	6,782.14	706,071.76
.....	.....	.....	.....	46,791.02
.....	.....	.....	.....	33,736.47
.....	.....	.....	.....	1,125.00
6,675.00	3,500.00	3,345.63	3,079.88	42,471.06
.....	.....	.....	.....	5,472.24
1,468.40	1,585.32	1,050.00	600.00	67,127.27
11,748.88	8,310.75	6,718.59	3,102.26	239,002.85
.....	.....	.....	.....	13,193.00
.....	.....	.....	.....	34,648.19
4,200.00	.....	.....	.....	87,832.97
.....	.....	.....	.....	26,633.38
.....	.....	.....	.....	16,158.25
4,896.02	2,000.00	1,000.00	.....	71,880.06

Table of Expenditures for Public Health Work for the Years

ACTIVITY, COUNTRY, AND STATE	July 1, 1913- Dec. 31, 1925	1926	1927	1928
GENERAL BUDGET (Cont.)				
Control and Investiga- tion of Specific Dis- eases (Cont.)				
Malaria (Cont.)				
Control (Cont.)				
Foreign Countries	\$51,441.14	\$77,984.83	\$101,658.18	\$121,052.68
Central America	6,931.48			
Costa Rica...				
Guatemala...				
Nicaragua...	6,931.48			
Panama...				
Europe...		46,267.83	73,127.74	98,303.98
Albania...				
Bulgaria...				7,239.57
Italy...		46,267.83	73,127.74	84,691.03
Spain...				6,373.38
South America	44,509.66	31,240.36	28,041.28	21,766.31
Argentina...	3,907.01	18,633.65	18,978.73	11,040.37
Brazil...	37,351.13	12,606.71	9,062.55	10,026.58
Ecuador...	3,251.52			
Venezuela...				699.36
The East				
India...				
West Indies...		476.64	489.16	982.39
Grenada...				
Puerto Rico...		476.64	489.16	982.39
Investigations and Surveys...	181,864.58	40,209.06	44,088.58	32,965.58
United States	39,835.81	21,082.16	21,958.60	13,925.58
Alabama...			214.31	378.52
Florida...				
Georgia...	26,031.55			
Louisiana...	205.17			
Maryland...	2,927.74			
Mississippi...	2,875.44			
North Caro- lina...	1,028.43	15,116.94	15,185.86	8,626.57
Studies at Johns Hop- kins School of Hygiene and Public Health...	5,994.67	4,240.22	4,061.55	3,670.49
Studies at University of Chicago	772.81	1,725.00	2,496.88	1,250.00

* Reports incomplete.

1913-1932 Inclusive, Covering All Activities—Continued

1929	1930	1931	1932	Total
\$125,121.12	\$105,409.14	\$99,948.57	\$96,572.36	\$779,188.02
	1,500.00	4,093.94	4,637.30	17,162.72
	1,500.00	1,500.00	1,500.00	4,500.00
			539.20	539.20
			*286.30	7,217.78
		2,593.94	*2,311.80	4,905.74
108,488.75	97,131.46	89,189.13	73,693.70	586,202.59
		9,555.75	10,404.33	19,960.08
8,515.39	15,507.50	17,035.42	17,397.04	65,694.92
94,311.75	79,130.20	57,106.43	41,580.01	476,214.99
5,661.61	2,493.76	5,491.53	4,312.32	24,332.60
12,222.50	61.95			137,842.06
6,933.88				59,493.64
4,825.81				73,872.78
462.81	61.95			3,251.52
				1,224.12
			1,338.42	1,338.42
4,409.87	6,715.73	6,665.50	16,902.94	36,642.23
	211.00	612.36	1,798.16	2,621.52
4,409.87	6,504.73	6,053.14	15,104.78	34,020.71
35,200.87	33,672.92	60,639.32	59,409.96	488,050.87
5,764.65	2,948.34	16,470.43	17,922.92	139,908.49
				592.83
		13,471.27	15,046.97	28,518.24
				26,031.55
				205.17
				2,927.74
				2,875.44
1,891.67				41,849.47
2,623.39	950.00			21,540.32
1,249.59	1,998.34	2,999.16	2,875.95	15,367.73

Table of Expenditures for Public Health Work for the Years

ACTIVITY, COUNTRY, AND STATE	July 1, 1913- Dec. 31, 1925	1926	1927	1928
GENERAL BUDGET (Cont.)				
Control and Investiga- tion of Specific Dis- eases (Cont.)				
Malaria (Cont.)				
Investigations and Surveys (Cont.)				
Foreign Countries	\$142,028.77	\$19,126.90	\$22,129.98	\$19,040.00
Europe	31,191.15	12,531.40	16,208.94	12,241.93
Albania				
Austria	4,483.99			
France, Cor- sica	3,363.52	5,280.38	5,267.94	5,374.70
Greece				
Italy	23,343.64			
Italy and Ger- many				
Netherlands			5,092.20	6,867.23
Spain		7,251.02	5,848.80	
Yugoslavia				
South America	38,287.48		2,522.90	
Argentina	1,965.39			
Brazil	36,322.09			
Colombia				
Colombia anopheline survey				
Venezuela			2,522.90	
The East	18,106.24	6,595.50	3,398.14	5,052.26
India				452.38
Palestine	2,936.89		638.30	400.16
Philippine Is- lands	15,169.35	6,595.50	2,759.84	4,199.72
West Indies	54,443.90			1,745.81
Jamaica				1,745.81
Puerto Rico	54,443.90			
Grenada anopheline survey				
Miscellaneous	15,898.69	1,293.60		
Conference of malaria work- ers	2,431.33			
Motion picture film	10,522.77			
Entomological studies in the field	2,944.59	1,293.60		

1913-1932 Inclusive, Covering All Activities—Continued

1929	1930	1931	1932	Total
\$29,436.22	\$30,724.58	\$44,168.89	\$41,487.04	\$348,142.38
12,664.52	21,194.77	30,895.74	30,241.06	167,169.51
		1,000.00	4,000.00	5,000.00
				4,483.99
5,394.28	3,387.57	401.16		28,669.55
	9,933.28	17,590.43	16,634.49	44,158.20
		1,832.53	1,933.36	27,109.53
		2,346.99	2,996.61	5,343.60
4,912.43	6,036.57	5,920.91	4,676.60	33,505.94
				13,099.82
2,157.81	1,837.35	1,803.72		5,798.88
2,949.38		1,019.18	3,498.32	48,277.26
				1,965.39
			1,581.43	36,322.09
				1,581.43
2,949.38				2,949.38
		1,019.18	1,916.89	5,458.97
9,906.00	8,592.59	11,132.99	7,233.71	70,017.43
3,808.26	1,401.50	756.79	452.80	6,871.73
				3,975.35
6,097.74	7,191.09	10,376.20	6,780.91	59,170.35
3,916.32	937.22	1,120.98	513.95	62,678.18
837.65	937.22	856.22	513.95	4,890.85
				54,443.90
3,078.67		264.76		3,343.43
				17,192.29
				2,431.33
				10,522.77
				4,238.19

Table of Expenditures for Public Health Work for the Years

ACTIVITY, COUNTRY, AND STATE	July 1, 1913- Dec. 31, 1925	1926	1927	1928
GENERAL BUDGET (Cont.)				
Control and Investiga- tion of Specific Dis- eases (Cont.)				
Yellow Fever	\$1,895,113.19	\$474,302.21	\$326,085.60	\$266,783.21
Control	1,610,904.36	404,335.58	153,397.74	84,692.28
Brazil	881,926.66	404,185.55	153,397.74	84,692.28
Colombia and Venezuela	73,730.37			
Countries bor- dering on Car- ibbean littoral and Amazon valley	14,920.82			
Ecuador	91,646.65			
Mexico and Cen- tral America	432,332.45	150.03		
Peru	116,347.41			
Investigations and Surveys	268,209.56	67,716.63	170,361.26	180,085.93
Bolivia				
Paraguay				
West Africa	69,693.50	57,700.76	160,746.72	151,268.55
Yellow Fever Commissions	153,598.20			
Vaccine and serum	21,786.06	5,867.94	5,142.89	2,141.08
Research and training	23,131.80	4,147.93	4,471.65	14,892.76
Laboratory at Bahia, Brazil				11,783.54
Surveys				
Miscellaneous	15,999.27	2,250.00	2,326.60	2,005.00
History of Yel- low Fever	15,999.27	2,250.00	2,326.60	2,005.00
Respiratory Diseases			1,042.21	2,680.32
Verruga Peruana				1,295.82
Tuberculosis	2,389,725.04			4,100.97
United States				
Cornell Univer- sity				
University of Pennsylvania				
Henry Phipps Institute				
Tennessee				

1913-1932 Inclusive, Covering All Activities—Continued

1929	1930	1931	1932	Total
\$314,288.37	\$366,648.42	\$440,632.39	\$534,749.11	\$4,618,602.5
131,752.26	179,904.18	260,684.09	380,453.58	3,206,124.0
131,752.26	179,904.18	260,684.09	380,453.58	2,476,996.3
				73,730.3
				14,920.8
				91,646.6
				432,482.4
				116,347.4
180,595.49	186,431.87	179,248.30	153,095.53	1,385,744.5
			2,298.49	2,298.4
			1,194.79	1,194.7
108,968.04	106,319.95	69,725.53	46,824.29	771,247.3
				153,598.2
				34,937.9
24,321.68	32,498.35	61,641.10	64,518.30	229,623.5
47,305.77	47,612.31	47,881.67	38,259.66	192,842.9
	1.26			1.2
1,940.62	312.37	700.00	1,200.00	26,733.8
1,940.62	312.37	700.00	1,200.00	26,733.8
4,442.37	8,765.36	8,989.07	1,153.26	27,072.5
				1,295.8
5,786.58	31,103.27	71,386.12	62,474.90	2,564,576.9
	20,000.00	40,000.00	40,886.97	100,886.9
			4,019.28	4,019.2
	20,000.00	40,000.00	20,000.00	80,000.0
			16,867.69	16,867.6

Table of Expenditures for Public Health Work for the Years

ACTIVITY, COUNTRY, AND STATE	July 1, 1913- Dec. 31, 1925	1926	1927	1928
GENERAL BUDGET (Cont.)				
Control and Investiga- tion of Specific Dis- eases (Cont.)				
Tuberculosis (Cont.)				
Foreign Countries..	\$2,389,725.04	\$.....	\$.....	\$4,100.97
France	2,389,725.04			
Inauguration of work	18,671.74			
Departmental organization..	210,690.31			
Public health visiting	369,320.58			
Educational di- vision	510,308.01			
Medical division	786,989.01			
Contingent fund	12,428.58			
Postgraduate tuberculosis courses	5,044.15			
National Com- mittee	44,635.62			
Central Admin- istration	431,637.04			
West Indies				
Jamaica				4,100.97
Epidemiological Studies				
United States				
Maryland				
Massachusetts..				
Tennessee				
Virginia				
Foreign Countries				
Mexico				
West Indies				
Puerto Rico (Anemia in- vestigations)				
Sanitation				405.01
Field Studies of bored-hole la- trines				
Ceylon				
Cook Islands..				

* Reports incomplete.

1913-1932 Inclusive, Covering All Activities—Continued

1929	1930	1931	1932	Total
\$5,786.58	\$11,103.27	\$31,386.12	\$21,588.01	\$2,463,689.99
				2,389,725.04
				18,671.74
				210,690.31
				369,320.58
				510,308.01
				786,989.01
				12,428.58
				5,044.15
				44,635.62
				431,637.04
5,786.58	11,103.27	31,386.12	21,588.01	73,964.95
	6,739.87	43,198.11	32,161.93	82,099.91
	6,739.87	19,273.66	22,417.37	48,430.90
			1,632.07	1,632.07
	3,823.39	11,603.50	*9,048.75	24,475.64
	2,916.48	7,670.16	11,736.55	22,323.19
		23,924.45	9,744.56	33,669.01
		1,274.97	2,174.28	3,449.25
		22,649.48	7,570.28	30,219.76
1,466.61	773.24	4,807.23	7,388.95	14,841.04
		1,392.85	*3,398.83	4,791.68
			893.19	893.19

Table of Expenditures for Public Health Work for the Years

ACTIVITY, COUNTRY, AND STATE	July 1, 1913- Dec. 31, 1925	1926	1927	1928
GENERAL BUDGET (Cont.)				
Control and Investiga- tion of Specific Dis- eases (Cont.)				
Sanitation (Cont.)				
Field Studies of bored-hole la- trines (Cont.)				
India	\$.....	\$.....	\$.....	\$405.01
Philippine Is- lands	.....	.....	.....	.....
Yaws Study	.....	.....	.....	.....
Jamaica	.....	.....	.....	.....
Western Samoa (See Hook- worm)	.....	.....	.....	.....
Undulant Fever	.....	.....	.....	.....
France	.....	.....	.....	.....
Public Health Sur- veys	.....	.....	.....	.....
India, Travancore	.....	.....	.....	.....
Field Service	3,964,122.12	666,773.33	678,066.41	712,918.89
Salaries	2,510,745.00	410,494.23	409,170.41	438,117.88
Commutation	268,808.64	44,316.83	46,028.06	49,113.13
Travel	835,556.29	150,000.00	159,993.69	159,004.67
Medical examination	3,395.60	634.60	718.00	400.00
Insurance and retire- ment	291,801.01	38,647.74	42,851.84	48,316.82
Bonding	21,171.97	4,382.63	3,541.03	2,873.75
Automobiles	7,065.10	2,379.59	1,333.60	Cr. 572.35
Drugs for conserving health of field staff	481.97	32.20	23.18	1.22
Training of staff members	*1,484.45	.....	.....	.....
Brazil. Central of- fice	23,312.39	15,885.51	14,406.60	15,663.77
The East. Office of the director	299.70	.....	.....	.....
Miscellaneous	191,933.37	10,760.61	16,988.76	19,279.89
Field equipment and supplies	66,138.27	5,302.81	13,486.60	14,694.95
Pamphlets and charts	43,937.57	6,290.94	1,549.04	4,072.07
Express, freight, and exchange	Cr. 134,076.99	Cr. 932.26	1,523.22	575.44

* Expenditures in subsequent years charged to Fellowships.

1913-1932 Inclusive, Covering All Activities—Continued

1929	1930	1931	1932	Total
\$1,466.61	\$773.24	\$743.88	\$327.90	\$3,716.64
.....	.....	2,670.50	2,769.03	5,439.53
.....	.....	.....	14,454.29	14,454.29
.....	.....	.....	14,454.29	14,454.29
.....	1,891.86	11,774.27	13,767.31	27,433.44
.....	1,891.86	11,774.27	13,767.31	27,433.44
313.10	230.36	.....	.....	543.46
313.10	230.36	.....	.....	543.46
705,208.08	705,511.22	743,853.77	729,637.77	8,905,291.39
441,997.31	454,920.53	501,013.35	501,530.55	5,667,989.26
44,782.55	42,042.98	43,748.03	41,761.19	580,601.41
154,593.72	152,637.39	151,563.62	133,705.65	1,897,055.03
527.00	514.25	730.20	1,000.00	7,919.65
49,919.86	46,524.09	44,080.20	50,196.52	612,338.08
2,763.03	2,955.14	1,918.37	1,143.86	40,749.78
.....	.....	.....	300.00	10,505.94
54.76	.....	.....	.....	593.33
.....	.....	.....	.....	1,484.45
10,569.85	5,916.84	.....	.....	85,754.96
.....	.....	.....	.....	299.70
12,031.36	14,503.63	13,147.10	11,803.79	290,448.51
6,802.02	5,389.48	5,926.08	6,920.81	124,661.02
4,699.43	8,250.00	6,820.76	4,519.28	80,139.09
455.58	864.15	400.26	363.70	Cr. 130,826.90

Table of Expenditures for Public Health Work for the Years

ACTIVITY, COUNTRY, AND STATE	July 1, 1913- Dec. 31, 1925	1926	1927	1928
GENERAL BUDGET (Cont.)				
Miscellaneous (Cont.)				
Hookworm and malaria films donated or lent	\$1,030.82	\$99.12	\$429.90	Cr. \$62.57
Surveys and exhibits	129,006.46			
Library	1,844.12			
Investigation of powdered milk	1,278.60			
Paris conference on International Nomenclature of Causes of Death	615.30			
Compilation of mining sanitary code	203.18			
Smallpox vaccine for Vera Cruz, Mexico	165.62			
Plans for laboratory at Nictheroy, Brazil	429.98			
Adviser in medical education	8,535.46			
Investigation of sewage disposal in rural homes	10,311.51			
Philippine Hospital Ship	44,000.00			
Medical Commission to Brazil	18,513.47			
BUILDINGS, EQUIPMENT, AND ENDOWMENT				
Schools and Institutes of Hygiene and Public Health	11,032,798.35	1,263,839.32	1,414,262.06	734,515.45
United States	9,421,622.05	25,000.00	137,250.00	49,500.00
Harvard University	2,325,534.25	25,000.00	137,250.00	49,500.00
Johns Hopkins University	7,096,087.80			
Foreign Countries	1,611,176.30	1,238,839.32	1,277,012.06	685,015.45
Brazil	3,595.40	46,900.00	23,987.00	117,264.88
Bahia	3,595.40			
São Paulo		46,900.00	23,987.00	117,264.88
Bulgaria, Sofia				
Canada, Toronto	262,500.00	162,500.00	12,500.00	250,000.00

1913-1932 Inclusive, Covering All Activities—Continued

1929	1930	1931	1932	Total
\$74.33	\$.....	\$.....	\$.....	\$1,571.60
				129,006.46
				1,844.12
				1,278.60
				615.30
				203.18
				165.62
				429.98
				8,535.46
				10,311.51
				44,000.00
				18,513.47
1,027,112.61	354,103.73	848,097.83	5,000.00	16,679,729.35
990,000.00				10,623,372.05
990,000.00				3,527,284.25
				7,096,087.80
37,112.61	354,103.73	848,097.83	5,000.00	6,056,357.30
				191,747.28
				3,595.40
				188,151.88
	89,710.69			89,710.69
		600,000.00		1,287,500.00

Table of Expenditures for Public Health Work for the Year

ACTIVITY, COUNTRY, AND STATE	July 1, 1913- Dec. 31, 1925	1926	1927	1928
BUILDINGS, EQUIPMENT, AND ENDOWMENT (Cont.)				
Schools and Institutes of Hygiene and Pub- lic Health (Cont.)				
Foreign Countries (Cont.)				
Czechoslovakia, Prague.....	\$221,083.34	\$160,475.99	\$95,054.50	\$189,212.0
Denmark, Copen- hagen.....	198,833.61	.....	.....	.....
England, London	465,000.20	689,628.33	969,783.48	.....
Hungary, Budapest	40,000.00	.....	60,297.54	43,648.4
Italy, Rome.....	.....	.....	.....	.....
Norway, Oslo.....	.....	86,050.00	100,626.54	.....
Poland, Warsaw..	292,500.00	.....	.....	.....
Trinidad, St. Au- gustine.....	4,851.25	4,885.00	4,872.00	4,890.0
Turkey, Angora..	.....	.....	.....	80,000.0
Yugoslavia.....	122,812.50	88,400.00	9,891.00	.....
Belgrade.....	33,950.00	.....	.....	.....
Zagreb.....	88,862.50	88,400.00	9,891.00	.....
Schools of Nursing ...	.....	30,210.85	99,483.51	.....
D. Anna Nery School of Nursing, Brazil	.....	30,210.85	99,483.51	.....

1913-1932 Inclusive, Covering All Activities—Continued

1929	1930	1931	1932	Total
\$31,192.90	\$107,024.29	\$.....	\$.....	\$804,043.10
.....	.....	.....	.....	198,833.61
.....	.....	.....	.....	2,124,412.01
1,047.71	.....	.....	.....	144,993.74
.....	52,368.75	243,097.83	.....	295,466.58
.....	.....	.....	.....	186,676.54
.....	.....	.....	.....	292,500.00
.....				
4,872.00	5,000.00	5,000.00	5,000.00	39,370.25
.....	100,000.00			180,000.00
.....				221,103.50
.....				33,950.00
.....				187,153.50
.....				129,694.36
.....				129,694.36

THE MEDICAL SCIENCES

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THE MEDICAL SCIENCES

Scope of Activities

Summary of Past Work

From the experience of The Rockefeller Foundation in its early public health activities, it became evident that the quality of medical education is a determining factor in effecting prevention and cure of disease. The first study of medical education by the Foundation was made in Brazil in 1916. Thereafter cooperation in the support of this work was gradually undertaken in a large number of countries. It required wide travel and study to learn at first hand the character of local medical problems in many countries. The history, status, objectives, and circumstances of medical education differ widely from country to country. A variety of economic and social conditions, as well as a multiplicity of needs, was encountered. To meet these needs a threefold program was adopted: aid to significant medical centers, establishment of fellowships, and support of research.

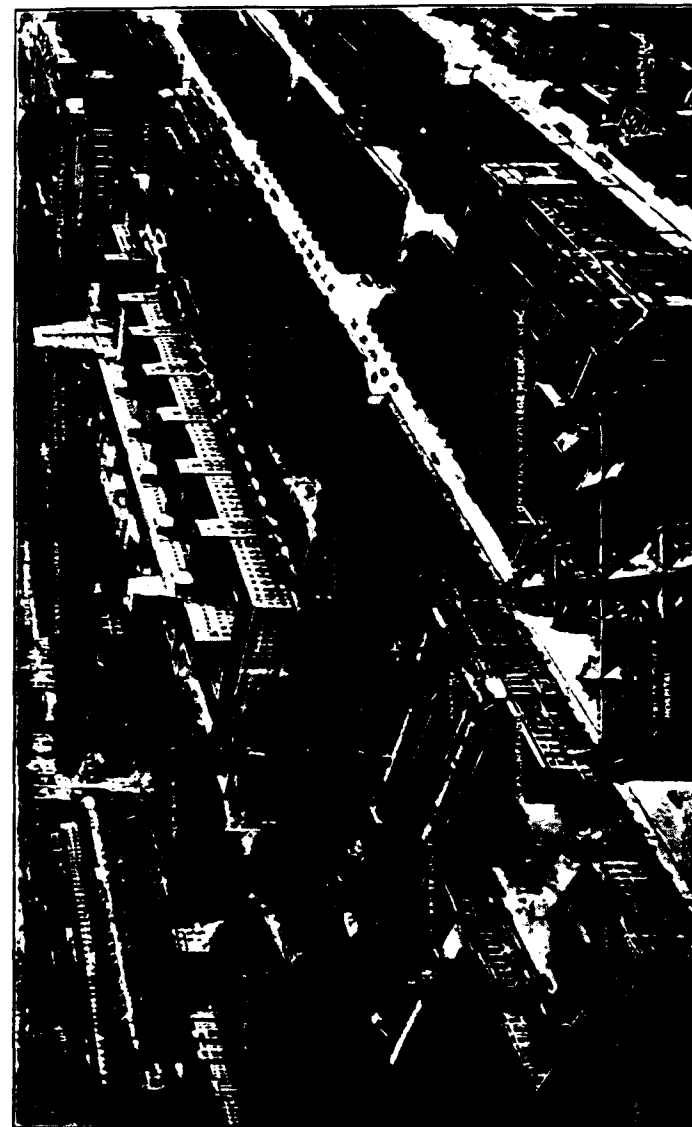
For ten years there was concentration on capital aid for buildings, or on endowment in certain centers. In England, for example, assistance was

given, not exclusively, but largely, to the University College Hospital Medical School, University of London. The wide importance of Edinburgh as a medical center was recognized in contributions to the University of Edinburgh for a clinical laboratory, endowment of the chair of surgery, and the provision of more space for laboratories, library, and research. The rôle of the universities of Cambridge and Oxford in preclinical years was strengthened by gifts of a building for pathology at Cambridge and a building for biochemistry at Oxford.

In the Far East, Peiping Union Medical College offered a center of wide influence and received a large degree of support from the Foundation. In Calcutta, the All-India Institute of Hygiene and Public Health was aided in the purchase of land and in the erecting and equipping of laboratories for advanced training of personnel.

The American University of Beirut, because of its regional importance as a training center for the Near East, was given aid to permit additions to the teaching staff in the preclinical subjects, to increase library and laboratory facilities, and to train men for teaching positions. Grants were made to the medical school for building, equipment, and endowment of teaching.

In a large number of instances, aid was given to schools of medicine possessing peculiar signifi-



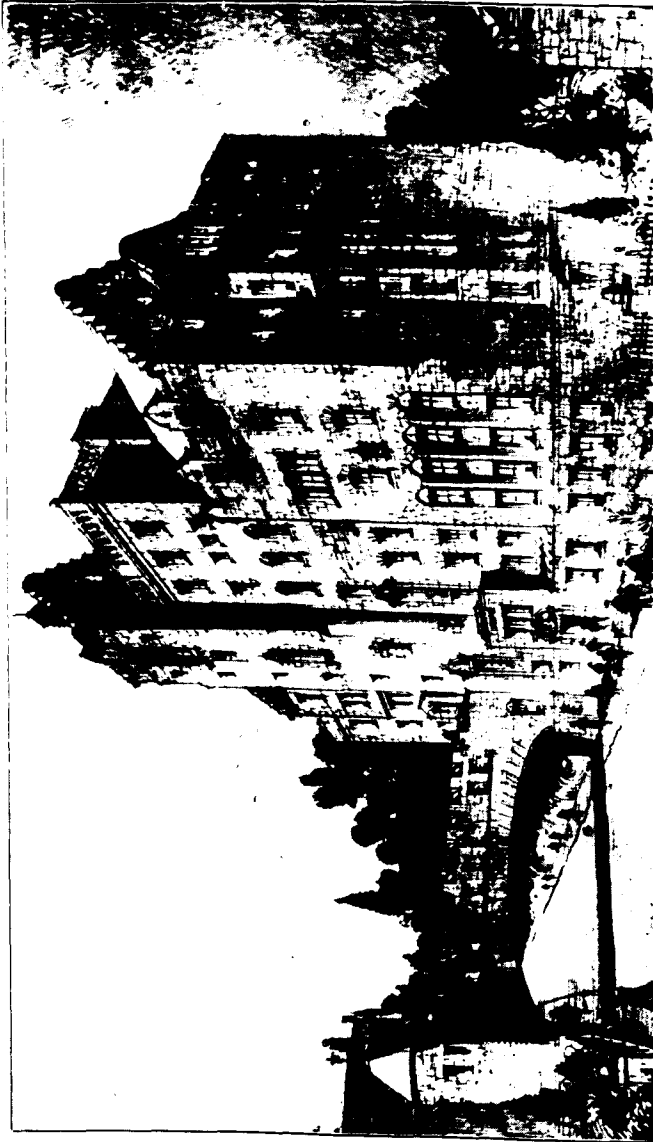
The University of London. University College Hospital and Medical School are seen in the middle foreground.
Courtesy of the Illustrated London News

cance within boundaries of political, geographical, or linguistic nature—schools of special promise or importance to a nation or region or language group. The grants in this category which have been made will be found listed in previous annual reports of the Foundation. In all cases assurance was received from the institutions aided that they would provide new buildings or increased maintenance. In this way the Foundation cooperated with, rather than merely contributed to, these institutions for the improvement of medical education.

The effectiveness and continuity of schools of medicine as of other human institutions depend on the recruitment and training of the oncoming generation. Through a system of fellowships, gifted young men were given opportunity to increase their experience and broaden their training.

Up to the end of 1932, 497 individuals from forty-eight countries, chiefly promising young teachers and investigators, were enabled, through foreign medical fellowships, to extend their studies in some country or countries other than their own. Special consideration was given to candidates in the fundamental medical sciences.

Moreover, funds for 341 medical fellowships were given to other agencies, such as the National Research Council in the United States, the



Neurological Institute, McGill University, Montreal, Canada.

Medical Research Council in Great Britain, the Notgemeinschaft der Deutschen Wissenschaft in Germany, and the Hungarian Scholarship Council, which took over the details of selection of candidates, payment of stipends, and general guidance. In addition, fellowships were given to twenty-four students of human biology, and funds were supplied to the Australian National Research Council, operating in the field of human biology.

The resident fellowship program, in force from 1923 to 1928, was developed especially in Germany and in Central European countries. It operated to retain a substantial number of young workers in the field of scientific medicine. Altogether 514 young men were enabled to continue their preparation to a point where they were capable of assuming salaried teaching positions. In addition, 223 resident fellowships were given in China during the period from 1927 to 1929.

Under the name of developmental aid, a limited number of professors in the medical sciences, in Italy, France, and Ireland, were offered the financial support necessary to select and to hold during a period of training a few students whom they believed capable of useful careers in schools of medicine. The total number of young men thus aided was about one hundred. These fellowship programs were based on the

merit and probable future accomplishment of the individual. Results are multiplied by time as long as the beneficiary lives and are not usually subject to early or rapid depreciation. Advantages of wider experience and better training are passed on to others, by reason of the institutional position of the returned fellow. It is reasonable to presume that the candidates also gain in tolerance, understanding, and breadth of sympathy through the finding of new friends in other lands.

In recent years the program in the medical sciences has developed increasing interest in research work. Laboratories for teaching and research have been aided at a number of institutions, such as the Pasteur Institute in Paris, the Institute of Physiology of the University of Copenhagen, the Institute of Pharmacology and the Laboratory of Physiology at the University of Utrecht, the Institute of Hygiene at the University of Nancy, the Institute for Psychiatric Research in Munich, and the Kaiser Wilhelm Institute for Brain Research at Buch, near Berlin.

This interest in the development and fostering of investigative work has continued to grow. Programs directly aimed at the advancement of knowledge, through improvement of clinical facilities and routine teaching laboratories, or

the fuller training of teaching personnel, have been emphasized. Numerous special projects in medical research have been aided. Brief accounts of all these projects have been presented in former Foundation annual reports. Aid has also been given to schools for the training of nurses.

Since 1924 the Foundation has issued a series of volumes entitled "Methods and Problems of Medical Education," containing articles written by administrators and teachers of medicine, describing new buildings, projects, and methods of teaching. These volumes are copiously illustrated with floor plans, other appropriate diagrams, and pictures. Copies of each volume have been distributed free to deans of medical schools and many other persons. The number of volumes issued up to the present time is twenty-one, containing in all 448 articles and over three thousand illustrations, constituting a storehouse of information on problems of building, equipment, organization, courses of study, methods of instruction, and other features of modern training in the science and art of medicine.

Present Program

From capital aid for buildings or endowment, interest has changed to emphasis on research

programs. But the field of medicine is so wide that in order to do effective research work it is necessary to proceed on a highly selective basis.

Special attention has been given to the field of psychiatry. The number of hospital beds devoted to the care of mental cases exceeds in many countries the number of hospital beds for all other diseases put together. How badly needed is knowledge in this field may be inferred from the economic, moral, social, and spiritual losses occasioned by the criminal insane, the delinquents, the feeble-minded, the emotionally unstable, and the psychopathic, and the widespread but preventable anxieties, tantrums, phobias, complexes, and unbalanced behavior of otherwise normal human beings.

Stress is therefore needed on studies throwing more light on the function of the nervous system, the rôle of internal secretions, the factors of heredity, the diseases affecting the mental and psychical phenomena, and in general the whole field of psychobiology. Advance in psychobiology has been retarded by social taboos, by isolation, routine, and the urgency and magnitude of the duties devolving upon the psychiatrist, as well as by the inherent difficulties of understanding mental aberration and disease. The field, however, may be immensely fruitful and further knowledge highly valuable.

Another field urgently calling for further development, both in teaching and in research, is that of hygiene. A number of projects touching upon this subject are receiving support. In the matter of hygiene there is close cooperation with the International Health Division of The Rockefeller Foundation. In general it is through preventive medicine and hygiene that medical science in the future will probably find its greatest applicability and effectiveness. Without comprehensive and practical instruction in public health, the cooperation which a physician can give public health officials as well as the service he can render his community and his patients will be defective.

Aid in the Fields of Neurology and Psychiatry

McGill University

Neurological Research

The largest appropriation of the year 1932 in the medical sciences, \$1,282,652, was made to McGill University, Montreal, Canada, for the establishment of a neurological institute. These funds provide for laboratory quarters and endowment for the departments of clinical neurology, neurosurgery, neurophysiology, and neuropathology. In addition to engaging in research activities, the institute will train teachers and investigators in the field of mental and nervous

diseases. The guidance of the institute is entrusted to a strong staff of capable men, headed by Dr. Wilder Penfield, who has done outstanding work in brain surgery.

Of the sum mentioned above, \$50,000 was appropriated toward the expenses during the year of the development of teaching and research in neurology, neurosurgery, and the physiology and pathology of the nervous system; \$232,652 was given toward the construction and equipment of a laboratory at the site of the Royal Victoria Hospital; and the remaining \$1,000,000 was for the endowment of the institute, payable on completion of the laboratory.

Kaiser Wilhelm Institute for Brain Research

In 1929 The Rockefeller Foundation appropriated \$317,000 toward the building program of the Kaiser Wilhelm Institute for Brain Research, Berlin-Buch, Germany. During 1931 new research laboratories and a small research hospital of forty beds were completed. Early opening of this hospital section, the maintenance of which is borne by the city of Berlin, calls for increased activities of the chemical section of the institute, which aims to study not only routine metabolic problems but also significant problems in chemotherapy. To provide maintenance for the chemical section until the end of the year 1933-34,

and funds for animals, equipment, and apparatus, including certain sensitive instruments for physiological studies, the Foundation in 1932 made a new appropriation of \$14,200. This will make possible investigations on the therapeutics of infections of the central nervous system.

Heredity and Genetics

National Research Council Committee for Research in Problems of Sex

In eleven years of activity the National Research Council Committee for Research in Problems of Sex has aided in organizing and conducting sex research in more than sixty laboratories, of which five have developed into important centers for work on some aspect of the biology of sex. Over five hundred scientific papers have appeared, which can be fairly credited to activity of this committee. A two-volume work on internal secretion and sex, which has just been published, represents reports on research wholly or partly financed by the committee. A large part of the work was done in connection with the general biology and physiology of sex in organisms other than man. The Foundation has appropriated the sum of \$75,000 to the National Research Council for the work of the Committee for Research in Problems of Sex, for the period of one year, beginning July 1, 1933.

Kaiser Wilhelm Institute of Anthropology, Human Heredity, and Genetics

This institute was established in 1927, at Berlin-Dahlem, as one of six medical institutes administered and supported largely by the Kaiser Wilhelm Gesellschaft. It carries out programs in physical and social anthropology, human heredity, and genetics, with emphasis on the close association of laboratory research with social problems.

The research work is directed by Professor Eugen Fischer, an acknowledged leader in this field, who has an adequately equipped laboratory building and a proficient professional and technical staff. He has outlined a program involving projects requiring long periods of observation and concerning especially the remote effects of injury to germ plasm through several generations of animals. The studies are of interest not only to medical science, but also to social and natural science. An appropriation of \$9,000 has been made to provide annual payments over a three-year period for research on twins and the effects of poisons on the germ plasm.

Other Research Projects

Radium Institute of Paris

In the absence of a promising method of direct attack upon the cancer problem, The Rockefeller

Foundation has declined requests for aid from cancer institutes attempting to discover a cure for the disease. It is possible that a thorough understanding of certain fields of biology, such as cell metabolism and factors of growth and heredity, may lead to more knowledge as to the cause of cancer. But meanwhile there is an important problem in the further knowledge of radium and x-ray emanation, for it is known that early diagnosis and effective knowledge of the use of radium and x-rays would reduce cancer mortality.

The sum of \$120,000 has been appropriated to the University of Paris, in support of work under the direction of Professor Claude François Regaud, of the division of biophysics of the Radium Institute. The purpose is to further biological research at this institute by provision of a full-time scientific staff.

The Radium Institute, which is connected with the University of Paris, comprises three divisions. The division of physics and chemistry is directed by Madame Curie and receives support from the University of Paris. The second division, that of biophysics, is directed by Professor Regaud, and partially supported by the Pasteur Institute. The third division, that of therapeutics, is administered by the Curie Foundation.

The Radium Institute of Paris is an effective center for the study of radiology from the physical, chemical, biological, and therapeutic points of view. A large number of persons from many countries visit Professor Regaud's laboratory each year.

The French Government has given extensive support to the construction of a hospital for the institute. Money for buildings and radium has been made available. The grant now made by The Rockefeller Foundation is for the purpose of providing full-time scientific personnel under the direction of Professor Regaud.

**The Johns Hopkins University Medical School
Department of Otology**

As a renewal of a grant made by the General Education Board in 1927, the Foundation has appropriated to the department of otology of the Johns Hopkins University Medical School, Baltimore, Maryland, the sum of \$105,000, for research work under Dr. Samuel J. Crowe. Payments will be made on a conditional basis over a period of seven years, beginning September 1, 1932.

Dr. Crowe and his staff have been engaged for the past six years in experimental work on the physiology and pathology of the special sense of hearing. As a result of this work, new fields in

the study of deafness have been opened to otologists and a new method for studying the sense of hearing in animals has been developed, which provides experimental controls of new operative procedures, one of which has already been applied, with success, to human patients.

Dr. Crowe's program for the coming years includes the following projects: correlation of observations on the acuity of hearing with various bodily disorders; studies of the physiology of the ear through employing the audiometer and radio amplifiers to action currents in the hearing centers; and the prevention of deafness by applying the knowledge gained through the foregoing studies to the physiology of hearing.

**Western Reserve Medical School
Research on Whooping Cough**

The Western Reserve Medical School, Cleveland, Ohio, has received from the Foundation a grant of \$25,000 in aid of research work on whooping cough, to be carried out over a four-year period by Dr. Gerald Shibley.

The cause of whooping cough is disputed, but it is supposed by many to be due to a virus. Although it attacks 60 to 80 per cent of the population before the age of sixteen years and the death rate is five times that for scarlet fever, no preventive or curative measures are as yet

available for the disease, and no extensive studies, especially with adequate laboratory control, have been made of its cause, treatment, and prevention. Dr. Shibley's studies will be conducted in cooperation with Dr. James A. Doull of the department of hygiene of Western Reserve University, who will supply the necessary epidemiological data. The Foundation's grant will cover the expenses of technicians' services, salary of an assistant physician, supplies, laboratory animals, and hospitalization of patients for study.

**Columbia and Washington Universities
Virus Research**

The sum of \$16,500 has been appropriated to Columbia University, New York, toward research on virus diseases, under Professor F. P. Gay, for a period of four years, beginning May 1, 1932. This work was begun in Professor Gay's department in 1925. Investigations of some half-dozen viruses have been undertaken, including vaccinia, poliomyelitis, rabies, and tobacco mosaic, as well as extensive studies of bacteriophage.

Support has also been given to Washington University, St. Louis, Missouri, through an appropriation of \$15,000, for research work on virus diseases under Dr. E. V. Cowdry, during a four-year period. At this university studies of

virus diseases have been conducted in the departments of histology, pathology, bacteriology, serology, and biochemistry, as well as in the clinics of internal medicine, contagious diseases, neurology, and pediatrics. Viruses cannot be cultivated in the absence of living cells. To make a study of cell composition and cell culture is one of the fundamental ways of learning more about the nature of virus diseases.

**University of Oregon Medical School
General Research Fund**

The Medical School of the University of Oregon, at Eugene, is the only center of medical education in the northwestern states of Washington, Idaho, and Oregon, an area with a population of almost three million. This school also draws students from Alaska and the State of Montana. At various times in former years the school has received grants from the General Education Board, amounting in all to nearly \$700,000. Because of the rapid growth of the school, teaching has necessarily occupied the principal place. The investigative work has been limited, but the school is now ready to apply itself to a few selected projects in research. The sum of \$13,000 has been appropriated by the Foundation as a general research fund to support these studies for a period of two years.

Continuation of Former Research Grants

The University of Rochester Medical School, Rochester, New York, has received Foundation support in continuing its studies in diathermy. In 1932 the sum of \$15,000 was granted toward investigations of the effects of heat as produced by radiation. Among conditions studied in which valuable therapeutic results have thus far been observed are general paresis, chronic rheumatism, gonorrheal arthritis, and cervicitis. Support for this work was also given by the university and by the General Electric Company.

An appropriation of \$15,000 was made to McGill University for aid in the development of research in surgery during 1933. Annual grants have been made for this work by The Rockefeller Foundation since 1929.

Continuation of Former Projects

In 1930 The Rockefeller Foundation renewed a program by which the Faculty of Medicine of the University of Montreal, Canada, received annual grants for a five-year period, toward the general development of its medical laboratories. In 1932, \$25,000 was appropriated for this purpose.

For the organization of extension of medical education by Albany Medical College, Albany, New York, the Foundation has for a number of

years been giving financial support. The aid provides for a regional extension of medical education and an experiment to aid the physicians and the general population of the surrounding districts to meet their own needs. During 1932, the fourth year of cooperation under this grant, the sum appropriated to the college was \$20,000.

The Foundation has been cooperating with the Medical School of Shantung Christian University, Tsinan, China, since 1916. An appropriation of \$18,000 was made in 1932 to provide for maintenance.

A grant of \$10,000 was made for research aid in the medical and natural sciences in China, and \$5,000 for developmental aid in these fields for the period of one year, beginning July 1, 1932.

As a continuation of a former program in the nature of emergency aid for supplying medical literature to certain countries in Europe, the sum of \$15,000 was appropriated in 1932 to libraries of medical institutes in Moscow and Leningrad, Russia, for the purchase of current medical journals.

Fellowships and Grants in Aid

Appropriations in 1932

For the regular fellowship program in the medical sciences there was appropriated in 1932 the sum of \$90,000. In addition, for fellowships

indirectly administered, there was appropriated to the Hungarian Scholarship Council, \$9,000; to the Notgemeinschaft der Deutschen Wissenschaft, \$30,000; and to the British Medical Research Council, \$30,000. For a research aid fund to provide grants for research workers in Europe, there was appropriated \$90,000.

Among the universities of Florence, Genoa, Milan, Naples, and Turin, there was apportioned the sum of \$12,500 appropriated in 1932 by the Foundation to make possible certain resident fellowships for capable young scientists in outstanding centers of teaching and research.

For the purpose of developing both teaching and research personnel, and with the hope of producing able workers in subjects connected with human personality, the Foundation has appropriated \$80,000 for fellowships in psychiatry over a period of years.

Number and Distribution of Fellowships

The Rockefeller Foundation during 1932 provided a total of 383 fellowships in the medical sciences and in nursing. As guests of the Foundation, twenty-five nurse leaders visited nursing centers, in many cases in countries other than their own. Twenty-two of these were from the United States, and one each from Belgium, Canada, and Poland.

The fellowships in the medical sciences supported and administered directly by the Foundation totaled ninety-nine. Thirteen of the ninety-nine fellows came from Siam; six each from Australia, Czechoslovakia, and Russia; five from Sweden; four each from Denmark, Germany, Syria, and the United States; three each from Argentina, Canada, China, England, France, India, Italy, and Poland; two each from Brazil, Finland, Iceland, Irish Free State, Japan, the Netherlands, Puerto Rico, and Spain; and one each from Austria, British East Africa, Estonia, Peru, the Philippines, Portugal, and Switzerland.

Eighteen of the fellows studied physiology; thirteen each, anatomy and related subjects (histology, embryology, cytology), and biochemistry; nine bacteriology; seven pathology; six surgery, neurosurgery, and genito-urinary surgery; five each, neurology, neuropathology, and neuropsychology, and medicine; four each, obstetrics and gynecology, pharmacology, and psychiatry; three each, genetics, hygiene and industrial hygiene, and immunology; two each, chemistry, mycology, physics, and virus diseases; one each, biology, biophysics, dermatology, history of medicine, malariology, medical entomology, parasitology, pediatrics, poliomyelitis, protozoology, radium therapy, and tissue culture. Among these, eighteen fellows studied

more than one subject. The studies were carried on in Austria, Belgium, Canada, China, Denmark, England, France, Germany, India, Italy, the Netherlands, Puerto Rico, Rumania, South Africa, Sweden, Switzerland, the United States, and Yugoslavia.

During 1932 fifteen persons held fellowships under the British Medical Research Council for work in Austria and the United States. Two studied urological surgery; and one each, bacteriology and epidemiology of undulant fever, physiology, child psychiatry, otology, cardiology, surgery, neurosurgery, genito-urinary surgery and gynecology, internal medicine, immunology, pharmacology, malariology, and endocrinology.

Under the Notgemeinschaft der Deutschen Wissenschaft, fifteen persons held fellowships for study in England, France, Italy, Sweden, Switzerland, and the United States. Three of these studied physiology; two, surgery; and one each, endocrinology, physical chemistry, general bacteriology and protozoan diseases, tissue culture, pathological anatomy of the nervous system, dermatology, medical statistics and heredity statistics, metabolism, veterinary medicine, pharmacology, and radiation.

Under the Hungarian Scholarship Council, four fellowships were held for study in the United States; one fellowship each was held for neurology

and psychiatry, pharmacology, anatomy, and pathology and pathohistology.

From funds supplied to the National Research Council in the United States for fellowships in medicine awarded to applicants of American or Canadian citizenship, thirty-nine fellowships were supported during 1932.

Funds were granted also to the Peiping Union Medical College for 120 fellowships for study in that college and twenty for study outside of China.

Foundation fellowships in nursing were held by forty-six fellows from fourteen countries: nineteen from the United States; five each from Hungary and Siam; two each from Czechoslovakia, England, Japan, the Philippines, Poland, and Syria; and one each from Bulgaria, Canada, Greece, Rumania, and Scotland.

Research Aid Grants

During 1932 the Foundation, by means of research aid grants in sums varying from \$250 to \$6,900, enabled sixty-six scientists or groups of scientists to carry on research work in the institutions with which they were connected. These grants in aid were distributed among the following countries: one to Argentina; two to Austria; one to Czechoslovakia; two to Denmark; five to England; one to Finland; thirteen to France;

nineteen to Germany; two to Hungary; eleven to Italy; one to Rumania; two to Russia; two to Sweden; and four to Switzerland.

The following grants in the fields of neurology and genetics are typical: \$3,000 to the Ministry of Public Instruction, Berlin, Germany, for research on constitutional diseases and psychophysiology, to be conducted by Dr. Walther Jaensch; \$2,500 to the Institute of Pathological Anatomy of the University of Basel, Switzerland, to foster research in the study of minute quantities of mineral elements in tissue cells through newer physical methods; \$3,000 to the Institute of Physiology of the University of Bern, Switzerland, for a cathode ray oscillograph essential to the successful continuation of Professor Leon Asher's researches on the excitation process in nerves; \$1,000 to the Institute of General Pathology of the University of Copenhagen, Denmark, to enable Professor Oluf Thomsen, the director, to develop further research on inheritance in relation to blood groupings; \$2,500 to Dr. Bernhard Zondek, assistant professor at the University of Berlin, to carry out investigations on hormones; \$2,500 to the Institute for Psychiatric Research, Munich, for investigations in spirochetal and other infections of the central nervous system; \$1,500 to Professor Ottfried Foerster, of the University of Breslau, Germany,

to carry out research work in neurology; \$2,500 to the Laboratory of Physiology of the University of Oxford, under Sir Charles Sherrington, to provide material and equipment for investigative work; \$2,000 to Charles Donald, London Hospital, to carry out training in neurosurgery with Dr. Hugh Cairns; \$2,500 to Professor Max Nonne, director of the Neurological Clinic, Hamburg, Germany, for scientific material and technical assistance for investigations on the effect of atmospheric pressure on the nervous system and studies on human muscle tone in relation to the central nervous system; \$2,250 to Dr. L. A. Orbeli, professor of physiology, at the Military-Medical Academy, Leningrad, Russia, and at the Leningrad Medical Institute, for the purchase of a string galvanometer and accessories for studies on the physiology of the nervous system; \$6,900 to the Institute of Physiology, Medical Faculty of the University of Halle am Saale, Germany, to enable Professor Emil Abderhalden, the director, to retain assistants for the research work he and his associates are doing; \$2,000 to Professor Otto Riesser, director of the Institute of Pharmacology and Experimental Therapy of the University of Breslau, to round out various problems on the nervous system and the metabolism of muscles.

THE MEDICAL SCIENCES
STAFF DURING 1932

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William S. Carter, M.D.

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NATURAL SCIENCES

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THE NATURAL SCIENCES

Summary of Past Program

Prior to 1929 the activities of The Rockefeller Foundation in the field of the natural sciences fell into three main groups: support of fellowships, projects in biology, and aid for the development of the premedical sciences in China. Total appropriations up to 1929 amounted to approximately \$4,640,000, of which \$1,832,000 was for fellowships, \$1,521,000 for biological projects, and \$1,287,000 for Chinese premedical projects.

Since 1929 there has been a diminishing emphasis on capital grants, but an increased emphasis on support directed to special fields of interest. Two new modes of support were developed, general research grants to institutions and grants in aid of special research projects.

The total appropriations of the Foundation for natural science projects from the beginning of 1929 to the end of 1932 amounted to approximately \$11,906,000. Of this sum, \$7,977,000 went for aid to institutions, including funds for construction, equipment, endowment, and maintenance; general research funds; and other research funds; and \$2,607,000 went for aid to individuals, com-

prising fellowships, research grants, research aid funds, and traveling professorships. For aid to publications there was appropriated the sum of \$417,000 and for premedical aid in China, \$905,000. The work to which support was given included projects in the fields of marine biology, oceanography, biology, physics, anthropoid research, astronomy, chemistry, geophysics, paleontology, geology, and mathematics.

During 1932 the work of former years was continued. The main features of the program were aid to a number of institutions and organizations, to individual research projects, and to a system of fellowships, travel grants, and grants in aid of research.

Aid to Institutions and Organizations

China Medical Board, Inc.

Paleontological Research in Asia

Since the remarkable discovery on December 2, 1929, of an uncrushed and almost complete brain case of *Sinanthropus pekinensis*, the site at Chou K'ou Tien, near Peiping, at which this find was made, has continued to furnish material of scientific importance. In 1930 another brain case, apparently that of a woman, was discovered. Fragments representing all portions of the jaw have now been found and pieced together.

During 1932 a report was made on skeletal

remains of *Sinanthropus*, other than skull parts, recovered at various times since 1928. These include a semilunar wrist bone, the greater part of a left clavicle, and a number of terminal phalanges.

"Black earth" found in the cave has been identified as charcoal. This carries with it inferences as to the use of fire by *Sinanthropus pekinensis*. A considerable number of quartz artifacts have been recovered. There can remain no doubt that *Sinanthropus* was of truly human status, nor can it be doubted that this maker of stone artifacts, crude though they be, must have had hands differing in no essential respect from our own.

A great volume of the original Chou K'ou Tien cave deposit still remains to be excavated. In 1932 The Rockefeller Foundation made, through the China Medical Board, Inc., two new appropriations in support of this work. The work is carried on by the Peiping Union Medical College in cooperation with the Geological Survey of China.

Harvard University Chemical Research

During 1932 a grant was made to Harvard University for the furthering of chemical research to determine the heat of organic reactions.

Accurate data on this subject are basic to the discussions of all energy relations and furnish a critical test of the theoretical calculations of molecular structure. There has been developed at Harvard a new method of carrying out the exceedingly delicate work of measuring the heat of organic reactions. Special apparatus has been developed. It is intended to engage in a cooperative research program which will extend over a considerable period of time. Foundation support is to be given over a five-year term, ending in 1937.

**Long Island Biological Association
Biological Laboratory, Cold Spring Harbor**

The Long Island Biological Laboratory, at Cold Spring Harbor, New York, offers to qualified visiting scientists facilities for advanced research throughout the year. A small permanent full-time research staff is maintained there, and summer courses are offered providing opportunities for research in all fields of biology.

Cold Spring Harbor is in a protected location on the southern border of a glaciated region, where there is a considerable rainfall and where the immediate vicinity offers a large variety of animals and plants in varied environments. In the past year there have worked at this station forty-three visiting scientists and thirty-four

advanced students from thirty different institutions. The work demonstrates the value of close cooperation between all branches of biological research. The emphasis is on mammalian physiology, including research on conductivity, capacity, and polarization of biological systems, on the chemical effect of x-rays, with chemical measurement of x-ray dosage, as well as on the catalytic effect of exceedingly small percentages of organic substances on reaction rates. In 1932 an appropriation was made by the Foundation to the Long Island Biological Association toward the support of the work of the Biological Laboratory at Cold Spring Harbor.

**Zoological Station of Naples
Marine Biology**

The Zoological Station of Naples, Italy, which was under the direction of Dr. Anton Dohrn from 1875 to 1909 and later of his son, Reinhard, has held an undisputed position as one of the leading international centers for biological research. Important work has been done there by scientists of Italy, the Netherlands, Germany, France, England, and the United States. The station was founded and equipped with funds provided by Dr. Dohrn and his personal friends. Later these funds were supplemented by contributions

from the Kaiser Wilhelm Gesellschaft of Germany, the Italian Government, and individual donors. In recent years the Italian Government and the city of Naples have made grants toward the support of the station. The station has been seriously affected by the general financial crisis, but the Italian Government proposes to maintain its international character and to carry on the policy under which it has operated for many years with brilliant results. The Foundation has made a grant toward the current expenses of the station over a period of three years.

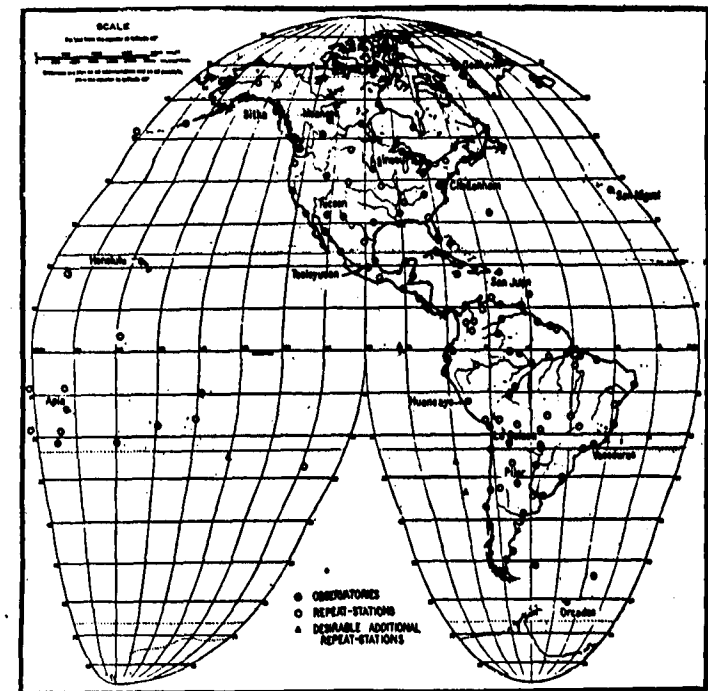
International Commission for the Polar Year 1932-33

A grant has been made by the Foundation to the International Commission for the Polar Year 1932-33, for the purchase of special equipment to be used during this Second Polar Year.

The First International Polar Year took place in 1882-83, at which time twelve different countries sent out fourteen expeditions, twelve to the Arctic region and two to the Antarctic. A number of valuable scientific and practical results were obtained by these expeditions.

The Second Polar Year was arranged by the International Meteorological Organization, and the program is being developed by the International Commission for the Polar Year 1932-33, appointed by this organization. Dr. D. B.

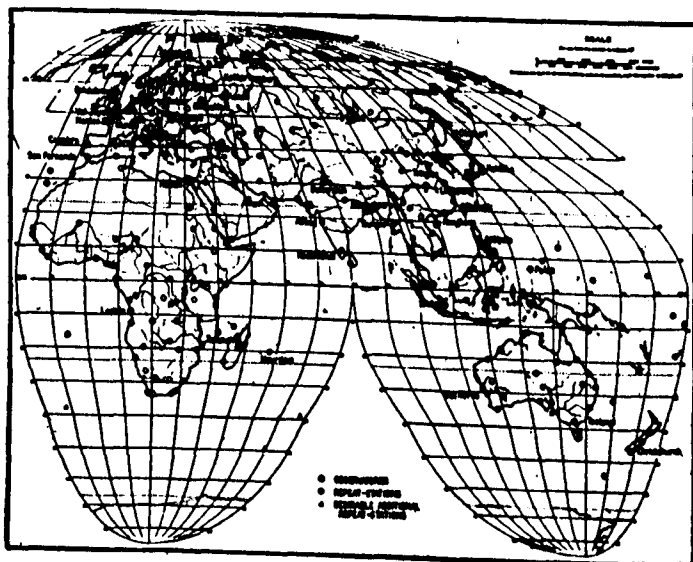
LaCour, president of the Danish Meteorological Institute, is president of the commission.



Location of observatories in the Western Hemisphere taking part in the International Polar Year program.

Twenty-six nations have thus far agreed to participate, by organizing special stations or by strengthening existing ones. There are fifty-five stations already in existence, and others are to be established in the temperate and torrid zones in all parts of the world. The nations interested in the venture cover a wide range of latitudes and

climates. They include Argentina, Austria, Belgium, Brazil, Bulgaria, Canada, Denmark, England, Estonia, Falkland Islands, Finland, France,



Location of observatories in the Eastern Hemisphere taking part in the International Polar Year program.

Germany, Hungary, Iceland, Italy, Japan, Mexico, the Netherlands, Norway, Poland, Russia, Spain, Sweden, Switzerland, and Turkey.

The program calls for a year's coordinated study of the magnetism of the earth, the aurora and polar lights, the natural electric currents that flow from the earth's crust, the electrical conditions of the atmosphere, the relation of radio transmission and reception to all of these phenomena and to the conditions of the surface

of the sun, and the meteorological conditions to great heights in the atmosphere.

Funds in support of this program have already been voted by a number of the participating nations. The Foundation's grant will be used to purchase standardized special equipment for magnetic and electrical measurements, including special instruments of a new type, designed for the study of the upper atmosphere over the ocean in the Arctic regions. At the end of the Polar Year, the instruments purchased with the Foundation's funds will be distributed by the commission to meteorological stations that will continue to make observations of scientific value.

**Ohio Wesleyan University
Perkins Observatory**

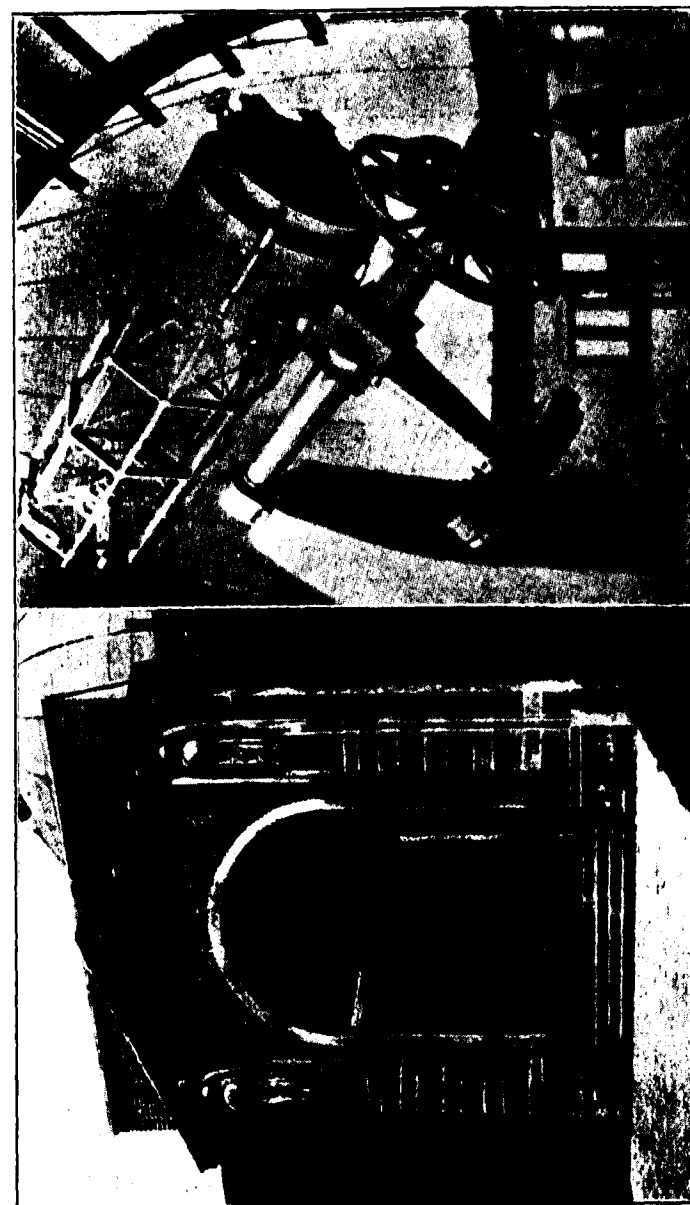
An emergency grant has been made by The Rockefeller Foundation to the Perkins Observatory of Ohio Wesleyan University, Delaware, Ohio. Payments on this grant will be made on a conditional basis, for a two-year period ending June 30, 1934.

The astronomical observatory at Ohio Wesleyan University was built in 1929, with funds given by Hiram Mills Perkins. It has a 69-inch reflecting telescope, the third largest telescope in the United States. Professor Harlan T.

Stetson, formerly at Harvard University, is director of the observatory. In order to furnish stimulation to astronomical observation and theory in the middle western region, affiliations have been established between the observatory and other institutions, which will make the telescope available to astronomers from other observatories and universities. Arrangements of this kind have already been made with Ohio State University; the Case School of Applied Science, in Cleveland, Ohio; the University of Arizona; and the Yerkes Observatory of the University of Chicago.

**California Institute of Technology
Research Programs**

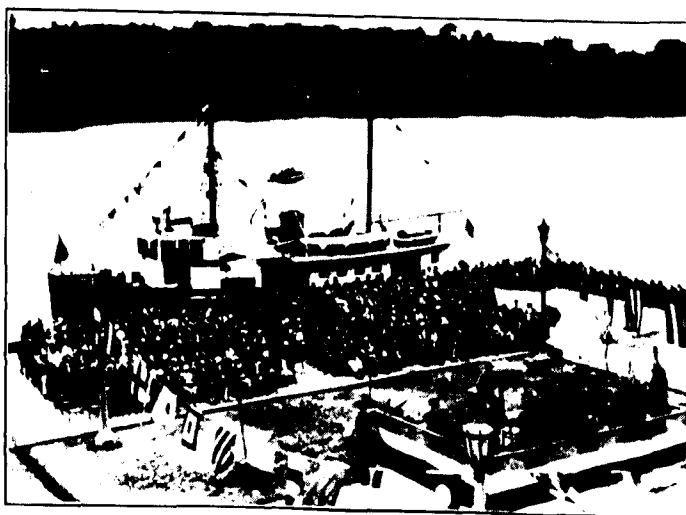
Aid was given to the California Institute of Technology, Pasadena, for two specific pieces of work, one in physics and one in chemistry, which have already progressed sufficiently to attract notice from experts all over the world. The research in physics is directed toward a new basis for the physics of solids and aims to bridge the gap between molecular and macroscopic physics by the study of the secondary or mosaic structure of crystals. The program in structural chemistry extends the technique of wave mechanics to the study of complex inorganic and organic molecules.



The Perkins Observatory at Ohio Wesleyan University, and its 69-inch reflector.



The Bermuda Biological Station for Research, toward the development of which The Rockefeller Foundation is contributing.



Dedication of the Oceanographic Laboratory of the University of Washington. The boat for oceanographic research, maintained with the assistance of the Foundation, is seen at the dock.

The program in physics is carried out under the direction of Dr. Franz Zwicke, who has charge of the theoretical aspects of the work, and Dr. Alexander Goetz, who supervises the experimental aspects. The program of research in structural chemistry is under the direction of Dr. Linus Pauling. Research of this type represents closely coordinated work in chemistry, physics, and mathematics. It constitutes a step in the converting of chemistry from an empirical to a deductive science.

University of Göttingen Institute of Inorganic Chemistry

The University of Göttingen, Germany, offers exceptional opportunities for research in various fields, including inorganic chemistry. The Rockefeller Foundation has made a grant to the university toward the reconstruction and equipment of the building of the Institute of Inorganic Chemistry. The university is providing an annual sum for the maintenance of the research program of the institute. The present interest lies chiefly in the field of geochemistry.

Former aid to the University of Göttingen has included a grant of \$350,000 by the International Education Board in 1926, of which the major portion was for the construction and equipment of the Institute of Mathematics and the remain-

der for the building and equipping of a wing for the Institute of Physics.

Aid to Individual Research Projects

An appropriation was made to the Kaiser Wilhelm Institute of Physical Chemistry and Electrical Chemistry, at Berlin-Dahlem, Germany, to enable Professor Fritz Haber, director of this institute and head of the department of physical chemistry, to purchase specified scientific equipment, including a liquid air machine, which will serve this as well as other institutes in Berlin-Dahlem. A portion of the grant is for a special piece of apparatus to furnish direct current of high voltage essential to research in auto-oxidation.

The Massachusetts Institute of Technology, Cambridge, received a grant toward the support of aerological research for a period of one year. Last year the meteorological department of this institute began a program of aerological research which consisted chiefly of daily flights to an altitude of 15,000 feet in a specially equipped aeroplane. During these flights records are taken of temperature, pressure, and humidity, and observations are made on haze, ice formation, clouds, and related phenomena. These data are being used by Professor C. G. Rossby in analyses of polar and continental air

masses. In addition to meteorological data, there are collected on each flight samples of dust, pollens, seeds, bacteria, and insect larvae, which are being studied by a special group of workers. The great value of these flights lies in the fact that they make it possible to obtain data on an approximately vertical section, cutting across reversals in wind. With kite and balloon flights investigators are often automatically prevented from securing the most important data. Fundamental theoretical problems in meteorology have received very little study in the United States, even though such problems form an important part of any general research program in geophysics. Aside from the data now being obtained by the Massachusetts Institute of Technology, no upper air data are available from New England, even though this region is strategically located for the testing of meteorological theories. The Foundation's grant will make possible the continuation of researches for another year.

A grant was made toward the purchase of equipment and apparatus for the Palmer Physical Laboratory of Princeton University. The equipment will provide facilities for producing liquid hydrogen and helium, thereby making possible the study of the properties of solid, and especially crystalline, states at low temperatures,

thus reducing the complicating effects of thermal motion. Provision is also made for the construction and operation of sources of high potential of considerable power for the study of fast electrons and protons in connection with the structure of the atomic nucleus. The research program in physics at Princeton is directed by Professor Rudolph W. Ladenburg.

Endowment of Premedical Science Departments

An appropriation was made to Yenching University, Peiping, China, toward endowment of its science departments. Yenching University was created in 1917 by the merging of two important schools. In 1925 the Peiping Union Medical College discontinued its premedical work and this was taken over by Yenching University, which now provides early training for a large number of medical students and nurses who later attend the Peiping Union Medical College.

An appropriation was made for use over a three-year period in the science departments of Fukien Christian University, Foochow, China. This university has shown gradual development and steady growth in sources of income. It represents an important factor in the uninterrupted development of a program of scientific education in China.

Aid to Publications

Annual Tables of Constants

Annual tables of constants and numerical data, physical, chemical, technological, and biological, are published by an international commission under the authority of the International Research Council and the International Union of Pure and Applied Chemistry. This commission is composed of representatives from eighteen different countries. The American commissioners are nominated by the National Research Council. Toward this international undertaking The Rockefeller Foundation has made an appropriation for support on a tapering basis over a five-year period.

American Mathematical Society

An appropriation was made to the American Mathematical Society toward publication of results of scientific research and support of the *American Annals of Mathematics* for a period extending from July 1, 1932, to June 30, 1934.

Biological Abstracts

Considerable support has been given by the Foundation to the publication *Biological Abstracts*, the first volume of which appeared in December, 1926. This work is published under the auspices of the Union of American Biological

Societies, whose editorial work the Foundation has supported through grants to the National Research Council. The Foundation's contributions for this work terminated at the end of 1932. A new grant was made during the year toward the cost of indexing the publication.

Fellowships, Travel Grants, and Grants in Aid of Research

As in its other fields of work, so in the natural sciences, the Foundation has given increased attention to a fellowship program which would provide extensive training in the disciplines essential to effective research. Various purposes may be served by a fellowship program. For example, recruitment, training, or enriching experience for outstanding men. Fellowship on a less advanced level have been supported in countries with no centers of world-wide importance. This is done with an eye toward future development. During 1932 the Foundation provided funds enabling 291 young men and women to continue advanced study in their specialties.

The number of fellowships administered directly by the Foundation during the year was 132. With the exception of one Argentinian and four Chinese, all the holders of these fellowships were Europeans. The country of origin and the place of study of these fellows are given in a table

on page 254. A further tabulation shows the distribution of the fellows according to the field of study (page 255).

For a number of years the Foundation has given support to the fellowship program of the National Research Council, which provides for training in research in the physical and biological sciences for American students working in this country or abroad. The total number of fellows in the natural sciences supported by the council in 1932 with funds supplied by the Foundation was 159.

The Foundation also appropriates funds for grants in aid to men already engaged in important scientific research. On account of present economic circumstances, provision is made to save first-rate scientific projects by timely aid applied to specific pieces of work. Part of this assistance goes to fellows who have completed their periods of training and who have returned to their home spheres of activity.

Grants in aid outside of the United States are administered by the Foundation direct, either through its office in New York or through its Paris office; grants in aid in the United States are made through the National Research Council. Since 1929 a number of appropriations have been made for the purpose of enabling the council to supply grants in aid to investigators and to

FELLOWSHIPS IN THE NATURAL SCIENCES ADMINISTERED BY THE ROCKEFELLER FOUNDATION DURING 1932, ACCORDING TO PLACE OF STUDY

Country of Origin	Switzerland	Britain	China	Denmark	England	France	Germany	Italy	Netherlands	Scotland	Sweden	Switzerland	United States	Totals
Argentina														1
Austria														1
Bulgaria														1
China			61											61
Denmark														1
England														1
Estonia														1
Finland														1
France														1
Germany														1
Greece														1
Hungary														1
Ireland, Northern														1
Irish Free State														1
Italy														1
Netherlands														1
Norway														1
Poland														1
Romania														1
Russia														1
Scotland														1
Switzerland														1
Wales														1
Yugoslavia														1
Totals	12	12	19	8 (1*)	7	4 (1†, 1§)	16	4	2	1	5	1	64 (1†)	132

* Studied also in Switzerland
† Studied also in England
‡ Studied also in Germany
§ Studied also in Italy

support special research projects not requiring large funds. Two such appropriations were made in 1932.

In a cumulative report by the National Research Council covering the period from June

FELLOWSHIPS IN THE NATURAL SCIENCES ADMINISTERED BY THE ROCKEFELLER FOUNDATION DURING 1932, ACCORDING TO FIELD OF STUDY

Country of Origin	Physical Sciences	Biological Sciences	Totals
Argentina	1	..	1
Austria	1	..	1
Bulgaria	1	..	1
China	11	10	21
China (resident fellows)	15	4	19
Denmark	2	..	2
England	11	2	13
Estonia	1	..	1
Finland	2	..	2
France	4	2	6
Germany	27	6	33
Greece	1	..	1
Hungary	2	1	3
Ireland, Northern	1	..	1
Irish Free State	1	..	1
Italy	2	1	3
Netherlands	1	2	3
Norway	..	1	1
Poland	5	1	6
Rumania	2	2	4
Russia	1	..	1
Scotland	2	..	2
Switzerland	4	..	4
Wales	..	1	1
Yugoslavia	..	1	1
Totals	98	34	132

28, 1929, to June 30, 1932, there is given an account of 357 individual grants. The total amount of money awarded through these grants was \$230,725. Twenty-one grants were for more than \$1,000; 204 grants for amounts from \$500 to \$1,000 inclusive; and 132 grants for less than \$500.

During the year a travel grant was made by the Foundation to Dr. Davidson Black, professor

of anatomy at the Peiping Union Medical College, by which he was enabled to travel in Europe, America, and Asia, for the purpose of carrying on research in connection with his work in paleontology.

THE NATURAL SCIENCES
STAFF DURING 1932

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Warren Weaver

ASSOCIATE DIRECTOR IN EUROPE
Lauder W. Jones

FELLOWSHIP ADMINISTRATOR IN EUROPE
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ASSISTANT FELLOWSHIP ADMINISTRATOR IN EUROPE
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N. Gist Gee

THE SOCIAL SCIENCES

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THE SOCIAL SCIENCES

The Rockefeller Foundation continued to support in 1932 the program in the social sciences which has been under way for several years. The principal objective of the program is the encouragement and direct promotion of research that may have value in improving the conditions of human life. As in former years, several methods were employed in advancing the acquisition of new knowledge in the social sciences. Support of research and training in universities and in research organizations was emphasized as in the past. The recognition of specific fields of interest within the general field of the social sciences is now a definite policy of the Foundation, and leads, naturally, to the restriction of miscellaneous projects. The description of the year's work falls into two parts: (1) the general program designed to promote certain interests for the social sciences as a whole; and (2) the program of specific concentration in fields of special interest.

General Program

Four clearly defined types of activity feature the general program in the social sciences: (1) the

support of inclusive advisory and planning bodies; (2) the provision of training and research fellowships; (3) the maintenance of grants in aid and small projects; and (4) the development of institutional centers of advanced training and research.

Advisory and Planning Bodies

The promotion of research through the voluntary organization of scholars has proved serviceable in the advancement of several branches of knowledge. The Social Science Research Council, in New York City, has operated in the field of the social sciences since 1923, with three official representatives from each of seven scientific societies. Stimulation of research is the objective of all council activities; and that type of research which cuts across two or more fields of knowledge—not necessarily limited to the social sciences—is particularly cultivated. The methods used in carrying out the program are grants for research projects, grants in aid to individual research workers, fellowships, and conferences. Advisory committees of the council are responsible for specific programs of research in such fields as finance and industry, migration, industrial relations, agriculture, public administration, and international relations. The committees not only evaluate individual projects but

formulate plans for the development of research and of competent personnel in a particular field. The council's work depends largely upon the voluntary collaboration of specialists in the social sciences who are brought together in committees and conferences during the year. The annual summer conference of the entire council is planned to unify the program as a whole.

The council supplements the program of The Rockefeller Foundation in awarding grants in aid and fellowships to American scholars. Awards are made in accordance with the council's general interest in furthering research and in developing personnel of a type to effect a synthesis of the social sciences. During the year 1932 the council received about \$450,000 from the Foundation toward current expenditures for a number of purposes.

FOUNDATION CONTRIBUTIONS TO THE SOCIAL SCIENCE RESEARCH COUNCIL, 1932

Purpose	Amount Available
Administrative budget.	\$50,000
General research, including grants in aid.	140,997
Conferences and planning.	50,000
Fellowships.	90,000
<i>Social Science Abstracts</i>	70,000
Special Programs	
Fellowships in agricultural economics and rural sociology.	30,000
Instruction in agricultural economics.	10,000
International relations.	12,500
Total.	<u>\$453,497*</u>

* This total includes several items which are mentioned later under specific heads, such as, "fellowships," "grants in aid," "publications," "international relations."

Certain grants in the foregoing list are not for the regular council program. The contributions for fellowships and instruction in rural economics were of special character, devised to meet the situation created by the passage of the Purnell Act, in accordance with which the Federal Government made \$60,000 available annually in each state for research in the field of agriculture and related rural problems. The inadequacy of personnel for the utilization of such funds created something of an emergency. Early in 1928 the Laura Spelman Rockefeller Memorial voted \$150,000 over a five-year period to be used for fellowships in this field, the appointments to be made by a national committee established by the Social Science Research Council. The second appropriation was supplementary to the first, since it provided a special program of instruction for specialists in agricultural economics. By utilizing the resources of the Bureau of Agricultural Economics of the United States Department of Agriculture at Washington, a special curriculum for advanced students was arranged. A training center to which a group of experts was readily drawn was created as an emergency measure. Neither of these appropriations will be renewed, as their objectives have been accomplished. They illustrate the flexibility of program and procedure which enables the council

to meet a situation effectively and promptly.

Plans for the future of the council suggest that there may be considerable development of specific programs. Some fields have already been adopted as areas of intensive council effort, for example, international relations and social and economic research in agriculture, industry, and trade. The Committee on Industry and Trade has been active for some time both in planning and in financing research. It has the advice of technical committees on (1) unemployment, (2) economic statistics, (3) public utilities, (4) savings and capital formation, and (5) business research (studies of four selected industries). The Committee on International Relations has a substantial program of international research under the supervision of Professor James T. Shotwell. There are exploratory committees engaged in the following fields, with the idea of formulating programs: personality and culture, the family, consumption and leisure, metropolitan living, pressure groups and propaganda, population, social statistics, public administration, and crime.

Fellowships

The award of fellowships to advanced scholars has been a principal element in the social science program from its beginning. The Social Science Research Council selects American candidates

for advanced study. In 1932 the council supervised fifty-six active fellows, most of whom were on the postdoctorate level. The Foundation provided \$90,000 for the expenses of this program. The fellows were distributed as follows:

Africa.....	1	Near East.....	1
Canada.....	1	Poland.....	1
England.....	15	Scandinavia.....	1
France.....	6	South America.....	1
Germany.....	7	Switzerland.....	1
Mexico.....	2	United States.....	19

The appointment of European, Australian, and Asiatic fellows is made directly by the Foundation. In 1932 there were 167 active fellows under Foundation supervision, and \$260,458 was expended on this portion of the program.

FELLOWSHIPS IN THE SOCIAL SCIENCES ADMINISTERED
BY THE FOUNDATION, 1932

Country of Origin	Number of Fellows	Field of Study	Number of Fellows
Australia.....	10	Economics.....	47
Austria.....	9		
Belgium.....	1	Sociology.....	22
Bulgaria.....	6		
Canada.....	2	Political science.....	21
China.....	4		
Czechoslovakia.....	3	Anthropology.....	18
Denmark.....	4		
England.....	13	History.....	11
Estonia.....	4		
Finland.....	4	Psychology.....	11
France.....	16		
Germany.....	23	Agricultural economics.....	8
Hungary.....	6		
India.....	1	Geography.....	8
Irish Free State.....	1		
Italy.....	8		
Japan.....	1		

Latvia.....	2	Jurisprudence.....	7
League of Nations.....	3		
Lithuania.....	2	Criminology.....	5
Netherlands.....	5		
New Zealand.....	4	International law.....	5
Norway.....	2		
Poland.....	15	Business administration...	1
Rumania.....	4		
Scotland.....	2	Philosophy.....	1
Sweden.....	2		
Switzerland.....	2	Social welfare.....	1
Syria.....	1		
Turkey.....	2	Statistics.....	1
Wales.....	2		
Yugoslavia.....	3		
Total	167		167

A total of \$435,000 was appropriated in 1932 for the Foundation's fellowship program in the social sciences, \$200,000 in April and \$235,000 in December.

Grants in Aid and Small Projects

Though the Foundation's program in the social sciences operates under principles of concentration—institutional support being confined to strategic centers and direct aid for research to specifically delimited fields—the desirability of providing aid to some extent for the individual worker and project is recognized. Usually the amount of the award is small and is for a project under way and partially financed from other sources. In 1932, \$22,360 was expended through

the Social Science Research Council for grants in aid to American social scientists, and \$50,000 was made available for distribution by the Paris office of the Foundation to European scientists and institutions. The results from these small subventions are often remarkably good.

During the year the Foundation assisted two important publications in the general field of the social sciences. The *Encyclopaedia of the Social Sciences*, which has been in course of preparation since 1927 and has received substantial Foundation support, was financed to the extent of \$150,000 in 1932. The fifteen volumes of the encyclopaedia will be completed by the end of 1934. The second publication assisted was *Social Science Abstracts*, an enterprise of the Social Science Research Council, which has already been noted.

Institutional Centers

The strengthening of university centers of research and advanced training is regarded as the essential base for the entire social science program. A plan to develop a few major centers in America and in Europe and to build secondary centers on a regional basis has been carried on for a number of years. In the United States four institutions are regarded as major centers, namely, the Brookings Institution in Washing-

ton, D. C.; Columbia University in New York City; Harvard University in Cambridge, Massachusetts; and the University of Chicago, in Illinois. Sections of the country not directly represented by these institutions are also being assisted. In the South Atlantic States the University of North Carolina, in Chapel Hill, and the University of Virginia in Charlottesville, are receiving aid; in the South Central States, the University of Texas in Austin is being assisted and, on the Pacific Coast, Stanford University in California. In Canada, McGill University in Montreal is regarded as a center. In addition there are seven institutional centers in Europe and two in Asia. Of these the London School of Economics and Political Science is considered the most highly developed center.

In a number of these institutions a special committee has been set up to plan research, to allocate funds, and to supervise projects under way. Special interest is shown in promoting cooperative research, where the essential unity of the social sciences is recognized in the study of problems with a variety of aspects. The record of accomplishment in certain places is increasingly impressive.

During the year 1932 current support was given the institutions listed in the tabulation on the following page.

SUPPORT OF INSTITUTIONAL CENTERS, 1932

Name of Institution	Amount Outright	Available Conditional	Basis
United States			
Brookings Institution, Wash- ington, D. C.....	\$75,000		
Columbia University, New York City.....	50,000*	\$25,000*	\$1 for \$1
Harvard University, Cambridge, Massachusetts.....	50,000*	25,000*	\$1 for \$1
University of Chicago, Illinois...	50,000*	25,000*	\$1 for \$1
University of Virginia, Charlottes- ville.....	20,000*		
University of North Carolina, Chapel Hill.....	30,000*		
University of Texas, Austin.....		25,000*	\$5 for \$1
Stanford University, California..	25,000*	25,000*	\$1 for \$1
Canada			
McGill University, Montreal....	20,000*		
Europe			
London School of Economics and Political Science, England	40,000*	10,000*	\$1 for \$2
Institute of Social and Political Sciences, Heidelberg Univer- sity, Germany.....	12,000		
Institute of Economics and His- tory, Copenhagen, Denmark..	6,000		
University of Stockholm, Sweden	6,000*		
Rumanian Institute of Social Science, Bucharest.....	5,000	2,500	\$1 for \$1
International Institute of Public Law, Paris, France.....	5,000		
University of Oslo, Norway. In- stitute of Economics.....	5,000	5,000	\$1 for \$1
The Near East			
American University of Beirut, Syria.....	10,000*		
The East			
Yenching University, Peiping, China.....	20,000*		
Nankai University, Tientsin, China. Institute of Economics	15,000*		

* For academic or fiscal year 1932-33.

A mere listing of institutions which are receiving Foundation aid gives little impression of the quality and range of research under way. The purpose is to provide the scholar and scientist with opportunities for immediate personal observation of social problems or phenomena. In the past universities lacked the funds to provide practical contacts and, as a result, much research was speculative and historical, remote from pressing current problems. The Foundation seeks to place the investigator in the desired relationship to his problem and to this end makes funds available for traveling expenses, leaves of absence, statistical and clerical assistance, or whatever facilities are requisite. University administrators now recognize that research is essential to progress in the social sciences, that such research is costly in terms of both time and money, and that considerable pressure will be brought to bear by the non-academic world which is interested in practical research. Unfortunately, the economic depression has greatly retarded developments which were well under way to provide adequate financing for research programs in the social sciences.

The Foundation made the following appropriations to institutional centers in 1932:

University of North Carolina. Institute for Research in the Social Sciences. Over a three-year period, beginning July 1, 1932..... \$90,000

University of Texas. Research in the social sciences. Over a five-year period, beginning September 1, 1932.....	\$125,000
Stanford University. Research in the social sciences. Over a five-year period, beginning September 1, 1932.....	200,000
Harvard University. Research in the social sciences. Over a five-year period, beginning July 1, 1932.....	375,000
University of Chicago. Interest on endowment of social science faculty.....	17,667

Specific Research Programs

Beyond the general program just described the Foundation recognizes large opportunities for the more direct promotion of social science research in specific fields. It appears, however, that the best results can be achieved by selecting certain areas of concentration, since the total area of the social sciences is very extensive. A wise selection of projects necessitates the application of definite principles of limitation. At present there is agreement to regard the following as areas of concentration: (1) the economic structure and process, with special reference to planning and control; (2) international relations; and (3) social organization and procedure, with special reference to problems of community organization and planning.

Economic Planning and Control

Events of the past three years have made strikingly evident the tremendous social losses occasioned by the ups and downs of modern business enterprise. Much physical suffering,

illness, mental disorder, family disintegration, crime, and political and social instability trace their origin to economic causes. In a time of depression, when enterprise is halted and millions of the unemployed are unable to command the necessities of life, the question is insistently heard, Why does this distressing situation arise in a country where raw materials exist in plenty, where technological equipment is of the best, and where workers are eager to apply their productive capacities? The opportunity and need for scientific attack on the problem of economic maladjustment are unmistakable. The Foundation views this field as highly important and well adapted to research.

For several years various studies and organizations concerned with economic stabilization have been supported. It is believed that a more complete knowledge of the working of our present economic system—e. g., of conditions as revealed by realistic, statistical studies of unemployment; the characteristics, methods, and hazards of specific industrial enterprises; the complex forces operating in a competitive society in a number of specific situations—must supply the necessary basis for planning an effective economic organization. The Foundation seeks, therefore, to strengthen existing institutions which are collecting and appraising basic in-

formation and to assist in the financing of particular studies which deal directly with problems of economic stabilization. In the year 1932 the following Foundation grants were active:

SUPPORT OF PROGRAM IN ECONOMIC PLANNING
AND CONTROL, 1932

Institution and Program	Amount Available		Basis
	Outright	Conditional	
National Bureau of Economic Research, New York City, General budget.....	\$35,000	\$40,000	\$1 for \$1
Harvard University. Research in industrial hazards.....	125,000*		"
Economic Foundation, New York City. Study of history of prices.....	50,000		
University of Pennsylvania, Philadelphia. Industrial research department, Wharton School of Finance and Commerce.....	25,000*		
University of Minnesota, Minneapolis. Unemployment study.....	75,000*		
Industrial Relations Counselors, Inc., New York City. Administrative procedure of employment exchanges.....	23,500*		
Brown University, Providence, Rhode Island. Study of the gold standard.....	\$20,000†		
Austrian Institute for Trade Cycle Research, Vienna. Study of cyclical fluctuations.....	4,000		
Dutch Economic Institute. Rotterdam. Research program....	5,000*		
Institute of International Economics and Maritime Trade, Kiel, Germany. General research program.....	26,000*		

* For academic or fiscal year 1932-33.

† As required during period June 10, 1932, to December 31, 1933.

The foregoing list contains two types of grants, those for the support of a continuing institu-

tional program and those for a specific project. At the National Bureau of Economic Research, at Harvard University, at the University of Pennsylvania, at the Austrian, Dutch, and Kiel institutes there are continuing research programs. The National Bureau of Economic Research is the foremost organization in the United States, continuously studying the fundamental organization of the economic life of the country. The former Laura Spelman Rockefeller Memorial and The Rockefeller Foundation have contributed to its support since 1923.

The following appropriations were made in 1932 under the program in economic planning and control:

University of Minnesota. Employment Stabilization Research Institute. For the year beginning July 1, 1932....	\$75,000
University of Pennsylvania. Industrial research department, Wharton School of Finance and Commerce. Over a two-year period, beginning July 1, 1932.....	50,000
Industrial Relations Counselors, Inc. Study of administrative procedure of employment exchanges. For the year ending May 31, 1933.....	7,500
Brown University. Study of the gold standard. For the period from June 10, 1932, to December 31, 1933.....	20,000
Institute of International Economics and Maritime Trade. General research program. For the year beginning September 1, 1932.....	16,000

International Relations

The Foundation endeavors to improve international relations by extending the area of

objective analysis of controversial subjects. Within the division of the social sciences there is a specific program of research in international relations; and there are various activities in the several divisions of the Foundation, such as the fellowship program, the public health program, the support of institutions and organizations in foreign countries, which seek to promote understanding among nations and to reduce the friction which may lead to warfare.

The specific program in international relations seeks to make the contribution of the social sciences toward a more rational and intelligent treatment of international differences as effective as possible. Though there are many discouraging elements in the international situation, it is evident that successful use has been and can be made of significant factual materials in the hands of the specialist and the technical adviser.

The Foundation is assisting certain non-governmental agencies in studying problems of international relations and in creating the appropriate machinery for continuous conference among nations. In the following list of appropriations active in 1932 the names both of organizations which are promoting international understanding and of organizations engaged in research are prominent.



Photo Boissonnas. Courtesy of the *Christian Science Monitor*
Postgraduate Institute of International Studies, Geneva, Switzerland,
toward the work of which The Rockefeller Foundation has contributed.



Aborigines of Central Australia.

For several years The Rockefeller Foundation has contributed toward the studies of primitive races of the South Pacific area which are being conducted under the auspices of the Australian National Research Council.



Taking head measurements of native children of Central Australia in connection with the anthropological studies of the Australian National Research Council.

THE SOCIAL SCIENCES

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SUPPORT OF PROGRAM IN INTERNATIONAL RELATIONS, 1932

Institution and Program	Amount Available		Basis
	Outright	Conditional	
Institute of Pacific Relations, Honolulu, Hawaii. Research program	\$25,000	\$25,000	\$1 for \$2
Institute of Pacific Relations. American Council.	20,000	.....	.....
Royal Institute of International Affairs, London, England. Research program.	30,000*	.....	.....
German School of Political Science, Berlin. Research and training in international relations.	35,000*	.....	.....
Postgraduate Institute of International Studies, Geneva, Switzerland. General budget.	85,000	.....	.....
Notgemeinschaft der Deutschen Wissenschaft, Berlin, Germany. Research in international relations.	12,500	.....	.....
League of Nations, Geneva, Switzerland. Study of double taxation.	35,000*	.....	.....
Publication of monetary and banking laws.	7,000	.....	.....
American Institute of Mining and Metallurgical Engineers, New York City. Mineral inquiry.	5,000	.....	.....
Harvard University. Research in international law.	20,000†	.....	.....
Harvard University and Radcliffe College. International research. Social Science Research Council. Research in international relations.	50,000*	.....	.....
	12,500*	.....	.....
			\$13,600 to be raised elsewhere
Council on Foreign Relations, New York City. Research program. ....	.....	\$30,000	

* For academic or fiscal year 1932-33.
† Ended April 30, 1932.

During the year 1932 new appropriations were made to the following institutions on the fore-

going list, in each case providing for continued support of a program which was already under way:

Royal Institute of International Affairs, London. Research program. Over a five-year period, beginning May 1, 1932	\$150,000
German School of Political Science, Berlin. Research program. For the year beginning April 1, 1932	35,000
Council on Foreign Relations, New York City. Research program. Over the three-year period, 1933-35	75,000

Community Organization and Planning

The program in community organization and planning provides support for studies and experiments which promise to aid concretely in advancing social welfare. In these days of increasing urbanization a whole series of problems calls urgently for study. City and regional planning, housing, the various phases of municipal administration, health and sanitation, recreation, and social work are suitable subjects for scientific investigation and appraisal. Information is so meager at present as to handicap seriously those who have the responsibility for shaping social policy. Within this broad field of interest the Foundation has limited its support to scientific work which will yield basic knowledge of social forms and processes, since this seems a necessary preliminary to social planning and control. The following list of appropriations, which were active in 1932, represents a variety of undertakings:

SUPPORT OF PROGRAM IN COMMUNITY ORGANIZATION AND PLANNING, 1932

Institution and Program	Amount Available		Basis
	Outright	Conditional	
University of Chicago. Research and training in public administration	\$25,000*		
University of California, Berkeley. Research and training in public administration		\$35,000*	
University of Cincinnati, Ohio. Training in public administration	15,000*		
Syracuse University, New York. Research and training in public administration	10,000*		
New York School of Social Work, New York City. General budget	30,000*		
University of Chicago. School of Social Service Administration	25,000*	25,000*	\$1 for \$1
Tulane University of Louisiana, New Orleans. School of Social Work		12,000*	
Western Reserve University, Cleveland, Ohio. School of Applied Social Sciences	15,000*		
National Catholic School of Social Service, Washington, D. C. Budget of instruction	15,000*		
Harvard University. School of City Planning	30,000*	5,000*	\$1 for \$2
University of Liverpool, England. Social survey of Merseyside	4,400		
Research Committee on Social Trends, Washington, D. C. Research program	560,000 (over 3½ yrs.)		
Committee on Costs of Medical Care, Washington, D. C. General budget		50,000	\$1 for \$2
Publicity campaign	10,000		
National Institute of Public Administration, New York City. Study of old age security	6,000		
Cities Census Committee, New York City. Publication of population data	5,000		

Welfare Council of New York City.			
Research bureau.....	\$70,000*	.....	.....
University of Chicago. Local com-			
munity research.....	30,000*	\$20,000*	\$1 for \$1
Community Council of Philadelphia.			
Department of research.....	7,500*	.....	.....

* For academic or fiscal year 1932-33.

The first nine items in the foregoing list indicate appropriations to provide training and research in the two fields of public administration and social work. Another institution, the National Institute of Public Administration of Columbia University, received Foundation support for several years and was endowed to the extent of \$750,000 in 1931. Other grants in the field of public administration, with the exception of that to the University of Chicago, are on a tapering basis and have been made with the expectation that the program will be absorbed into the general university budget. The Foundation program in public administration is coordinated with the general objectives of the Spelman Fund.

In the grants made to five schools of social work the Foundation is looking toward the termination of this type of support. The University of Chicago School of Social Service Administration has been offered \$500,000 toward its permanent endowment upon conditions which have not yet been met. When the time of payment of this grant, already authorized, arrives,

the Foundation will regard its program of support of schools of social work as practically completed.

It is perhaps too soon to evaluate the results of this program in support of schools of public administration and social work. At no time has the support given by the Laura Spelman Rockefeller Memorial and subsequently by the Foundation been sufficiently great to lift these schools as a group to a new level. Certain schools are demonstrating the success of graduate training and research in the professional fields of public administration and social work. There has been an appreciable gain during the past five years but, as a rule, the fate of these schools depends upon the degree of responsibility which the university assumes in meeting the demands of the non-academic world for trained public officials and social welfare administrators.

The School of City Planning at Harvard University is a novel undertaking—the first of the kind in the United States—which seeks to coordinate a number of technologies having relevance to comprehensive city planning. It is on a graduate level, closely associated with the schools of architecture, landscape gardening, engineering, business, law, arts, and sciences. The school is undertaking both research and training.

There are several specific projects on the list

given above. The Merseyside survey carried on by the University of Liverpool was aided originally by the "Laura Spelman Rockefeller Memorial to the extent of \$25,000. The Foundation is assisting in the completion and publication of the report of the survey, which is comparable to the recent study of London's East End in the material assembled upon the economic status, health, and social welfare of the population.

Upon the request of President Hoover the Research Committee on Social Trends was given a large grant to study all factors in the present social situation relating to public policy in internal affairs. The grant was available for the employment of research workers and for the publication of their findings. A two-volume summary and sixteen monographs have resulted from the grant. The outlook seems favorable for some positive action in line with the findings and recommendations of the committee.

The Committee on the Costs of Medical Care was created to conduct a comprehensive study of the organization of medical services in the United States. The Foundation contributed \$225,000 to the committee for work carried on over five years. The final report of the study was published in November, 1932.

Another recently completed project is the study of old age security made by the National

Institute of Public Administration, New York City, toward which the Foundation has contributed \$21,000. This project was a continuation of the work of the New York Commission on Old Age Security and was a further analysis of the data which had been gathered by the commission.

For a number of years the Foundation has given aid to the Cities Census Committee of New York. Its activities were concentrated upon a more detailed study of population data for specific areas of New York City than was undertaken by the United States Bureau of the Census. With the publication of *Population Data for Greater New York, 1900-1930*, the organization dissolved, passing over its records and material assets to the Research Bureau of the Welfare Council of New York City, which will continue a substantial part of the committee's work.

The last three items on the list are for enterprises which are directly concerned with planning and research on a community basis. The Welfare Council of New York City has received assistance from the Laura Spelman Rockefeller Memorial and the Foundation for the activities of its Research Bureau since 1926, when the research and fact-finding program was initiated. During this time a series of studies of New York

social welfare agencies and of specific problems relating to their functioning have been completed. There is no city in the United States with social data comparable to those now available for New York. A foundation for community planning in regard to welfare activities has been laid.

The Local Community Research Committee of the University of Chicago has also engaged in a series of studies of the immediate community, but there has been less concentration upon social welfare problems. The various fields of interest within the social sciences have been represented in the committee, and the projects which have been supported are concerned with political and economic organization, racial groups, housing, social welfare activities, delinquency areas, and similar matters. In Chicago the university does not focus the research in an operating program as does the Welfare Council in New York, but the base of planning for the community is probably a broader one.

The grant made in 1932 to the Community Council of Philadelphia provides for a program similar to that of the New York Welfare Council but at present conceived along very modest lines.

A number of appropriations were made within the program of community organization and planning in 1932, but only three were initial

appropriations by the Foundation. The programs in public administration at the University of Chicago and the University of Cincinnati were new undertakings; so also was the grant to the department of research of the Philadelphia Community Council.

The Foundation made the following appropriations during 1932 under its program in community organization and planning:

University of Chicago. Research and training in public administration. Over a five-year period, beginning July 1, 1932.....	\$125,000
University of Cincinnati. Training in public administration. Over a six-year period, beginning July 1, 1932. \$15,000 for the first year.....	85,000
Syracuse University. School of Citizenship and Public Affairs. Over a seven-year period, beginning July 1, 1932. \$10,000 for the first year.....	50,000
Western Reserve University. School of Applied Social Sciences. Over an eight-year period, beginning July 1, 1933. \$15,000 for the first year.....	82,500
New York School of Social Work. General budget. Over an eight-year period, beginning October 1, 1932. \$30,000 for the first year.....	165,000
Tulane University of Louisiana. School of Social Work. Over an eight-year period, beginning September 1, 1932. \$12,000 for the first year.....	66,000
University of Liverpool. Merseyside survey. \$2,000 for completion of report; \$2,400 for publication of report....	4,400
Cities Census Committee, New York City. Publication of report in 1932.....	5,000
Community Council of Philadelphia. Department of Research. For the year beginning October 1, 1932.....	7,500
Committee on Costs of Medical Care. General budget, 1932 (\$50,000), and publicity campaign, 1932 (\$10,000).....	60,000
National Institute of Public Administration. Committee on Old Age Security. For current year.....	6,000

Cultural Anthropology

For several years the Foundation has been giving limited support to a program of anthro-

polological research. Something of a unique and passing opportunity is offered to study the rapidly vanishing primitive cultures which have persisted in a few isolated parts of the world, recording interesting chapters in the history of the human race. The on-marching Western civilization is wiping out the evidences of simpler social organization, and only a brief time exists for scientific observation. There is need for well-trained anthropologists—which necessitates field experience—and for well-equipped expeditions. The expense of this work has greatly curtailed its development by universities and by other organizations having a scientific interest. The active Foundation grants in this field are:

SUPPORT FOR ANTHROPOLOGICAL RESEARCH, 1932

Institution and Program	Amount Available		Basis
	Outright	Conditional	
Harvard University. Anthropological research.....	\$15,000*		
University of Chicago. Anthropological research.....	15,000		
Columbia University. Anthropological research.....	7,500*		
Tulane University of Louisiana. Department of middle American research.....	15,000*		
International Institute of African Languages and Cultures, London, England. General budget.....	25,000*	\$25,000*	\$1 for \$2
Notgemeinschaft der Deutschen Wissenschaft. Anthropological study of the German population.	25,000		
Royal Anthropological Institute of Great Britain and Ireland. General budget.....	2,500*		

Australian National Research Council, Sydney. Anthropological research.....	\$20,000		
Bernice P. Bishop Museum, Honolulu, Hawaii. Anthropological research.....		\$6,500	\$1 for \$1
Institute for Comparative Research in Human Culture, Oslo, Norway. General budget.....	7,500		
Laboratory of Anthropology, Santa Fe, New Mexico. Field training course.....	12,500		

* For academic or fiscal year 1932-33.

In the foregoing list of active grants are two made in 1932, but neither of these is an initial Foundation grant. There was no expansion in the program in anthropological research in 1932 and none is contemplated in the near future.

The grants made for anthropological research in 1932 were as follows:

Columbia University. Research and field training in anthropology. For the year beginning July 1, 1932.....	\$7,500
Bernice P. Bishop Museum. Research in Polynesian anthropology. Over a two-year period, beginning January 1, 1932.....	13,000
Australian National Research Council. Visit of Dr. Richard Thurnwald to the Melanesian Islands during year beginning September 1, 1932.....	6,500

Unclassified Grants

A number of grants which fall under none of the specific programs in the social sciences mentioned above were active in 1932. There are distinct groupings to be observed in these items. Certain of them (Group 1) are extensions of support formerly given by the Laura Spelman Rockefeller Memorial, to permit the continua-

tion or completion of an undertaking. In few instances is there expectation of any further assistance from the Foundation. Studies in legal research and criminology are examples of this kind. Then, there are items (Group 2) which represent embryonic interests that may or may not lead to the development of specific programs; several grants for the promotion of research in the field of personality and behavior clearly fall here.

SUPPORT FOR UNCLASSIFIED PROGRAMS, 1932

Institution and Program	Amount Available		Basis
	Outright	Conditional	
<i>Group 1</i>			
Harvard University. Survey of crime and criminal justice in Greater Boston.....	\$2,500	.....	.....
National Institute of Industrial Psychology, London, England. Research program.....	10,000	.....	.....
American Historical Association, Washington, D. C. International Committee.....	6,000	.....	.....
Association for the Study of Negro Life and History, Washington, D. C.....	.....	\$7,500*	\$1 for \$1
Jean Jacques Rousseau Institute, Geneva, Switzerland. General budget.....	7,000*	.....	.....
University of Denver, Colorado. Bureau of Business and Social Research.....	5,000*	.....	.....
Yale University. School of Law. Research.....	11,000	.....	.....
Joint Vocational Service, Inc., New York City. General budget....	5,400	.....	.....
<i>Group 2</i>			
Massachusetts Department of Mental Diseases, Boston. Statistical study of the insane.....	10,000*	.....	.....

Yale University. Institute of Human Relations. Psychological research.....	\$100,000*		
Behavior Research Fund, Chicago, Illinois. General budget.....	\$25,000*	\$1 for \$1	
University of Vienna, Austria. Psychological Institute.....	4,000*		
University of Hawaii. Research in racial problems.....	30,000		
Canadian National Committee for Mental Hygiene, Toronto. Development of training centers.....	10,000*		
Research in universities.....	30,000	\$3 for \$5	

* For academic or fiscal year 1932-33.

The following grants for unclassified programs were made in 1932:

Jean Jacques Rousseau Institute. General budget. Over a five-year period, beginning September 1, 1932. \$7,000 for the first year.....	\$23,000
Behavior Research Fund, Chicago. General budget. For one year, beginning October 1, 1932.....	25,000
National Institute of Industrial Psychology. Research program. Over a four-year period beginning January 1, 1933. £2,000 for the first year.....	20,000

Summary of Appropriations, 1932

The following is a summary of appropriations made for work in the social sciences during 1932:

General Social Science.....	\$1,442,667
Advisory and Planning Bodies.....	
Fellowships.....	\$435,000
Grants in Aid and Small Projects.....	200,000
Institutional Centers.....	807,667
Specific Research Programs.....	1,111,900
Economic Planning and Control.....	168,500
International Relations.....	260,000
Community Organization and Planning....	656,400
Cultural Anthropology.....	27,000
Unclassified Grants.....	68,000
Total.....	\$2,622,567

THE SOCIAL SCIENCES
STAFF DURING 1932

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ASSOCIATE DIRECTOR IN EUROPE
Selskar M. Gunn

ASSISTANT DIRECTORS
Stacy May ¹
Sydnor Walker

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FELLOWSHIP ADMINISTRATOR IN EUROPE
Tracy B. Kittredge

THE HUMANITIES

¹ Appointed September 1, 1932.

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THE HUMANITIES

During 1932 the program of The Rockefeller Foundation in the humanities was directed toward the support of general research and advanced training of personnel and toward the promotion of projects having international significance. As in former years, assistance within the United States was given for the most part through institutions and agencies making both local and national distribution of funds for selected projects. Grants for foreign enterprises were made principally for the cooperative work of scholars from several countries or from a number of institutions. In addition to support of general research, and participation in the training of personnel, through the provision of funds for fellowships awarded by certain agencies, the Foundation gave assistance for studies of the methods of scholarly publication, aided important library centers in the extension of their research facilities, and contributed toward the linguistic phases of projects to preserve records of disappearing cultures. By means of grants to the American Council of Learned Societies, the Foundation has furthered the development of interest in the

history of American culture, in Far Eastern studies, and in various international projects indirectly favorable to the improvement of cultural understanding.

Aid to Centers of Research and Training

University of Chicago Oriental Institute

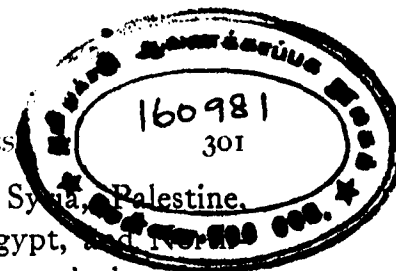
The Oriental Institute of the University of Chicago was organized in 1919, with James H. Breasted, then head of the department of oriental languages, as its director. Beginning with a program of coordinated research in Near Eastern archeology, the work of the institute has gradually expanded until today it covers researches in the composite problems of art, archeology, language, and epigraphy, requiring experts in many fields of scholarship. At its headquarters in Chicago, the institute has workrooms, laboratories, a museum, and a library for the use of its advanced students and staff members. Permanent buildings at two centers in the Near East, Luxor in Egypt and Tell Asmar in Babylonia (Iraq), provide further accommodations for research workers who are studying historical records in various forms. A number of important publications have resulted from the work undertaken at all three centers. The institute now has in the field thirteen archeological expedi-

tions operating in Anatolia, Syria, Palestine, Assyria, Babylonia, Persia, Egypt, and northern eastern Africa. Significant discoveries have been reported by these expeditions from Asia Minor and Persia. The material collected in the course of the field work is recorded, studied, and displayed in the institute building in Chicago. The Oriental Institute has received aid from interested persons in Chicago, from Mr. John D. Rockefeller, Jr., from the General Education Board, and from the International Education Board. It has also had assistance from The Rockefeller Foundation in connection with its field work. During 1932, appropriations by the Foundation toward the purposes of the institute amounted to \$480,050.

Yale University Research in the Humanities

In 1927 the General Education Board authorized commitments within a five-year period ending in 1932, amounting to \$195,000, in support of humanistic research at Yale University. This was supplemented by local funds, so that the total amount available for the work during the four years, 1928 to 1932, was \$500,000. This money has been expended for grants in aid, salary releases, travel allowances, books, manuscripts, photostats, publication, and archeologi-

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cal excavation. The investigations which have been supported have touched virtually every area of Indo-European influence and have led to extensive published work in the fields of history, literature, and archeology. There have been two major projects. The one to which the largest subvention has gone is the excavations at Dura-Europos in Syria, crossroads of Oriental, Greek, and Roman cultures, where there have been unearthed new evidences of Hellenistic influences on Eastern civilization. For this project an appropriation was made by the Foundation in 1931. The other major project was that of cataloguing a collection of Goetheana in the Sterling Library. The completion of this work has brought into use a large amount of material of unusual value to persons engaged in research in German literature and related subjects.

There now has been drawn up a further ten-year program for humanistic research at Yale University, and the Foundation has made a grant of \$250,000 toward the work planned for the first half of the ten-year period, beginning in 1933.

University of London

School of Oriental Studies, London Institution

Support was given during 1932 to one of the programs of the School of Oriental Studies, London



Palace stairway recently uncovered at Persepolis, Persia, by excavations conducted under the auspices of the Oriental Institute of Chicago University.



From Wide World photographs
Statue of the Roman Emperor Hadrian, discovered during excavations of the ancient Athenian market place which are being carried out under the direction of the American School of Classical Studies at Athens.

Institution, University of London. This school was opened in 1917 as a center in Great Britain for the study and teaching of the languages, religions, cultures, and history of oriental and African peoples. In the fifteen years of its existence there has been built up a competent staff of some forty specialists, who each year give lectures on some seventy different subjects. Linguistics, comparative religion, oriental history and art, and cultural anthropology are included in the fields covered by these lectures. The student body numbers from five hundred to six hundred each year. About one-fifth of these students are engaged in advanced studies for higher degrees or in research work.

This school, in cooperation with the International Institute of African Languages and Cultures and the London School of Economics, has developed a program involving local scholarships, grants for field research, publications, library materials, equipment, and language recording in both London and Africa, all concerned with research in African languages, upon which the future study of African anthropology, sociology, education, and medicine is to some extent dependent. The aid provided by The Rockefeller Foundation will be applied to this program of research in African linguistics during the three-year period ending June 30, 1935.

Grants in Aid of Research Projects**University of Michigan
Excavations at Karanis**

A grant was made by the Foundation to the University of Michigan, in Ann Arbor, to be used toward the completion of excavations at the site of the ancient city of Karanis, in Egypt. The grant is to be distributed over a two-year period, beginning January 1, 1933.

Since 1924 the Institute of Archaeological Research of the University of Michigan has been engaged in the excavation of the Egyptian-Hellenistic site of ancient Karanis, now called Kom Aushim. The work has required the removal of a mound about a mile in circumference with a maximum height of about fifty feet, covering what was formerly a city of 25,000 to 40,000 inhabitants. Here are contained the records of a Graeco-Roman civilization of the period from 260 B.C. to about 450 A.D. A considerable amount of papyrus has been found in the excavations, some of it unique in character; coins, glass, ostraka, and pottery have also been found in the successive strata unearthed. The site is comparable in interest to another now yielding records of a similar character—that at Dura-Europos in Syria, which is being excavated by an expedition from Yale University. It is

estimated that two more years of work are necessary before the excavations at Kom Aushim can be completed.

**Prussian State Library
Union Catalogue**

The Prussian State Library in Berlin has received from the Foundation an appropriation to be applied toward the expense of preparing materials for a Union Catalogue of seven million titles, to be found in its own library, in the ten Prussian university libraries, in the State Library of Bavaria, and in the National Library of Vienna. This undertaking is one of three extensive cataloguing projects now in progress in Europe, the others being the Catalogue of Printed Books in the British Museum and the General Catalogue of the Bibliothèque Nationale in Paris. To the two latter projects the Foundation has made similar contributions.

The Union Catalogue of Prussian libraries was begun in 1929 as a result of a request from the Committee on Intellectual Cooperation of the League of Nations, for the promotion of international understanding through library channels. The library holdings to be listed extend from the year 1534 to the present. The German national book loan service will be greatly improved by the existence of this unified catalogue, which will also

provide an important source of information for scholars in other countries. Through it, German libraries now having assignments for the purchase of books in special fields will be able to make their holdings readily available to other institutions and to individual research workers. Since the location of each item will be indicated, scholars will be able to center their studies at points having the largest holdings in their special fields and to draw on other institutions for unusual items.

When finished, the catalogue will consist of 150 volumes. It is estimated that the work will require twenty years for completion. The first two volumes, issued during the past year, have been distributed to 261 subscribers in all parts of the world. In order to effect completion of the entire 150 volumes within the time set, it will be necessary to increase the output of prepared material. The appropriation of the Foundation will make possible the employment of additional workers for the preparation of material. The cost of printing and distributing the catalogue has been provided for from other sources.

Thesaurus Linguae Latinae

The Foundation has made an appropriation toward the support of work on the *Thesaurus Linguae Latinae*, which is now being compiled in Munich, Germany. Payments will be made an-

nually over a five-year period. The *Thesaurus Linguae Latinae* was begun in 1893, with a view to producing a complete scientific record of forms and meanings in the Latin language from its beginnings until its general transformation into various Romance languages about the beginning of the seventh century. It has since become the largest undertaking of five German and Austrian academies, those of Berlin, Göttingen, Leipzig, Munich, and Vienna. The syntactical and illustrative materials used in compiling the thesaurus are arranged on the plan of the *Oxford Dictionary*, which gives specific and dated evidence on documents that concern students of language, literature, theology, law, history, and social custom. A large part of the text is already in print, and the remainder is well under way.

The director of the work is Dr. Georg Dittmann, who has at present a staff of three assistant editors, five fellows, and four assistants. Parts of the volumes have been issued fairly regularly to subscribers, as they have been completed, and today the thesaurus is the primary source of information on the meanings and forms of all Latin words that appear in the first half of the alphabet. As a result of the economic depression, support for this project has been greatly reduced during the past few years. The Foundation's grant will serve to supplement the funds available for the

continuation of the work during the next five years.

**University Presses
Educational Directory**

An appropriation for a three-year period, ending June 30, 1935, was made through the University of Chicago toward expenses involved in establishing an Educational Directory in the form of cooperative mailing lists for university presses and other publishers of scholarly material. Definite support has been secured from eleven of the leading university presses. In addition, a number of other organizations, including commercial publishing houses and bookstores, are making use of the service. It is expected that at the end of the three-year period the directory can be operated without a deficit. A part of the Foundation's grant will be expended for cards, addressographs, drawers, and other materials necessary for the setting up of 125,000 names on the cooperative mailing lists.

Grants in Aid of Individual Scholars

In accordance with the general policy of the Foundation, small sums were granted in support of definite projects of humanistic research which are being carried out by mature scholars. Requests for grants of this character which originate

in America are ordinarily cared for by the American Council of Learned Societies. For the past two years grants have been made primarily for bibliographical and linguistic work that could be completed within a year. Usually the aid has been supplemented with funds from other sources. The amount appropriated in 1932 was used mainly for continuing awards to foreign scholars.

Among the grants made during the year were the following: to the University of Munich, to enable Dr. Eva Fiesel, lecturer in the Etruscan language, to complete studies in Etruscan initiated under the direction of the late Professor Reinhard Herbig; to Kern Institute, Leiden, Netherlands, toward the cost of preparing materials for the sixth volume of the annual *Bibliography of Indian Archeology*, issued under the direction of Professor J. P. Vogel, of the institute; to Professor Adolf Deissmann, prorector, University of Berlin, toward the cost of certain surveys and investigations required for a publication on excavations already completed at Ephesus by the Austrian Archeological Society.

Fellowships

American Council of Learned Societies

From funds supplied by The Rockefeller Foundation previous to 1932, the American

Council of Learned Societies has provided forty fellowships in the humanities. Seventeen of these were granted during 1932. All the awards were postdoctoral fellowships intended to provide opportunity for further training and experience in humanistic research. The awards were made to younger American scholars of unusual ability likely to become leaders in their respective fields. In 1932 the distribution of fellowships by subjects was as follows: three each in Far Eastern studies and linguistics; two each in French and English literature; one each in medieval history, American history, philosophy, and Latin paleography; and one each in Arabic, Indic, and Assyrian studies. Work was carried on in fourteen countries: China, France, Germany, Great Britain, India, Iraq, Italy, Japan, Lithuania, Netherlands, Palestine, Switzerland, Turkey, and the United States.

American School of Classical Studies at Athens

An appropriation was made to the American School of Classical Studies at Athens, Greece, for fellowships in archeology in connection with the excavation of the Athenian Agora. The aim of these fellowships is to provide competent and well-trained classical archeologists for research and teaching in American institutions, utilizing the opportunities for experience and training

afforded by the excavations in progress in Athens.

In 1929 funds were made available for the appointment of fellows for three-year periods of study. Subsequently, in 1931, additional funds were supplied for completing the tenures of the fellows appointed during 1931 and 1932. Under these grants seven fellows have now been appointed.

A grant was made in 1932 to maintain the present number of fellows, six in any given year, through 1935-36. The fellows appointed in 1932 have done graduate work in seven American colleges and universities. Three had studied in Greece and Rome and had obtained field experience before appointment. One of the earliest appointees is now directing important excavations for the Greek Government.

THE HUMANITIES
STAFF DURING 1932

DIRECTOR
David H. Stevens

REPORT OF THE TREASURER

TREASURER'S REPORT

In the following pages is presented a report of the financial transactions of The Rockefeller Foundation for the year ended December 31, 1932.

A brief summary of the Prior Obligations and Appropriations Accounts follows:

Balance in Prior Obligations Account, December 31, 1931	\$16,738,274.66	
Less unused balances of appropriations and authorizations allowed to lapse	2,765,007.57	\$13,973,267.09
Balance in Appropriations Account, December 31, 1931	\$42,486,288.93	
Amount transferred from Principal Fund	2,509,833.82	
Income and refunds received during the year ..	10,327,352.95	
Unused balances of appropriations allowed to lapse	169,507.57	55,492,983.27
		<u>\$69,466,250.36</u>
Disbursements	\$13,737,858.28	
Appropriations and obligations not yet paid ...	52,798,216.01	66,536,074.29
Balance available for appropriation, December 31, 1932		<u><u>\$2,930,176.07</u></u>

This available balance exists only because an authorization of \$6,000,000, payable from principal to the extent that income proves insufficient, has been wholly charged against principal. During the year \$2,523,833.82 has been set aside from principal, \$2,509,833.82 to Appropriations Account to take care of the excess of projects voted over the balance available in Appropriations Account on April 13, 1932, and \$14,000 to Reserve for Contingent Projects. The cancellation of contingent projects in the sum of \$6,075,000 and the lapsing of authorizations amounting to \$2,595,500 resulted in a net increase in principal of \$6,146,666.18, or a balance of \$147,522,644.31 on December 31, 1932.

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. Lybrand, Ross Brothers, and Montgomery, who have rendered a report to the Chairman.

The financial condition and operations are set forth in the appended exhibits as follows:

Balance Sheet	Exhibit A
Consolidated Statement of Funds Available for Appropriation and Disbursement	Exhibit B
Statement of Appropriations Made During the Year 1932	Exhibit C
Statement of Payments During 1932 on Ap- propriations Made in 1932 and Prior Years	Exhibit D

Statement of International Health Division Designations and Payments	Exhibit E
Summary of Prior Obligations Account	Exhibit F
Summary of Appropriations Account	Exhibit G
Statement of Principal Fund	Exhibit H
Statement of Land, Buildings, and Equipment Fund	Exhibit I
Schedule of Securities	Exhibit J

EXHIBIT A
BALANCE SHEET—DECEMBER 31, 1932

ASSETS

INVESTMENTS			
Securities (ledger valuation).....			\$183,272,182.76
CURRENT ASSETS			
Certificates of Deposit.....	\$14,000,000.00		
Cash on deposit.....	2,713,360.60		
Sterling on deposit in London, £603,055-13-9 @ 3.571397.....	2,153,751.24		
Advances and deferred charges under appropriations and sundry accounts receivable.....	2,640,936.31	21,508,048.11	
LAND, BUILDINGS, AND EQUIPMENT			
In New York.....	\$47,935.07		
In Paris.....	65,981.18		
In China.....	298,331.95	412,248.20	
			<u>\$205,192,479.11</u>

EXHIBIT A
BALANCE SHEET—DECEMBER 31, 1932

FUNDS

PRINCIPAL FUND.....				\$147,522,644.31
RESERVE FOR CONTINGENT PROJECTS.....				1,514,000.00
APPROPRIATIONS FUNDS				
Appropriations, pledges, and authorizations made prior to January 3, 1929				
Unpaid appropriations....	\$9,443,491.84			
Unpaid pledges and authorizations.....	1,434,460.00	\$10,877,951.84		
Appropriations, pledges, and authorizations made subsequent to January 3, 1929				
Unpaid appropriations....	\$30,743,314.15			
Unpaid pledges and authorizations.....	11,176,950.02	41,920,264.17	52,798,216.01	
BALANCE AVAILABLE FOR APPROPRIATION.....				2,930,176.07*
CURRENT LIABILITIES				
Accounts Payable.....				15,194.52
LAND, BUILDINGS, AND EQUIPMENT FUND.....		\$412,248.20		
			412,248.20	
				<u>\$205,192,479.11</u>

* This available balance exists only because an authorization of \$6,000,000, payable from principal to the extent that income proves insufficient, has been wholly charged against principal.

EXHIBIT B
CONSOLIDATED STATEMENT OF FUNDS AVAILABLE
FOR APPROPRIATION AND DISBURSEMENT

AMOUNTS AVAILABLE	
Prior Obligations Account	
Balance, December 31, 1931.....	\$16,738,274.66
Less	
Unused balances of appropriations allowed to lapse, credited to	
Appropriations Account.....	\$169,507.57
Authorizations allowed to lapse, returned to Principal Fund.....	2,765,007.57
	<u>\$13,973,267.09</u>
APPROPRIATIONS ACCOUNT	
Balance, December 31, 1931.....	\$42,486,288.93
Amount transferred from Principal Fund in accordance with a resolution of the	
Board of Trustees dated April 13, 1932.....	2,509,833.82
Income received during the year 1932.....	10,323,978.64
Refunds received during the period.....	3,374.31
Unused balances of appropriations allowed to lapse (prior obligations).....	169,507.57
	<u>55,492,983.27</u>
	<u>\$69,466,250.36</u>
DISBURSEMENTS	
Universities and other educational institutions	
Education	
Medical sciences.....	\$463,593.94
Nursing.....	78,930.76
Social sciences.....	183,995.17
Natural sciences.....	200,590.75
General.....	2,500.00
Departmental development.....	1,500,076.20
Research programs.....	2,109,337.50
Land and buildings.....	519,569.17
	<u>\$5,058,893.57</u>

Research institutions and organizations	
Education	
Medical sciences.....	\$3,477.13
Social sciences.....	20,086.06
General.....	9,212.50
General development.....	640,130.74
Research programs.....	732,112.94
Land and buildings.....	5,754.25
	<u>\$1,410,773.62</u>
Special committees and commissions.....	240,727.94
Fellowships and grants in aid.....	1,516,060.99
Miscellaneous.....	1,137,111.28
Public health.....	2,539,057.15
General.....	1,035,344.22
Administration.....	799,889.51
	<u>\$13,737,858.28</u>
	<u>\$55,728,392.08</u>
Balance, December 31, 1932.....	
This balance is available as follows:	
Amount due on appropriations, pledges, and authorizations made prior to January 3, 1939.....	\$10,877,951.84
Amount due on appropriations, pledges, and authorizations made on or subsequent to January 3, 1939.....	41,920,264.17
	<u>\$52,798,216.01</u>
This sum is due in the following years:	
1933.....	\$23,842,105.01
1934.....	9,149,283.00
1935.....	8,096,722.00
1936.....	4,360,488.00
1937.....	3,482,159.00
1938.....	2,372,658.00
1939.....	710,883.00
1940.....	793,918.00
	<u>\$52,798,216.01</u>
Balance available for appropriation.....	<u>2,930,176.07</u>
	<u>\$55,728,392.08</u>
This sum is accounted for in securities and cash.	

EXHIBIT C

APPROPRIATIONS MADE DURING THE YEAR 1932

THE ROCKEFELLER FOUNDATION

Albany Medical College, Albany, New York.....	\$20,000.00
American Institute of Physics, New York City.....	15,000.00
American Mathematical Society, New York City.....	9,000.00
American School of Classical Studies at Athens, Greece.....	25,000.00
Australian National Research Council, Sydney, Australia.....	6,500.00
Behavior Research Fund, Chicago, Illinois.....	25,000.00
Bernice P. Bishop Museum, Honolulu, Hawaii.....	13,000.00
Brown University, Providence, Rhode Island.....	20,000.00
California Institute of Technology, Pasadena, California.....	40,000.00
Carlsberg Foundation, Copenhagen, Denmark.....	250,000.00
China Medical Board, Inc., New York City.....	80,000.00
Chinese Medical Association, Peiping, China.....	8,200.00
Cities Census Committee, New York City.....	5,000.00
Columbia University, New York City.....	24,000.00
Committee on Costs of Medical Care, Washington, D. C.....	60,000.00
Committee on Grading of Nursing Schools, New York City.....	10,000.00
Community Council of Philadelphia, Philadelphia, Pennsylvania.....	7,500.00
Council on Foreign Relations, New York City.....	75,000.00
East Harlem Nursing and Health Service, Inc., New York City.....	90,000.00
Emergency Unemployment Relief Committee, New York City.....	750,000.00
<i>Encyclopaedia of the Social Sciences</i> , New York City.....	150,000.00
Fellowships.....	
Medical sciences.....	90,000.00
Natural sciences.....	100,000.00
Psychiatry.....	80,000.00
Social sciences.....	435,000.00

TREASURER'S REPORT

Fukien Christian University, Foochow, China.....	\$15,000.00
German School of Political Science, Berlin, Germany.....	35,000.00
Great Smoky Mountains Memorial Fund, Washington, D. C.....	500.00
Harvard University, Cambridge, Massachusetts.....	420,000.00
Hungarian Scholarship Council, Budapest, Hungary.....	9,000.00
Industrial Relations Counselors, Inc., New York City.....	7,500.00
Institute of International Economics and Maritime Trade, Kiel, Germany.....	16,000.00
International Commission for the Polar Year 1932-33, Copenhagen, Denmark.....	40,000.00
International Health Division of the Rockefeller Foundation, New York City.....	2,529,214.00
Jean Jacques Rousseau Institute, Geneva, Switzerland.....	23,000.00
Johns Hopkins University, Baltimore, Maryland.....	105,000.00
Kaiser Wilhelm Institute of Anthropology, Human Heredity, and Genetics, Berlin-Dahlem, Germany.....	9,000.00
Kaiser Wilhelm Institute for Brain Research, Berlin-Buch, Germany.....	14,200.00
Kaiser Wilhelm Institute of Physical Chemistry and Electrical Chemistry, Berlin-Dahlem, Germany.....	13,200.00
Kaiser Wilhelm Institute of Physical Chemistry, Berlin-Dahlem, Germany.....	200,000.00
Leland Stanford Jr., University, Stanford University, California.....	20,000.00
Long Island Biological Association, Cold Spring Harbor, Long Island.....	6,000.00
Massachusetts Institute of Technology, Cambridge, Massachusetts.....	1,297,652.00
McGill University, Montreal, Canada.....	15,000.00
Medical literature for Russia.....	30,000.00
Medical Research Council, London, England.....	20,000.00
National Institute of Industrial Psychology, London, England.....	6,000.00
National Institute of Public Administration, New York City.....	233,000.00
National Research Council, Washington, D. C.....	165,000.00
New York School of Social Work, New York City.....	30,000.00
Notgemeinschaft der Deutschen Wissenschaft, Berlin, Germany.....	20,000.00
Ohio Wesleyan University, Delaware, Ohio.....	12,000.00
Peiping Union Medical College, Peiping, China.....	16,000.00
Princeton University, Princeton, New Jersey.....	50,000.00
Prussian State Library, Berlin, Germany.....	
Research aid.....	25,000.00
Humanities.....	

EXHIBIT C—Continued

Medical sciences in Europe.....	\$90,000 00
Natural sciences in Europe.....	35,000 00
Returned fellows of the Rockefeller boards in countries where research aid is not otherwise provided for	10,000 00
Social sciences in Europe.....	50,000 00
Research aid and developmental aid in the natural and medical sciences in China.....	15,000 00
Resident fellowships in the natural sciences in China.....	5,000 00
Royal Institute of International Affairs, London, England.....	150,000 00
St. Luke's International Medical Center, College of Nursing, Tokyo, Japan.....	408,000 00
School of Oriental Studies, London Institution, University of London, England.....	36,000 00
Shantung Christian University, Tsinan, China.....	18,000 00
Syracuse University, Syracuse, New York.....	50,000 00
<i>Thesaurus Linguae Latinae</i> , Munich, Germany.....	20,000 00
Tulane University of Louisiana, New Orleans, Louisiana.....	66,000 00
University of Chicago, Chicago, Illinois.....	631,967 00
University of Cincinnati, Cincinnati, Ohio.....	85,000 00
University of Göttingen, Göttingen, Germany.....	50,000 00
University of Liverpool, Liverpool, England.....	4,400 00
University of Lyon, Lyon, France.....	160,000 00
University of Michigan, Ann Arbor, Michigan.....	35,000 00
University of Minnesota, Minneapolis, Minnesota.....	75,000 00
University of Montreal, Montreal, Canada.....	25,000 00
University of Nanking Hospital, Nanking, China.....	2,421 00
University of North Carolina, Chapel Hill, North Carolina.....	105,000 00
University of Oregon, Eugene, Oregon.....	13,000 00
University of Paris, Paris, France.....	120,000 00
University of Pennsylvania, Philadelphia, Pennsylvania.....	50,000 00
University of Rochester, Rochester, New York.....	35,000 00
University of Texas, Austin, Texas.....	125,000 00
University of Toronto, Toronto, Canada.....	87,500 00

University of Washington, Seattle, Washington.....	\$15,000 00
Washington University, St. Louis, Missouri.....	15,000 00
Western Reserve University, Cleveland, Ohio.....	107,500 00
Yale University, New Haven, Connecticut.....	275,000 00
Zoological Station of Naples, Naples, Italy.....	18,000 00
Administration, 1933.....	818,810 00
	<u>\$11,577,064.00</u>

EXHIBIT D

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PAYMENTS DURING 1932 ON APPROPRIATIONS MADE IN 1932 AND PRIOR YEARS

	APPROPRIATIONS	1932 PAYMENTS
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UNIVERSITIES AND OTHER EDUCATIONAL INSTITUTIONS

Medical Science Education		
Albany Medical College, Albany, New York	\$20,000.00	\$15,000.00
Organization of extension teaching in medicine (RF 32067)		
Brussels Belgium Assistance Publique	20,000.00	10,000.00
Maintenance of St. Pierre Hospital RF 31097)		
China Medical Board, Inc., New York City	304,000.00	304,000.00
General purposes (RF 31112)	20,000.00	
Salary and expenses of director (RF 29067)		
Chulalongkorn University Bangkok, Siam	2,834.79	109.29
Equipment and supplies for medical, premedical, and nursing schools (ME 21059, 21093, 21148)	90,921.56	21,629.14
Visiting professors and nurse leaders (ME 28039, RF 29110, 30063, 31113)		
National Central University, Nanking, China	73,002.41	16,481.72
Medical School, Shanghai. Maintenance RF 29039)		
Peiping Union Medical College, Peiping, China		
Commutation of foreign and visiting professors and travel of visiting professors (ME 28121, 28122, RF 29038)	50,527.47	34,972.65
Depreciation, Peiping stores CM 2760)	88,282.81	21,891.14
Shantung Christian University, Tsinan, China		
School of Medicine. Maintenance (RF 30062, 30077)	30,575.00	14,510.00
University of Lyon, Lyon, France		
Faculty of Medicine and Pharmacy. Interest on endowment (ME 21252, 28139, RF 29153)	12,635.00	
University of Montreal, Montreal, Canada		
Faculty of Medicine. Development of laboratories (RF 31098, 32065)	50,000.00	25,000.00

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Public Health Education		
University of the Philippines, Manila, Philippine Islands	\$250.73	\$
Graduate School of Hygiene and Public Health. Salary and travel of visiting professors (ME 28091)		
Nursing Education		
Emergency aid to schools of nursing in Budapest, Cracow, Debreczen, Warsaw, and Zagreb (RF 31090)	45,000.00	14,000.00
St. Luke's International Medical Center, Tokyo, Japan		
College of Nursing		
Educational features (RF 32009)		
Endowment RF 32088)	8,000.00	8,000.00
School for Public Health Nurses, Cluj, Rumania	400,000.00	
Improvement of teaching facilities RF 29112)		
State Central School of Nursing, Budapest, Hungary	8,235.65	468.30
Maintenance (ME 28089)	6,000.00	3,500.00
State Institute of Public Health, Prague, Czechoslovakia		
School of Nurses for Public Health and Social Welfare		
Improvement of teaching services (RF 30082)	25,000.00	
University of Cracow, Cracow, Poland		
School of Public Health and Bedside Nursing		
Salaries and scholarships (ME 2927)	2,067.14	
University of Lyon, Lyon, France		
School of Nursing. Health center for field training courses (ME 28027)	28,000.00	10,000.00
University of Toronto, Toronto, Canada		
School of Nursing. Maintenance (RF 32080)	87,500.00	7,962.50
Vanderbilt University, Nashville, Tennessee		
School of Nursing. Educational features (RF 29121)	52,500.00	34,999.96
Social Science Education		
American University of Beirut, Beirut, Syria		
Work in social science and commercial education (RF 31014)	25,000.00	10,000.00
Atlanta School of Social Work, Atlanta, Georgia	3,408.75	3,408.75
General budget (RF 30114)		

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EXHIBIT D—Continued

UNIVERSITIES AND OTHER EDUCATIONAL INSTITUTIONS—Continued

	APPROPRIA- TIONS	1932 PAYMENTS
Social Science Education—Continued		
German School of Political Science, Berlin, Germany	\$35,000.00	\$30,000.00
Research and instruction in political science (RF 32039)		
National Catholic School of Social Service, Washington, D. C.	37,500.00	15,000.00
Budget for instruction (RF 31040)		
New York School of Social Work, New York City	5,000.00	5,000.00
Courses for institutional workers (RF 29053)	165,000.00	
General budget (RF 33043)		
Tulane University of Louisiana, New Orleans, Louisiana	9,000.00	9,000.00
Expansion program of its training course in social work (LS 822)	66,000.00	6,000.00
General budget (RF 32041)		
University of Chicago, Chicago, Illinois		
School of Social Service Administration	1,000,000.00	
General endowment (LS 708, RF 31032)	17,667.00	\$833.50
Interest on RF 31032 (RF 32082)	133,782.28	51,252.92
Current expenses (RF 31039)		
University of Vienna, Vienna, Austria		
Psychological Institute. General program (RF 31093)	16,000.00	8,000.00
Western Reserve University, Cleveland, Ohio		
School of Applied Social Sciences		
Expansion program (LS 783, 784)	12,500.00	12,500.00
Support (RF 32042)	82,500.00	
Yenching University, Peiping, China		
College of Applied Social Sciences		
Strengthening of work (LS 946)	95,000.00	25,000.00

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Natural Science Education			
China			
Maintenance of science departments	\$20,940.62	\$2,500.00	
Fukien Christian University, Foochow (RF 29030, 32026)	4,137.50	1,000.00	
Lingnan University, Canton (CM 2761)	2,812.02		
National Central University, Nanking (CM 2762)	1,733.75	932.50	
Shanghai College, Shanghai (CM 2688)	53,125.00	21,875.00	
Yenching University, Peiping (RF 30020, 30064)	500,000.00	174,583.25	
Endowment of science departments			
Yenching University, Peiping (RF 29078, 32081)	5,000.00	2,500.00	
General Education			
New Education Fellowship, London, England. General program (RF 31081)			
Departmental Development			
American University of Beirut, Beirut, Syria			
Improvement of teaching facilities in the medical sciences, nursing, and the pre-medical subjects (RF 31124)	450,000.00	45,833.26	
California Institute of Technology, Pasadena, California	500,000.00		
Development of natural sciences, including buildings and equipment (RF 30080)			
Harvard University, Cambridge, Massachusetts	19,888.29	19,888.29	
Graduate School of Business Administration. Aid to library (LS 819)	448,901.89	448,901.89	
Research in astronomy. Buildings, equipment, and endowment (RF 29130)	140,031.50	29,995.38	
School of City Planning. Support (RF 29072)			
Keio Gijuku University, Tokyo, Japan			
Salary and expenses of visiting professors in the biological sciences (ME 21168, 28432)	33,398.81	11,059.72	
Leland Stanford, Jr. University, Stanford University, California			
Hopkins Marine Station, Pacific Grove, California. Library fund (RF 30018)	20,000.00	20,000.00	
London School of Economics and Political Science, London, England			
Library development (RF 31030)	50,000.00		
Improving facilities for research and postgraduate teaching (RF 31031)	192,958.44	31,763.20	
McGill University, Montreal, Canada			
Endowment of teaching and research in neurology, neurosurgery, and the physiology and pathology of the nervous system (RF 32040, 32041)	1,050,000.00	26,787.50	

EXHIBIT D—Continued

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UNIVERSITIES AND OTHER EDUCATIONAL INSTITUTIONS—Continued

Departmental Development—Continued
 Nankai University, Tientsin, China
 Support of Institute of Economics (RF 31123)
 New York School of Social Work, New York City
 Development of faculty and research program (LS 752)
 Syracuse University, Syracuse, New York
 School of Citizenship and Public Affairs Research and training (RF 32037)
 Tohoku Imperial University, Sendai, Japan
 Salary and expenses of visiting professors in biological sciences (ME 21167)
 University of California, Berkeley, California
 Program of graduate training and research in public administration (RF 29108)
 University of Chicago, Chicago, Illinois
 Assistance in connection with research program in the social sciences (LS 813)
 Training and research in public administration (RF 32035)
 University of Cincinnati, Cincinnati, Ohio
 Training in public administration (RF 32036)
 University of Leipzig, Leipzig, Germany
 Institute of Physiological Chemistry Research aid (RF 31016)
 University of London, London, England
 University College, Endowment of department of zoology and comparative anatomy (RF 31120)
 University College Hospital Medical School Professorship in clinical research (RF 31119)
 University of Minnesota, Minneapolis, Minnesota
 Establishment of a laboratory for rock analysis (RF 29058)
 University of North Carolina, Chapel Hill, North Carolina
 Research professorship in economic theory (LS 974)
 University of Oslo, Oslo, Norway
 Institute of Theoretical Astrophysics Equipment (RF 31035)

APPROPRIATIONS

1932 PAYMENTS

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\$75,000.00 \$2,047.62
 25,000.00 25,000.00
 50,000.00
 30,914.27 9,096.07
 129,750.00 37,250.00
 41,520.65 41,520.65
 125,000.00 12,500.00
 85,000.00 7,500.00
 64,623.54 10,978.80
 370,000.00 321,970.00
 200,000.00 179,399.54
 6,468.28 2,030.46
 20,000.00
 15,000.00

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University of Paris, Paris, France
 Department of parasitology Support (RF 30065)
 University of Szeged, Szeged, Hungary
 Departments of science and medicine
 Maintenance (RF 31026)
 Scientific equipment (RF 31025)
 University of Washington, Seattle, Washington
 Chartering and maintaining boat for oceanographic work (RF 30079, 32011)
 Yale University, New Haven, Connecticut
 Institute of Human Relations
 Development of psychiatry and care of individuals under observation (RF 29002)
 Maintenance of an anthropoid experiment station, Orange Park, Florida (RF 29090)
 Research Programs
 Alaska Agricultural College and School of Mines, Fairbanks, Alaska
 Study of the aurora (RF 29118)
 Brown University, Providence, Rhode Island
 Study of the international gold standard (RF 32073)
 California Institute of Technology, Pasadena, California
 Research in physics and chemistry RF 32060
 China Medical Board, Inc., New York City
 Human paleontological research in Asia of the Peiping Union Medical College (RF 32100)
 Columbia University, New York City
 General research fund for development of advanced humanistic work (RF 31051)
 Research and field training in anthropology (RF 32057)
 Research and field work at Greenwich House (RF 29070)
 Research in medical mycology (RF 29027)
 Research in the social sciences RF 30036, 30037
 Research on virus diseases (RF 32055)
 Studies of the common cold (RF 31086)
 Study of compensation for automobile accidents (RF 29071, 30091)

\$25,000.00 \$5,000.00
 21,891.65
 119,000.00 54,040.15
 55,000.00 40,455.91
 767,302.01 99,999.98
 285,000.00 16,457.86
 8,467.57
 20,000.00
 40,000.00 30,000.00
 80,000.00
 75,000.00 37,500.00
 7,500.00
 2,705.66 2,321.55
 16,201.88 11,600.00
 628,600.00 144,999.98
 16,500.00
 30,000.00 15,000.00
 50,290.45 50,173.48

EXHIBIT D—Continued

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UNIVERSITIES AND OTHER EDUCATIONAL INSTITUTIONS—Continued Research Programs—Continued

APPROPRIATIONS	1932 PAYMENTS
Columbia University—Continued	
Studies at the School of Tropical Medicine, University of Puerto Rico, on nutrition in Puerto Rico (RF 30089).....	\$24,000.00
Cornell University Medical College, New York City	
Studies of the rôle of the glands of internal secretion in relation to growth and inheritance (RF 30006).....	212,690.36
Hanover Polytechnic School, Hanover, Germany	
Scientific equipment for research in inorganic chemistry (RF 31151).....	19,720.00
Harvard University Cambridge, Massachusetts	
Chemical research to determine the heats of organic reactions (RF 32098).....	45,000.00
Geophysical research (RF 31134).....	50,000.00
Research in anthropology (RF 31042).....	65,000.00
Research in economics (RF 29068).....	83,174.18
Research in industrial hazards (RF 30031).....	794,212.42
Research in international law (RF 29048).....	31,375.79
Research in physiology and physical chemistry (RF 30028).....	150,000.00
Research fund for social sciences (RF 32032).....	375,000.00
Survey of crime and criminal justice (RF 30077).....	2,500.00
Harvard University and Radcliffe College Cambridge, Massachusetts	
Research in the field of international relations (LS 993).....	396,326.17
Iowa State College of Agriculture and Mechanic Arts, Ames, Iowa	
General research fund in the natural sciences (RF 31077).....	27,500.00
Johns Hopkins University, Baltimore, Maryland	
Biological research (RF 30005).....	313,750.00
General research fund in the humanities (RF 30035).....	70,000.00
Research and graduate work in the department of chemistry (RF 29101).....	10,007.50
Study of civil justice (RF 31090).....	10,000.00

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\$12,000.00
24,999.98
8,419.71
.....
15,000.00
15,000.00
10,617.20
109,675.36
22,713.11
25,498.16
27,125.00
.....
46,829.71
7,500.00
23,750.00
19,999.96
.....
7,222.12

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APPROPRIATIONS	1932 PAYMENTS
Study of deafness (RF 32024).....	\$105,000.00
Study of obstetrical records (RF 29041).....	24,857.94
Leland Stanford, Jr., University, Stanford University, California	
Development of program in the social sciences (LS 786, 787).....	25,000.00
General research fund in the medical sciences (RF 30070).....	62,500.00
Research fund for the social sciences (RF 32031).....	200,000.00
London School of Economics and Political Science, London, England	
Research fund (LS 994).....	60,561.25
Massachusetts Institute of Technology, Cambridge, Massachusetts	
Aerological research (RF 32101).....	6,000.00
General research fund for physics, chemistry, geology, and biology (RF 31050).....	150,000.00
McGill University, Montreal, Canada	
Research in the social sciences (RF 30107).....	95,000.00
Research in surgery (RF 29003, 32097).....	35,000.00
Ohio Wesleyan University, Delaware, Ohio	
Support of the Perkins Observatory (RF 32074).....	20,000.00
Peiping Union Medical College, Peiping, China	
Field studies in kala-azar (CM 2733).....	1,335.12
Human paleontological research in Asia (RF 29047, 32021).....	33,587.45
Princeton University, Princeton, New Jersey	
Research work of the department of geology (RF 29079).....	100,000.00
Palmer Physical Laboratory. Equipment and apparatus (RF 32075).....	16,000.00
Royal Joseph Technical University, Budapest, Hungary	
Support of investigations of problems in the chemistry of carbohydrates (RF 30074).....	1,500.00
Tulane University of Louisiana, New Orleans, Louisiana	
Department of middle American research. Support (RF 31043).....	37,500.00
University of California, Berkeley, California	
Study of chemical aspects of vitamins and hormones (RF 29099).....	20,000.00
University of Chicago, Chicago, Illinois	
Aid to social science facilities (LS 810, RF 31133).....	406,109.53
General research fund in the humanities (RF 31132).....	100,000.00
.....	46,822.27
.....	25,000.00

EXHIBIT D—Continued

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UNIVERSITIES AND OTHER EDUCATIONAL INSTITUTIONS—Continued
Research Programs—Continued

	APPROPRIA- TIONS	1932 PAYMENTS
University of Chicago—Continued		
Oriental Institute. Support of foreign work (RF 32071, 32094)	\$480,050.00	\$179,667.62
Program of local community research (LS 811, 812, RF 31131)	334,295.92	107,345.20
Publication of volumes on comparative civic education (LS 959)	3,307.69	
Research program of the department of anthropology (RF 29069)	37,500.00	15,000.00
Research work in the biological sciences (RF 29083)	76,408.95	29,993.53
Studies in comparative philology (RF 29135)	43,796.48	11,237.24
University of Denver, Denver, Colorado		
Bureau of Business and Social Research. Support (RF 31076)	7,500.00	5,000.00
University of Freiburg im Breisgau, Germany		
Equipment for research work in physical chemistry (RF 30093)	18,733.98	149.67
University of Hawaii, Honolulu, Hawaii		
Sociological research (RF 31096)	45,000.00	30,000.00
University of Leiden, Leiden, Netherlands		
Purchase and endowment of a photographic telescope (RF 30021)	91,776.50	6,931.58
University of Liverpool, Liverpool, England		
Social survey of Merseyside		
Completion of report (RF 32013)	2,000.00	1,897.50
Publication of report (RF 32014)	2,400.00	
University of London, London, England		
School of Oriental Studies, London Institution. Research in African linguistics (RF 32072)	36,000.00	3,467.50
University of Michigan, Ann Arbor, Michigan		
Archeological research at Karanis, Egypt (RF 32103)	35,000.00	
University of Minnesota, Minneapolis, Minnesota		
Economic and social study of unemployment (RF 31004, 32012)	115,000.00	65,000.00
General research fund (RF 31007)	232,500.00	52,500.00

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University of Munich, Munich, Germany		
Institute of Physics. Study of electron movements and related problems (RF 31015)	\$2,500.00	\$1,200.00
University of North Carolina, Chapel Hill, North Carolina		
Program in the social sciences (LS 792, RF 32029)	105,000.00	30,000.00
Research in the natural sciences (RF 32034)	15,000.00	2,500.00
University of Oregon, Eugene, Oregon		
Medical School. General research fund (RF 32051)	13,000.00	3,250.00
University of Oslo, Oslo, Norway		
Research program of the Institute of Economics (RF 31122)	50,000.00	7,020.00
University of Paris, Paris, France		
Radium Institute, Division of Physics. Support of scientific personnel (RF 32076)	120,000.00	
University of Pennsylvania, Philadelphia, Pennsylvania		
Excavations at Ur of the Chaldees (RF 31078)	16,000.00	
General research fund (RF 30094)	60,000.00	19,999.96
Study of living tissues (RF 29064)	66,054.60	24,929.44
Wharton School of Finance and Commerce. Support of the industrial research department (LS 839, RF 32050)	60,000.00	10,000.00
University of Rochester, Rochester, New York		
School of Medicine and Dentistry		
Development of a habit-training clinic in the department of psychiatry (RF 29063)	71,500.00	25,999.92
General research fund (RF 32026)	45,000.00	20,000.00
Special research in dental pathology (RF 31018, 32015)	31,752.46	28,619.96
Studies of the effects, in health and disease, of heat produced by radiation (RF 30090, 32006)	20,810.99	13,205.92
University of Stockholm, Stockholm, Sweden		
General research program in the social sciences (RF 31034)	24,000.00	6,000.00
Increased facilities for investigations in zoophysiology (RF 31149)	12,200.00	5,688.87
University of Texas, Austin, Texas		
Development of program in the social sciences (LS 790, 791, RF 32030)	162,500.00	50,000.00

EXHIBIT D—Continued

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UNIVERSITIES AND OTHER EDUCATIONAL INSTITUTIONS—Continued
Research Programs—Continued

	APPROPRIATIONS	1932 PAYMENTS
University of Toronto, Toronto, Canada	\$16,000.00	\$8,000.00
Department of pediatrics. Research (RF 29028)		
University of Uppsala, Uppsala, Sweden	12,000.00	2,918.61
Institute of Physical Chemistry. Additional research assistants (RF 31150)		
University of Vermont, Burlington, Vermont	11,464.12	11,464.12
Survey of rural life in Vermont (LS 942)		
University of Vienna, Vienna, Austria		
Second Institute of Physics. Research on disintegration of atoms; purchase of spectrograph (RF 30073)	2,000.00	2,000.00
University of Virginia, Charlottesville, Virginia	66,352.54	26,352.50
Program of research in the social sciences (LS 707, RF 30106)		
University of Warsaw, Warsaw, Poland	42,760.60	32,562.01
Institute of Physics. Research apparatus (RF 31027)		
Vanderbilt University, Nashville, Tennessee	250,000.00	50,000.00
School of Medicine. General research fund in the medical sciences (RF 31136)		
Washington University, St. Louis, Missouri	150,000.00	50,000.00
General research fund (RF 30038)	15,000.00	5,000.00
Research on virus diseases (RF 32056)	25,000.00	4,000.00
Western Reserve University, Cleveland, Ohio	250,000.00	
Research on whooping-cough (RF 32025)	1,125,000.00	150,000.00
Yale University, New Haven, Connecticut	11,000.00	
Research fund in the humanities (RF 32033)		
Research in psychology, child development, and social sciences (RF 29008)		
School of Law. Assistance for investigations (LS 900)		
School of Medicine		
General research fund (RF 29147)	100,000.00	23,750.00

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Special research in dental pathology (RF 31103, 32066)	\$37,500.00	\$25,000.00
Support of excavations at Jerash in Transjordan and Dura-Europos in Syria (RF 31047)	30,000.00	22,500.00
Land and Buildings		
Chulalongkorn University, Bangkok, Siam		
Addition to pathology building and a building for the School of Nursing (RF 30023)	138,000.00	42,688.38
London School of Economics and Political Science, London, England		
Erection and equipment of library building (RF 31029)	300,000.00	55,806.81
Purchase of land for expansion of school plant (RF 31028)	150,000.00	
McGill University, Montreal, Canada		
Construction and equipment of a laboratory in the Royal Victoria Hospital (RF 32040)	232,652.00	
Shanghai. Purchase of land for a medical school (CM 2269)	2,031.65	
State Institute of Public Health, Prague, Czechoslovakia		
Building and equipment for School of Nurses for Public Health and Social Welfare (RF 30082)	100,000.00	
University of Breslau, Breslau, Germany		
Building of neurological laboratory (RF 30081)	50,000.00	
University of Geneva, Geneva, Switzerland		
Station of Experimental Zoology. Construction and equipment (RF 31036)	40,000.00	
University of Göttingen, Göttingen, Germany		
Institute of Inorganic Chemistry. Construction and equipment (RF 32049)	50,000.00	4,784.69
University of Lyon, Lyon, France		
Faculty of Medicine and Pharmacy. Land and building (ME 21242, 28138, RF 29152)		
School of Nursing. Building and equipment (RF 32064)	249,344.40	19,630.94
University of Munich, Munich, Germany	160,000.00	24,529.04
Institutes of Zoology and Physical Chemistry. Building and equipment (RF 30022)	165,364.37	162,404.10
University of Nancy, Nancy, France	4,978.04	4,570.88
Institute of Hygiene. Building improvements (ME 28019)		
University of Oslo, Oslo, Norway	90,000.00	7,254.98
Institute of Theoretical Astrophysics. Construction and equipment (RF 31035)		

EXHIBIT D—Continued

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UNIVERSITIES AND OTHER EDUCATIONAL INSTITUTIONS—Continued		THE ROCKEFELLER FOUNDATION	
Land and Buildings—Continued		APPROPRIA- TIONS	1932 PAYMENTS
University of Oxford, Oxford, England	Development of the Bodleian and other libraries at Oxford (RF 31121)	\$2,300,000.00	\$
University of the Philippines, Manila, Philippine Islands	Graduate School of Hygiene and Public Health. Enlargement of building (RF 30055)	23,318.75	23,318.75
University of Sydney, Sydney, Australia	Medical School. Building of clinical laboratory (RF 30011)	402,800.00	73,470.00
University of Stockholm, Stockholm, Sweden	Construction of a social science building (RF 31033)	92,909.81	45,799.20
Greenhouse for departments of biochemistry and plant physiology (RF 31106)	University of Washington, Seattle, Washington	16,000.00	
Building and equipment of oceanographic laboratory (RF 30079)	Yale University, New Haven, Connecticut	40,311.40	40,311.40
Establishment of an anthropoid experiment station at Orange Park, Florida (RF 30001)		15,000.00	15,000.00
RESEARCH INSTITUTIONS AND ORGANIZATIONS			
Medical Science Education			
China Medical Association, Shanghai, China.	General budget (RF 32016)	8,200.00	3,477.13
Social Science Education	Laboratory of Anthropology, Santa Fe, New Mexico. Support of field training course in anthropology (RF 29116)	47,549.71	13,434.56
	Social Science Research Council. Instruction in agricultural economics (RF 30104)	36,861.63	6,651.50
General Education			
Canadian National Committee for Mental Hygiene, Toronto, Canada	Development of training centers for advanced students (RF 30088)	40,000.00	9,212.50

General Development

American Historical Association, Washington, D. C.	\$19,636.65	\$10,786.11
Support of the International Committee of Historical Sciences (LS 564, 951)	175,000.00	45,000.00
American Schools of Oriental Research, Baghdad and Jerusalem	238,333.34	9,109.06
Current expenses (RF 29134)		
Endowment (RF 29134)	27,427.95	
Australian National Research Council, Sydney, Australia		
Visiting professors (ME 21203)	12,000.00	6,000.00
Bermuda Biological Station for Research, Inc., Bermuda		
Support of work (RF 31107)	2,000,000.00	
Brookings Institution, Inc., Washington, D. C.	262,500.00	75,000.00
General endowment (LS 929)		
Support of research (RF 31125)	172.35	
Carlsberg Foundation, Copenhagen, Denmark	250,000.00	199,759.24
Research Institute of Experimental Biology	765,000.00	Cr. 5,214.18
Salary and expenses of director (RF 30066)	75,000.00	50,000.00
Endowment (RF 32052)	3,679.04	3,278.69
Canton of Geneva, Switzerland. Department of Public Instruction		
Postgraduate Institute of International Studies. Maintenance (RF 29136)	20,008.11	7,500.00
Economic Foundation, New York City	12,000.00	6,000.00
National Bureau of Economic Research. Support (LS 930)	30,000.00	20,000.00
Hungarian Biological Research Institute, Tihany, Hungary		
Maintenance (RF 31061)		
Institute for Comparative Research in Human Culture, Oslo, Norway		
General budget (LS 1006, RF 30086)		
Institute of Economics and History, Copenhagen, Denmark		
General budget (RF 30085)		
Institute of Pacific Relations, Honolulu, Hawaii		
General program (RF 31080)		

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EXHIBIT D—Continued

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RESEARCH INSTITUTIONS AND ORGANIZATIONS—Continued	
General Development—Continued	
International Institute for the Study of African Languages and Cultures, London, England	
General budget (RF 31041)	
Jean Jacques Rousseau Institute, Geneva, Switzerland	
General budget (RF 31002)	
Long Island Biological Association, Cold Spring Harbor, Long Island	
Work of the Biological Laboratory (RF 32091)	
Marine Biological Stations, France	
Support of stations at Roscoff and Banyuls (RF 29021)	
National Bureau of Economic Research, New York City	
General budget (RF 29073)	
Social Science Research Council, New York City	
General budget (LS 875)	
Woods Hole Oceanographic Institution, Woods Hole, Massachusetts	
Current expenses (RF 30004)	
Zoological Station of Naples, Naples, Italy	
Current expenses (RF 32087)	
Research Programs	
American Council of Learned Societies, Washington, D. C.	
Research in paleography (RF 29133)	
Support of projects in the field of humanistic studies (RF 31129)	
American Law Institute, Philadelphia, Pennsylvania	
Preparation of a code of laws and rules relating to criminal procedure (RF 30029)	
Study of law administration in the federal courts (RF 31083)	
Association for the Study of Negro Life and History, Washington, D. C.	
Research studies and publications (RF 30053)	

APPROPRIATIONS

1932 PAYMENTS

THE ROCKEFELLER FOUNDATION

\$237,500.00	\$32,110.48
7,000.00	7,000.00
20,000.00	
4,396.68	3,940.11
231,981.32	64,861.27
350,000.00	49,999.96
455,364.00	55,000.00
18,000.00	
56,254.59	21,909.09
290,000.00	11,257.16
2,309.82	2,309.82
25,000.00	10,000.00
14,112.38	9,365.63

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Australian National Research Council, Sydney, Australia	\$60,000.00	\$20,000.00
Anthropological studies (RF 31095)	6,500.00	
Ethnological research in the Melanesian Islands (RF 32059)		
Austrian Institute for Trade Cycle Research, Vienna, Austria	16,000.00	Cr. 478.44
Research program (RF 30087)	40,000.00	17,592.85
Behavior Research Fund, Chicago, Illinois		
General budget (RF 31111, 32054)	13,000.00	5,500.00
Bernice P. Bishop Museum, Honolulu, Hawaii		
Research in Polynesian anthropology (RF 32058)	55,945.62	23,276.56
Canadian National Committee for Mental Hygiene, Toronto, Canada	5,000.00	5,000.00
Program of mental hygiene and social research in Canadian universities (LS 943)	7,500.00	2,500.00
Cities Census Committee, New York City	30,000.00	30,000.00
Publication of handbook on the population of New York (RF 32061)	75,000.00	
Community Council of Philadelphia, Pennsylvania		
Support of department of research (RF 32096)	20,000.00	
Council on Foreign Relations, New York City		
Research on American foreign policy (LS 850)		
Research program (RF 32105)	181,613.54	52,535.71
Dutch Economic Institute, Rotterdam, Netherlands	23,500.00	12,000.00
Research program (RF 31046)	36,000.00	5,000.00
Economic Foundation, New York City	89,000.00	7,500.00
International study of the history of prices (RF 29138)	25,420.33	11,208.79
Industrial Relations Counselors, Inc., New York City	200,000.00	50,000.00
Study of administrative procedure of employment exchanges (RF 31089, 32053)		
Institute of International Economics and Maritime Trade, Kiel, Germany		
Research program (RF 31063, 32083)		
Institute for Psychiatric Research, Munich, Germany		
Research in neurobiology, serology, and biochemistry (RF 31045)		
Institute of Social and Political Sciences, Heidelberg University, Germany		
Research in the social and political sciences (LS 984)		
Institute of Pacific Relations, Honolulu, Hawaii		
Program of research in the social sciences (RF 30084)		

EXHIBIT D—Continued

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RESEARCH INSTITUTIONS AND ORGANIZATIONS—Continued Research Programs—Continued

	APPROPRIA- TIONS	1932 PAYMENTS
International Institute of Public Law, Paris, France	\$20,000.00	\$5,000.00
Research program (RF 31001)		
Kaiser Wilhelm Institute of Anthropology, Human Heredity, and Genetics, Berlin-Dahlem, Germany	9,000.00	2,947.37
Research on twins and the effect of poisons on germ plasm (RF 32077)	14,200.00	2,009.57
Kaiser Wilhelm Institute for Brain Research, Berlin-Buch, Germany		
Special apparatus and maintenance (RF 32063)	4,194.64	3,524.53
Kaiser Wilhelm Institute of Physical Chemistry and Electrical Chemistry, Berlin-Dahlem, Germany	1,500.00	669.32
Special scientific apparatus (RF 30075)		
Marine Biological Association of China, Amoy, China	21,979.65	8,289.97
Support of a marine institute of biology (RF 31108)	20,571.63	11,661.89
Massachusetts Department of Mental Diseases, Boston, Massachusetts	101,250.00	10,389.50
Statistical and record study (RF 31082)	13,000.00	1,910.91
Massachusetts Society for Mental Hygiene, Boston, Massachusetts	30,000.00	10,000.00
Work in the field of mental disorders (RF 30032)		
Medical Research Council, London, England	20,000.00	74,889.46
Research on puerperal fever (RF 31044)	208,193.98	
Research on virus diseases (RF 31153)	400,000.00	
National Institute of Industrial Psychology, London, England		
Research program of institute (RF 30033, 32085)		
National Research Council, Washington, D. C.		
Conferences (RF 32010)		
Research in problems of sex (RF 31066, 32099)		
National Research Fund, Washington, D. C.		
Scientific research (RF 30057)		

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New Zealand. Department of Scientific and Industrial Research	\$7,500.00	\$5,000.00
Work of the Apia Observatory (RF 31079)		
Notgemeinschaft der Deutschen Wissenschaft, Berlin, Germany	87,759.68	25,259.68
Anthropological study of the German population (RF 29137)	5,118.95	5,118.95
Research in the social sciences (LS 971)	25,000.00	2,550.83
Research in international relations (RF 31135)		
Royal Anthropological Institute of Great Britain and Ireland, London, England	10,500.00	5,500.00
General budget (RF 31110)		
Royal Institution of Great Britain, London, England	107,832.50	7,082.50
Davy Faraday Research Laboratory. Endowment and maintenance (RF 30026)		
Royal Institute of International Affairs, London, England	150,000.00	29,440.00
Program of research (RF 32038)	22,500.00	5,000.00
Rumanian Institute of Social Science, Bucharest, Rumania		
General administration and research program (RF 31094)	300.00	300.00
Smithsonian Institution, Washington, D. C.		
Research in radiation (RF 29022)	250,000.00	7,188.95
Social Science Research Council, New York City	225,000.00	
Conferences and planning (RF 31127)	25,000.00	12,500.00
General research projects (RF 31126)	273,052.69	115,996.74
Research planning in the field of international relations (RF 31049)		
Research work (LS 876)	20,000.00	
<i>Thesaurus Linguae Latinae</i> , Munich, Germany		
General budget (RF 32104)	32,500.00	9,655.60
Trudeau Foundation, Trudeau, New York	191,250.00	73,750.00
Research in tuberculosis (RF 30034)		
Welfare Council of New York City		
Support of Research Bureau (RF 31048)		
Land and Buildings		
Hungarian Biological Research Institute, Tihany, Hungary		
Construction of greenhouse (RF 31061)	5,443.24	
Kaiser Wilhelm Institutes of Cell Physiology and Physics, Berlin-Dahlem, Germany		
Land, buildings, and equipment (RF 30027)	360,436.75	

EXHIBIT D—Continued

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RESEARCH INSTITUTIONS AND ORGANIZATIONS—Continued

Land and Buildings—Continued	
Marine Biological Association of the United Kingdom, Plymouth, England	
Addition to laboratory buildings and apparatus (RF 31013)	
SPECIAL COMMITTEES AND COMMISSIONS	
American Institute of Mining and Metallurgical Engineers, New York City	
Mineral inquiry (RF 31016)	
Cambridge University, Cambridge, England	
Expenses of commission visiting libraries in Europe, United States, and Canada (RF 30048)	
Committee on Costs of Medical Care, Washington, D. C.	
General budget (RF 30052, 32001, 32084)	
Committee on Grading of Nursing Schools, New York City	
Publication (RF 32008)	
International Commission for the Polar Year 1932-33, Copenhagen, Denmark	
Equipment and expenses (RF 32022)	
National Institute of Public Administration, New York City	
Commission on Old Age Security (RF 30092, 32003)	
National Research Council, Washington, D. C.	
Work of the Committee on Drug Addiction (RF 31130)	
Research Committee on Social Trends, Washington, D. C.	
Research on recent social changes (RF 29154)	
FELLOWSHIPS AND GRANTS IN AID	
American Council of Learned Societies, Washington, D. C.	
Fellowships in the field of humanistic studies (RF 29084, 31055)	
Grants in aid, support of projects, and administration (RF 29085, 31056)	
American School of Classical Studies at Athens, Greece	
Fellowships in archeology in connection with the excavation of the Athenian Agora (RF 31020, 32093)	

APPROPRIATIONS

\$18,917.50	
\$5,754.25	
10,000.00	
3,173.76	
8,113.11	
124,475.00	
60,000.00	
10,000.00	
40,000.00	
24,086.00	
8,839.93	
7,478.37	
150,000.00	
227,404.25	
145,989.81	
125,505.29	
41,194.14	
162,732.27	
106,571.66	
36,600.00	

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Australian National Research Council, Sydney, Australia	
Fellowships in anthropology (ME 21184)	
Developmental Aid	
China. Medical and natural sciences (RF 31021, 32028)	
Europe. Constructive program of aid to medical education without capital expenditure (ME 28369)	
Fellowships Administered by The Rockefeller Foundation	
Humanities (RF 29142)	
Medical sciences (RF 29140, 30099, 31141, 32110)	
Natural sciences (RF 29077, 29100, 30039, 30042, 31023, 31142, 32023, 32111)	
Nursing (ME 28373, 28376, RF 29149, 30100, 31143)	
Psychiatry (RF 32046, 32113)	
Social sciences (RF 29141, 31057, 32045, 32112)	
Grants in Aid of Research to Returned Fellows of the Rockefeller Boards (RF 32048)	
Hungarian Scholarship Council, Budapest, Hungary	
Foreign scholarships in medicine (RF 29111, 32069)	
Kaiser Wilhelm Institute of Physical Chemistry and Electrical Chemistry, Berlin-Dahlem, Germany	
Scientific equipment (RF 32086)	
Laboratory Aid in Europe	
Equipment and supplies for medical departments and returned foreign fellows in the medical sciences (ME 21206)	
London Hospital, London, England	
Development of neurosurgery (RF 31073)	
Medical Research Council, London, England	
Fellowships in the medical sciences (ME 28126, 32004)	
National Committee for Mental Hygiene, New York City	
Fellowships in mental hygiene (RF 29148)	
National Research Council, Washington, D. C.	
Fellowships	
Biological sciences (RF 29004, 29005, 31053, 29132)	
Medical sciences (ME 21232, RF 29060, 31054)	

\$1,238.23	\$	
8,771.28		3,366.70
2,908.04		765.55
50,000.00		
591,612.63		137,616.41
551,546.53		148,945.78
116,081.59		52,097.57
80,000.00		5,374.97
938,755.36		260,458.84
10,000.00		310.50
16,841.06		5,903.17
13,200.00		
1,348.54		196.81
33,801.47		1,325.52
40,039.47		7,739.09
13,919.64		5,000.00
395,743.07		146,977.32
129,775.55		49,882.96

EXHIBIT D—(Continued)

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FELLOWSHIPS AND GRANTS IN AID—Continued

National Research Council—Continued

Fellowships—Continued

	APPROPRIA- TIONS	1932 PAYMENTS
Physical sciences (ME 21234, RF 29131, 31052)	\$410,800.21	\$144,676.09
Research aid fund (RF 30105, 32010)	125,000.00	75,000.00
Notgemeinschaft der Deutschen Wissenschaft, Berlin, Germany	44,332.98	16,193.12
Fellowships in medical sciences (RF 28127, 32005)	45,010.85	18,485.09
Peiping Union Medical College, Peiping, China	24,078.18	5,885.18
Foreign fellowships for staff (RF 29128)	5,000.00	.....
Fellowships in Peiping Union Medical College for residents of China, Japan, and the Far East (RF 29128)	6,362.84	1,779.41
Philippine Islands	.....	.....
Research in genetics (RF 31152)	.....	.....
Queen's University, Belfast, Northern Ireland	.....	.....
Development of the medical sciences (RF 31069)	.....	.....
Research Aid Funds	.....	.....
China	.....	.....
Medical and natural sciences (RF 31022, 32027)	19,126.88	8,017.64
Europe	.....	.....
Medical sciences (RF 29024, 29127, 30097, 31139, 32106)	391,397.62	96,636.92
Natural sciences (RF 29025, 31067, 31140, 32107)	100,862.49	31,605.04
Social sciences (RF 30007, 32047)	70,135.12	23,972.13
Humanities (RF 30008, 32108)	41,038.25	3,192.00
Social Science Research Council, New York City	.....	.....
Fellowships in the social sciences (RF 29139, 31109)	257,432.46	63,247.28
Graduate fellowships in agricultural economics and rural sociology (LS 910)	55,859.22	28,993.70
Grants in aid of research (RF 31128)	100,000.00	.....
St. Bartholomew's Hospital Medical College, London, England		
Development of pediatrics (RF 31072)	9,467.15	1,953.09

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Trinity College, Dublin, Irish Free State	\$17,976.03	\$6,708.83
Development of the medical sciences (RF 31071)		
University College, Dublin, Irish Free State	15,813.78	5,871.13
Development of the medical sciences (RF 31070)	10,600.00	2,650.00
University of Padua, Padua, Italy	.....	.....
Institute of Histology and Embryology, Research work (RF 31074)	.....	.....
University of Pennsylvania, Philadelphia, Pennsylvania	.....	.....
Henry Phipps Institute for the Study, Treatment, and Prevention of Tuberculosis	.....	.....
Developing and testing a stereofluoroscope (RF 31087)	1,020.25	332.35
University of Turin, Turin, Italy	.....	.....
Institute of Anatomy. Research in problems of growth (RF 31068)	10,540.00	2,635.00
Visita of Individuals and Commissions (RF 30101)	29,744.88	4,500.00
MISCELLANEOUS	.....	.....
Abraham Lincoln Foundation, Dresden, Germany	30,000.00	15,000.00
Continuance of program in humanistic studies (RF 30096)	.....	.....
American Institute of Physics, New York City	15,000.00	.....
Scientific publications (RF 32017)	6,750.00	* 1,125.00
American Mathematical Society, New York City	2,250.00	375.00
Scientific publications (RF 32018)	.....	.....
Support of American Annals of Mathematics (RF 32019)	35,142.52	6,135.65
American Psychological Association, Princeton, New Jersey	.....	.....
Psychological Abstracts (LS 694)	.....	.....
American School of Classical Studies at Athens, Greece	14,000.00	.....
Establishment of a museum of antiquities on the island of Lesbos (RF 31037)	.....	.....
American Society of Civil Engineers, New York City	6,000.00	.....
Publication of earthquake investigations (RF 31104)	.....	.....
Bibliographical Society of America, Buffalo, New York	.....	.....
Expenses of securing subscriptions to the Catalogue of Printed Books of the British Museum (RF 29088)	639.07	.....
Bibliothèque Nationale, Paris, France	.....	.....
Collections of serial publications (RF 30046)	25,000.00	20,001.23

EXHIBIT D—Continued

MISCELLANEOUS—Continued

British Museum, London, England
 To enable the museum to offer to American libraries, at a discount, subscriptions to the new edition of the Catalogue of Printed Books (RF 29086, 30076)
 Additional service in connection with the new edition of the Catalogue of Printed Books (RF 29087)
 Bulletins and Reprints (RF 30098, 31154)
Encyclopaedia of the Social Sciences
 Expenses of production and distribution (RF 31091, 31137, 32114)
 Hospital and Clinic Service, United States
 Research and teaching (RF 29122)
 Hospitals in China
 American Board of Commissioners for Foreign Missions, Tehchow. Maintenance (CM 2784)
 Board of Foreign Missions of the Presbyterian Church in the United States
 Changteh. Maintenance (CM 2781)
 Chefoo. Maintenance (CM 2780)
 Paotingfu. Maintenance (CM 2779)
 Church of Scotland Foreign Mission Committee
 Ichang. Maintenance (CM 2719)
 University of Nanking Hospital, Nanking
 Maintenance (CM 2763)
 Loss in exchange (RF 32078)
 United Christian Missionary Society
 Luchowfu. Maintenance (CM 2785)
 Nantungchow. Maintenance (CM 2218)
 Humanistic Studies in Europe (LS 919)

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APPROPRIATIONS	1932 PAYMENTS
\$97,000.00	\$3,465.47
8,233.60	828.00
25,693.39	7,596.07
319,679.62	154,079.75
1,114.09	950.00
3,043.34	2,281.70
6,556.90	1,500.00
2,500.00	1,500.00
1,500.00	1,500.00
750.00	
7,918.14	669.00
2,421.00	2,421.00
4,372.50	810.25
3,530.06	1,650.00
8,873.61	

League of Nations, Geneva, Switzerland
 Publication of monetary and banking laws (RF 29076)
 Study of problem of double taxation, by the Fiscal Committee (RF 30030)
 Library of the Society of Physicians, Vienna, Austria
 Medical literature (ME 21153)
 Medical Literature for Russia (RF 32092)
 Missions Institutions and Medical Schools in China
 Loss in exchange on Foundation appropriations (CM 2503)
 National Academy of Sciences, Washington, D. C.
 Work of the Committee in Aid of Research Publications (RF 31058)
 National Research Council, Washington, D. C.
 Annual tables of constants and numerical data. Publication (RF 32020)
Biological Abstracts (RF 30108)
 Cost of indexing *Biological Abstracts* (RF 32068)
 Prussian State Library, Berlin, Germany
 Preparation of material for the Union Catalogue of Prussian Libraries (RF 32102)
 Society of the Friends of the Bibliothèque Nationale, Paris, France
 Expenses of printing its General Catalogue (RF 29089)
 Social Science Research Council, New York City
Social Science Abstracts (LS 877)
 Unemployment Relief
 Demonstration of a plan for family food production in connection with industrial employment (RF 31059)
 New York City Emergency Unemployment Relief Committee
 1931-32 (RF 31114, 31115)
 1932-33 (RF 32089, 32090)
 University of Oxford, Oxford, England
 Preliminary studies in connection with the Bodleian Library (RF 29097)

\$40,000.00	\$
76,184.90	
273.98	89.78
15,000.00	
15,000.00	
39,300.00	17,425.00
18,000.00	
88,451.11	79,976.00
20,000.00	5,000.00
50,000.00	
9,000.00	1,000.00
269,302.03	54,485.16
7,500.00	7,247.22
750,000.00	750,000.00
750,000.00	
20,875.92	

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EXHIBIT D—Continued

	APPROPRIATIONS	1932 PAYMENTS
PUBLIC HEALTH		
International Health Division, Rockefeller Foundation		
For work in prior years (See Exhibit E)	\$2,339,578.10	\$2,405,311.79
For work in 1932 (See Exhibit E)	2,729,214.00	
For work in 1933 (RF 32115)	2,529,214.00	
Revolving fund. To provide working capital for the International Health Division (RF 29093)	200,000.00	
Development of Child Health Measures in County Health Programs in Cooperation with United States Public Health Service (RF 29107)	10,208.96	4,287.50
Irish Free State	105,000.00	
Establishment of a national public health laboratory (RF 31118)		
League of Nations, Health Organization, Geneva, Switzerland		
Epidemiological intelligence, public health statistics, public health documentation, international interchange of public health personnel (RF 29092)	585,039.18	129,457.86
Nervous and Mental Diseases Hospital, "Socola," Jassy, Rumania	7,800.00	
Construction of a station for malaria studies (RF 31117)		
Schools and Institutes of Hygiene and Public Health	58,289.31	
Bulgaria, Sofia. Land, building, and equipment (RF 30059)	490,533.42	
Italy, Rome. Buildings and equipment (RF 30025)	6,110.00	
Rumania, Cluj. Additional construction and remodeling (RF 31116)		
Turkey, Angora. Construction, installation, and equipment of Service School of Hygiene (RF 29010)	100,000.00	
Tuberculosis Study Clinic, Kingston, Jamaica	35.86	
Construction of a wing for x-ray work (RF 30060)		
GENERAL*		
Agricultural Club Work	1,181.51	
Administration (RF 30045)		

* These appropriations, while administered by The Rockefeller Foundation under the terms of the consolidation agreement, represent items which would not, in general, be included in the present program of the Foundation.

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Finland (RF 30044)	\$27,820.02	\$13,819.16
Sweden (RF 30043)	10,375.05	2,960.05
American Association of Museums, Washington, D. C.		
Trailside museums in national parks (LS 912)	13,572.50	
American Association of University Women, Washington, D. C.		
Publication fund (LS 664)	443.16	443.16
American Library Association, Chicago, Illinois		
Publication of list of foreign government serials (LS 756, RF 31084)	8,434.87	6,958.68
American Library in Paris, France		
General budget (RF 29098)	5,000.00	5,000.00
Boy Scouts of America, New York City		
Work among special racial groups (LS 970)	843.84	843.84
Revolving fund for benefit of magazine, <i>Boy's Life</i> (LS 560)	49,000.00	
Child Study Fellowship Program (LS 918)	6,069.19	Cr. 104.75
Cleveland Foundation, Cleveland, Ohio		
Child study and parental education center (LS 1007)	12,000.00	12,000.00
Commission on Interracial Cooperation, Atlanta, Georgia		
General budget (LS 999)	288,359.41	36,744.93
East Harlem Nursing and Health Service, Inc., New York City		
General budget (LS 937, RF 31155)	7,590.00	5,625.00
Nursing and health demonstration (RF 31100, 32062)	123,458.34	35,958.34
Fiak University, Nashville, Tennessee		
Teaching and equipment in field of the social sciences (LS 826)	26,392.28	
Research work in the social sciences (LS 827, RF 31064)	14,100.00	5,000.00
Georgia State College of Agriculture and Mechanic Arts, Athens, Georgia		
Child study and parent education center (LS 856, 857)	1,657.35	1,657.35
Girl Scouts, Inc., New York City		
Publication of report (LS 925)	1,500.00	
Research Bureau (LS 842)	13,125.00	
Great Smoky Mountains Memorial Fund, Washington, D. C.		
Expense of Chase National Bank in administering funds (RF 31138, 32117)	1,000.00	500.00

EXHIBIT D—Continued

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GENERAL—Continued	APPROPRIATIONS	1932 PAYMENTS
Harvard University, Cambridge, Massachusetts	\$50,000.00	\$.....
Purchase of Bayer collection of Philippiniana (LS 638)	1,004.13	721.36
Howard University, Washington, D. C.	1,020.05	1,020.05
Library material in field of social science (LS 898)		
Aid to law library (LS 897)	146,000.00	24,000.00
Institute of International Education, New York City		
General budget (LS 911)	20,074.04	17,574.04
Iowa State College of Agriculture and Mechanic Arts, Ames, Iowa		
Work in child study and parent education (LS 906)	23,000.00	.....
Jean Jacques Rousseau Institute, Geneva, Switzerland		
General budget (RF 32002)	10,800.00	5,400.00
Joint Vocational Service, Inc., New York City (For social workers and public health nurses)	7,500.00	5,000.00
League of Red Cross Societies, Paris, France	857.94	857.94
Budget of Junior Red Cross Division (RF 30067)		
Monmouth County (New Jersey) Organization for Social Service	2,411.62	2,411.62
General budget (LS 687)	15,821.68	1,396.00
National Urban League, New York City	5,000.00	5,000.00
General budget (LS 1005)	350,000.00	50,000.00
Peiping Union Medical College, Peiping, China		
Allowance for widow of staff member (RF 29034)	20,000.00	10,000.00
People's Institute, New York City	10,217.00	1,500.00
General budget (LS 761)		
Playground and Recreation Association of America, Inc., New York City		
General budget (LS 1000)		
Regents of the University of the State of New York, Albany, New York		
Work in child study and parent education (LS 902)		
Scholarships in the social sciences and social work, for American negroes (LS 965)		

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Society of the New York Hospital, New York City	\$521,718.10	\$395,589.29
Erection and maintenance of building for Lying-In Hospital (LS 966)		
State of California. Department of Education, Sacramento	7,500.00	7,500.00
Work in child study and parent education (LS 986)	506,763.12	98,172.71
State University of Iowa, Iowa City		
Work in child study and parent education (LS 904, 905, 931, 932)	225,000.00	100,000.00
Teachers College, Columbia University, New York City	100,435.88	46,153.78
Maintenance of Child Development Institute (LS 998)	3,473.31	3,473.31
University of California, Berkeley, California	9,250.00	6,250.00
Maintenance of Institute of Child Welfare (LS 829)	395,000.00	89,149.06
University of Chicago, Chicago, Illinois	3,750.00	3,750.00
Budget of university press (LS 757)	130,000.00	10,000.00
Toward expense of establishing cooperative mailing lists for university presses (RF 32095)	20,423.33	13,098.27
University of Minnesota, Minneapolis, Minnesota	13,204.39	8,917.20
Work in child study and parent education (LS 909, 933, 934)	3,679.60	1,003.83
University of North Carolina, Chapel Hill, North Carolina		
Budget of university press (RF 30047)		
University of Toronto, Toronto, Canada		
Development of child research and parent education (RF 30054)		
Vocational Service for Juniors, New York City		
Training program for counselors (LS 948)		
Y. M. C. A. College, Chicago, Illinois (LS 754)		
Y. M. C. A. and Y. W. C. A. International Survey Committee, New York City (RF 29035)		
ADMINISTRATION		
Executive Offices	119,281.26	19,983.83
1931 (RF 2824, 30109)	780,341.67	651,072.54
1932 (RF 29037, 29115, 30009, 30010, 30078, 31145, 32070)	680,450.00	.....
1933 (RF 32118)		
Treasurer's Office		
1931 (RF 30110, 31101)	10,339.32	8,558.14
1932 (RF 31146)	36,901.42	23,928.97

EXHIBIT D—Continued

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ADMINISTRATION—Continued		
Treasurer's Office—Continued		
1933 (RF 32119)	APPROPRIA- TIONS	1932 PAYMENTS
Paris Office		\$
1931 (RF 30111)		19,030.85
1932 (RF 31147)	30,236.63	68,793.15
1933 (RF 32120)	92,300.00	
Peiping Office		
1931 (RF 30112)	6,848.53	484.44
1932 (RF 31148)	9,650.00	2,365.49
1933 (RF 32121)	10,000.00	
Surveys by Others than Officers (RF 29096, 31003)	41,238.41	5,672.10
Total Appropriations	\$55,607,409.66	
Unused Balances of Appropriations Allowed to Lapse		
Rockefeller Foundation	1,682,745.39	
International Health Division	\$1,267,125.67	
Total Net Appropriations and Expenditures	415,619.72	\$13,737,858.28

REFUNDS		
Marine Biological Association of China (RF 31062)	\$424.26	
Columbia University (LS 917)	1,087.49	
Paris Office (RF 21151)	705.61	
Yugoslavia. Travel of Supervisor (IH 29071)	956.95	
Mississippi Flood Area		
Training Station (IH 23521)		
1929	\$75.00	
1930	125.00	
	200.00	
	\$3,374.31	

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EXHIBIT E
INTERNATIONAL HEALTH DIVISION
DESIGNATIONS AND PAYMENTS

1932
DESIGNA-
TIONS

1932
PAYMENTS

STATE AND LOCAL HEALTH SERVICES		
Public Health Administration		
United States		
Arkansas		\$487.50
1932-33 (IH 31006, 32017)	\$1,600.00	
Georgia		
1933 (IH 30144, 32154)	1,200.00	
Kentucky		
1932-34 (IH 32069, 32186)	10,000.00	
Maryland		
1932-35 (IH 32001)	6,090.00	
Michigan		
1933-35 (IH 32003)	9,000.00	
Mississippi		
1933 (IH 32175)	1,090.00	
Nevada		
1931-32 (IH 31030)		750.00
New York		
1931-33 (IH 30148)		2,000.00
South Carolina		
1932-33 (IH 30006, 32018)	900.00	
Tennessee		
1932-35 (IH 32005)	6,140.00	237.50
Virginia		
1932-33 (IH 32019)	1,500.00	250.00
West Virginia		
1933 (IH 30007, 32155)	2,125.00	

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EXHIBIT E—Continued

STATE AND LOCAL HEALTH SERVICES—Continued

Public Health Administration—Continued

Foreign Countries

	PRIOR DESIGNA- TIONS	1932 DESIGNA- TIONS	1932 PAYMENTS
Canada		\$6,250.00	\$.....
1932-33 (IH 32045).....			
Central America			
Guatemala International Health Division Office, Guatemala City			1,883.15
1931 (IH 31012).....	1,947.61	2,360.00	1,116.74
1932 (IH 31068).....			
The East			
Ceylon and India. Office assistance			
1931 (IH 30173).....	134.16	1,500.00	138.54
1932 (IH 31135).....			
West Indies			
Jamaica. Assistance in Bureau of Health Education			
1932-34 (IH 32046).....		8,000.00	405.62
Puerto Rico			
1931 (IH 30102, 31042).....	4,457.60		3,070.88
1932 (IH 31067, 32032).....		10,850.00	7,053.14
Divisions of Vital Statistics			
United States			
Massachusetts			
1930-33 (IH 30022).....	4,410.46		1,560.00
Mississippi			
1932-33 (IH 32023).....		1,800.00	
Tennessee			
1931-33 (IH 30100, 31035, 31149).....	5,314.42		2,825.48

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Foreign Countries			
Europe			
Denmark			
1930-31 (IH 29253).....	\$105.44	\$.....	\$82.64
Rumania			
1930-34 (IH 30051, 30171, 32016).....	17,490.82	1,400.00	8,581.63
Spain			
1930-33 (IH 32059).....	32,019.52		1,759.61
Yugoslavia			
1931-32 (IH 30101).....	4,134.99		152.95
The East			
India. Travancore			
1932 (IH 32059).....		162.50	
Divisions of Epidemiology			
United States			
Arizona			
1931-33 (IH 31025).....	6,450.00		
Georgia			
1931-33 (IH 31029).....	7,497.63		3,309.97
Iowa			
1932-33 (IH 30092, 31140).....	2,700.00		1,600.00
Kentucky			
1931-34 (IH 30093, 31145, 32157).....	8,773.36	650.00	3,342.69
Maryland			
1930-31 (IH 30004).....	1,670.54		806.65
1931-33 (IH 31063).....	5,500.00		2,606.71
Massachusetts			
1932-35 (IH 32002).....		1,950.00	225.00
Michigan			
Detroit. City Department of Health			
1930-33 (IH 30058, 32156).....	9,250.00	2,000.00	4,368.93

EXHIBIT E—Continued

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STATE AND LOCAL HEALTH SERVICES—Continued
Divisions of Epidemiology—Continued
United States—Continued

	PRIOR DESIGNA- TIONS	1932 DESIGNA- TIONS	1932 PAYMENTS
Michigan—Continued			
State Department of Health			
1932-35 (IH 32004)	\$	\$9,000.00	\$1,063.53
Mississippi			
1931 (IH 30094)	2,692.79	8,920.00	2,386.14
1932-33 (IH 31070, 32158)	6,158.44	8,920.00	1,665.41
Montana			
1931-33 (IH 30095, 31146)	750.00	8,920.00	3,457.69
New York			
1931-32 (IH 30149)	875.00	8,920.00	541.64
North Dakota			
1931-33 (IH 31031)	800.00	8,920.00	500.00
South Carolina			
1931 (IH 30097)	4,096.55	8,920.00	436.38
South Dakota			
1931-33 (IH 30098, 31000)	9,374.28	8,920.00	2,239.81
Tennessee			
1931 (IH 30099, 31034, 31150)	4,000.00	8,920.00	4,781.11
Virginia			
1931-32 (IH 31064)	4,000.00	8,920.00	3,017.10
1933 (IH 32159)	4,000.00	8,920.00	3,017.10
Foreign Countries			
Canada			
British Columbia			
1929-30 (IH 29079)	768.75	4,000.00	3,017.10

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1931 (IH 31052)	\$3,000.00	\$	\$1,516.98
Quebec			
1931-33 (IH 31054)	8,156.25	8,156.25	3,226.27
Europe			
Austria			
1931-35 (IH 30163)	4,873.17	4,873.17	1,232.10
Czechoslovakia			
Equipment (IH 31166)	4,500.00	4,500.00	4,500.00
Denmark			
1930-31 (IH 29264)	1,455.30	1,455.30	1,195.75
1932-34 (IH 32015, 32074)	19,000.00	19,000.00	1,195.75
The East			
India. Travancore			
1932 (IH 32059)	162.50	162.50	1,195.75
Public Health Laboratories			
United States			
Arizona			
1931-33 (IH 31002, 31026, 31027)	7,300.00	7,300.00	450.00
Mississippi			
1931 (IH 30085)	450.00	450.00	450.00
1932-34 (IH 32070)	2,975.00	2,975.00	450.00
South Carolina			
1932-34 (IH 30086, 31147, 32022)	1,350.00	1,350.00	450.00
Tennessee			
1931-33 (IH 30087, 31036, 31151)	3,463.15	3,463.15	1,957.85
Foreign Countries			
Central America			
Costa Rica			
Equipment (IH 32029)	150.00	150.00	150.00
Guatemala			
Equipment and supplies (IH 32011)	300.00	300.00	289.01

EXHIBIT E—Continued

STATE AND LOCAL HEALTH SERVICES—Continued			
Public Health Laboratories—Continued			
Foreign Countries—Continued			
Central America—Continued			
Nicaragua			
Equipment (IH 31061, 32027)	\$169.18	\$300.00	\$469.18
Salvador			
Equipment (IH 32028)		250.00	204.17
Europe			
Rumania			
Equipment (IH 32041)		4,000.00	248.63
South America			
Colombia			
1931 (IH 30090)	919.76	5,000.00	817.31
1932 (IH 31071)			3,622.05
West Indies			
Puerto Rico		1,500.00	467.42
Equipment and supplies (IH 32031)			
Divisions of Public Health Nursing			
Europe			
Denmark			
1931-34 (IH 30164)	11,595.22		3,118.82
Hungary			
1930-34 (IH 30048)	3,950.00		1,374.96
Poland			
1929-31 (IH 29024)	1,750.97		1,321.61
1932 (IH 31072)			

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	PRIOR DESIGNATIONS	1932 DESIGNATIONS	1932 PAYMENTS
South America			
Brazil			
1929-31 (IH 28194, 29254)	\$8,062.96		Cr. \$149.48
Public Health Nursing Films (IH 32035, 32036)		1,300.00	652.01
Divisions of Sanitary Engineering			
United States			
Arizona			
1931-33 (IH 31028)	2,550.00		
Mississippi			
1932-33 (IH 31020)		1,800.00	
North Dakota			
1931-33 (IH 31032)	4,200.00		2,400.00
South Carolina			
1931-33 (IH 30150, 32021)	2,250.00	1,450.00	1,050.00
South Dakota			
1931-33 (IH 31001)	4,032.50		2,137.59
Foreign Countries			
Central America			
Costa Rica and Nicaragua. Water supplies studies (IH 32047)		200.00	3.76
Europe			
Greece			
1931 (IH 31015)	2,826.91		2,019.30
1932 (IH 31133)		7,500.00	4,461.08
Poland			
1930-31 (IH 30016)	2,795.46		2,707.42
1932-33 (IH 31073, 32192)		3,100.00	
The East			
Egypt			
1932 (IH 31074)		6,930.00	1,955.70

EXHIBIT E—Continued

STATE AND LOCAL HEALTH SERVICES—Continued

Divisions of Sanitary Engineering—Continued

Foreign Countries—Continued

The East—Continued

	PRIOR DESIGNA- TIONS	1932 DESIGNA- TIONS	1932 PAYMENTS
India			
Mysore			
1930-32 (IH 29061)	\$6,135.75	\$.....	\$2,368.80
Travancore		925.00	.....
1932 (IH 32054)			
Other State Health Services			
United States			
Florida. Library service	2,025.00	.....	1,012.50
1931 (IH 31139)			
North Dakota. Division of Child Hygiene	4,725.00	.....	2,586.66
1931 (IH 31033)			
Foreign Countries			
Europe			
England. British Colonial Office, London. Bureau of Hygiene and Tropical Diseases	4,915.00	.....	1,520.00
1931-36 (IH 31016)			
France. National Office of Social Hygiene, Paris	24,000.00	.....	9,822.24
1931-33 (IH 30165)			
Norway. State Institute of Public Health, Oslo	35,465.73	.....	3,306.47
1929-34 (IH 29043)			
Poland. Bureau of District Health Work, Warsaw	2,103.30		1,497.35
1929-31 (IH 29023)	110.00	1,300.00	
1932 (IH 31132)			

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	PRIOR DESIGNA- TIONS	1932 DESIGNA- TIONS	1932 PAYMENTS
The East			
India. Bureau of Health Education, Mysore	\$3,107.00	\$.....	\$1,408.10
1931-33 (IH 31056)			
Netherlands East Indies. Division of Health Education, Java	1,786.66	.....	383.29
1931 (IH 30105)		3,325.00	980.77
1932 (IH 31076)			
West Indies			
Jamaica. Bureau of Health Education, Kingston	463.34	.....	194.34
1931 (IH 30106)		2,310.00	1,585.01
1932 (IH 31075)			
Local (County) Health Departments			
United States			
Alabama			
1930-33 Epidemiological Unit (IH 31137, 32184)	19,651.65	5,880.89	5,340.88
1932-33 (IH 32024)		10,000.00	.....
Arizona			
1931-32 (IH 30142, 31021-22)	9,270.84	.....	6,562.50
1932-33 (IH 32025)		6,250.00	.....
Arkansas			
1932-33 (IH 31006, 32024)	1,771.19	7,781.61	2,972.52
California			
1930-33 (IH 29101-03, 30143, 31048, 32176)	5,076.39	1,000.00	2,671.77
Georgia			
1931-33 (IH 30144, 32024, 32160)	9,125.43	2,550.00	5,712.40
Idaho			
1931 (IH 30069-70)	2,100.00	.....	600.00
1932-33 (IH 31077, 32161)		2,400.00	600.00
Indiana			
1930 (IH 30023)	4,600.00	.....	.....
Iowa			
1929-33 (IH 29053, 30071, 31141, 32162)	11,037.53	600.00	3,286.43

TREASURER'S REPORT

EXHIBIT E—Continued

STATE AND LOCAL HEALTH SERVICES—Continued
Local (County) Health Departments—Continued

United States—Continued

	PRIOR DESIGNA- TIONS	1932 DESIGNA- TIONS	1932 PAYMENTS
Kansas			
1931-33 (IH 30056, 30057, 30073, 31142)	\$4,918.76	\$	\$988.89
Kentucky			
1930-33 (IH 29261, 31006, 32024)	6,016.51	9,665.16	2,712.50
Louisiana			
1931 (IH 30005)	1,280.63	10,000.00	250.00
1932-33 (IH 31006, 32024)			
Maryland			
1930 (IH 30024)	1,200.00		541.67
1931 (IH 30145)	16,650.00		5,124.47
Michigan			
1929-34 (IH 29039, 29046-49, 32177)	39,272.28	350.00	11,241.70
Mississippi			
1931-33 (IH 30146, 31006, 32024, 32178-81)	23,199.21	14,460.00	8,522.45
Missouri			
1930-33 (IH 30025, 30026, 32024, 32163)	12,075.00	6,237.50	3,687.50
Montana			
1931 (IH 31005)	2,100.00		1,200.00
Nevada			
1930-32 (IH 30147)	2,500.00		
North Carolina			
1932-33 (IH 32024)		10,000.00	2,442.23
Oklahoma			
1931-33 (IH 30074, 30075, 31143)	8,320.83		687.50

South Carolina			
1930-33 (IH 30006, 32024)	\$7,527.55	\$7,000.00	\$5,202.55
Tennessee			
1930-33 (IH 29099, 32024, 32164, 32165)	9,278.12	11,500.00	7,051.53
Texas			
1930-35 (IH 30032, 30076, 30151, 30152, 31144, 32006, 32182, 32183)	17,040.96	11,900.00	3,996.67
Virginia			
1930-33 (IH 29098, 32024, 32166)	3,041.98	10,500.00	4,810.73
West Virginia			
1930-33 (IH 30007, 31152, 32024, 32173-74)	13,081.53	7,830.00	7,768.03
Emergency Aid			
1932-33 (IH 32024)		2,099.92	
Mississippi Flood Area 1927-32			
Arkansas			
Kentucky	12,274.52		10,405.19
Louisiana	11,231.26		8,019.58
Mississippi	14,535.64		10,321.79
Tennessee	12,505.06		11,663.22
Training Station	375.00		312.50
Unallocated balance	14,472.36		4,533.64
(IH 23521, 31006, 31049)	12,635.02		
Foreign Countries			
Canada			
Alberta			
1931 (IH 31023-24)	13,000.00		4,237.48
British Columbia			
1930-33 (IH 30055, 31003, 31153, 32167)	7,435.00	1,500.00	2,924.93
Manitoba			
1930-33 (IH 30027, 31004, 32044)	7,745.37	5,750.00	2,359.12

EXHIBIT E—Continued

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STATE AND LOCAL HEALTH SERVICES—Continued

Local (County) Health Departments—Continued

Foreign Countries—Continued

Canada—Continued

	PRIOR DESIGNA- TIONS	1932 DESIGNA- TIONS	1932 PAYMENTS
Quebec			
1930-34 (IH 29052, 31053)	\$65,129.66	\$	\$24,898.48
Saskatchewan			
1931-35 (IH 30158)	15,277.81		850.30
Central America			
Guatemala			
1931 (IH 31012)	505.00	2,750.00	255.00
1932-33 (IH 31108, 32010)			269.60
Panama			
1932 (IH 31109)		2,500.00	1,641.38
Mexico			
1929-33 (IH 29030, 29165, 30060-63, 30077, 31158, 31078-82, 32168-71)	17,023.01	15,385.00	7,951.02
Europe			
Austria			
1929-33 (IH 29069, 31020, 31051)	11,792.92		5,156.00
Bulgaria			
1933 (IH 32073)		750.00	
Czechoslovakia			
1929-32 (IH 29239, 29240, 30042, 31045)	14,536.31		4,290.32
France			
1929-32 (IH 29242, 30013-14, 30166)	11,254.89		6,362.44
Hungary			
1929-32 (IH 28403, 29002-03, 29168, 29244, 30003, 30015, 30049, 30078-81, 31087-91)	28,203.66	23,115.00	24,004.37

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	PRIOR DESIGNA- TIONS	1932 DESIGNA- TIONS	1932 PAYMENTS
Irish Free State			
1930-35 (IH 29245-46, 30050)	\$49,734.65	\$	\$20,567.79
Italy			
1931 (IH 30082, 31170)	16,138.10		5,127.82
Poland			
1929-34 (IH 29067, 29070, 29247-48, 29265, 32064)	17,162.64	150.00*	9,522.72
Rumania			
1931-35 (IH 30170)	11,974.32		2,860.02
Spain			
1929-35 (IH 29251, 32065)	21,442.12	15,000.00	7,150.74
The East			
Fiji			
1932-35 (IH 31159)		12,055.00	1,287.78
India			
Burma			
1929-34 (IH 29060, 32034)	7,795.04	7,670.00	4,138.43
Travancore			
1931-32 (IH 30083, 32055)	4,625.00	2,645.00	
United Provinces			
1933-35 (IH 31163)		22,200.00	
Philippine Islands			
1929-32 (IH 29062, 31057)	10,806.51		3,009.19
West Indies			
Jamaica			
1929-33 (IH 29233-34, 30160, 32048, 31083-86)	4,992.23	2,800.00	3,001.74
Puerto Rico			
1930-33 (IH 29237-38, 30066, 30162, 32072)	5,033.74	15,000.00	2,390.99
PUBLIC HEALTH EDUCATION			
Schools of Hygiene and Public Health			
Europe			
England. London School of Hygiene and Tropical Medicine		25,000.00	25,000.00
Maintenance 1932 (IH 31171)			

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EXHIBIT E—Continued

PUBLIC HEALTH EDUCATION—Continued			
Schools of Hygiene and Public Health—Continued			
Europe—Continued			
Hungary. State Hygienic Institute, Budapest			
School for Public Health Officers			
1929-32 (IH 29093)	\$2,137.44		\$1,418.37
1931-33 (IH 30168, 31169, 32063)	7,825.00	10,070.00	6,647.64
Norway. School of Public Health, Oslo			
Maintenance 1930-35 (IH 30012)	8,100.00		2,555.71
Poland. State Institute and School of Hygiene, Warsaw			
Maintenance 1932 (IH 31136)		13,150.00	
Yugoslavia. School of Public Health, Zagreb			
Maintenance 1932-33 (IH 32040)		20,000.00	
South America			
Brazil. Institute of Hygiene, Sao Paulo	125.53		
Equipment and supplies (IH 22672)			
Schools of Nursing			
United States			
University of Washington, Seattle, Washington			
1931-32 (IH 30140, 31065)	\$,733.34		3,078.85
Washington University, St. Louis, Missouri			
1931-32 (IH 31008)	2,000.00		2,000.00
1932-33 (IH 32008)		6,000.00	
Vanderbilt University, Nashville, Tennessee			
1933-34 (IH 32197)		35,000.00	

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UNDER SCHOOLS			
The East			
Central Medical School for Native Medical Students, Suva, Fiji			
1929-31 (IH 29095)	\$5,282.94	\$	\$1,456.25
First Midwifery School, Peiping, China			
1930-33 (IH 29257)	21,004.02		7,267.05
West Indies			
Trinidad.			
Imperial College of Tropical Agriculture, St. Augustine			
Maintenance of chair of sanitation and tropical hygiene			
1930-32 (IH 29082)	5,000.00		5,000.00
Training of Health Workers			
United States, Canada, and Mexico			
1930-31 (IH 29204, 30112, 31038)	27,364.72		6,515.91
1932 (IH 31096)		21,250.00	6,622.94
Maryland			
1932-34 (IH 32042)		1,750.00	
Europe			
1932 (IH 31097)		5,000.00	1,611.00
Guatemala			
1932 (IH 31098)		1,000.00	
Puerto Rico			
1932 (IH 31099)		5,000.00	4,014.91
Travel of Government Health Officials			
State health officials in United States, Canada, and Mexico			
1931 (IH 30109)	7,044.47		1,969.45
1932 (IH 31093)		12,000.00	2,524.08
European health officials in Europe			
1930-31 (IH 29202, 30047, 30111, 31039)	5,775.48		1,503.57
1932 (IH 31094)		5,000.00	1,235.18
Visiting health officials			
1930-31 (IH 29203, 30110)	20,590.71		3,304.16
1932 (IH 31095)		20,000.00	3,110.61

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EXHIBIT E—Continued

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PUBLIC HEALTH EDUCATION—Continued

	PRIOR DESIGNA- TIONS	1932 DESIGNA- TIONS	1932 PAYMENTS
Training Stations			
United States			
Johns Hopkins University, Baltimore, Maryland			
Field Training and Study Area			
1932-35 (IH 32038, 32195)	\$	\$84,835.00	\$9,833.75
Michigan	18,769.00	.....	2,899.00
1929-32 (IH 29050)			
Foreign Countries			
Africa. Nigeria			
1931-34 (IH 31019)	75,000.00	.....	18,382.27
Canada. Quebec			
1931 (IH 30156)	1,250.00	.....	1,125.00
Europe			
Italy			
1930-31 (IH 29205, 30113)	1,041.76	.....	503.13
1932 (IH 31131)	.....	3,000.00	2,719.98
South America			
Colombia			
1932 (IH 32009)	.....	2,500.00	1,700.14
The East			
India, Travancore			
1932 (IH 32058)	.....	130.00	.....
Fellowships			
Grants to doctors for study of public health			
1929-30 (IH 28358, 29198, 30046, 30053)	29,162.36	.....	13,336.34
1931 (IH 30108, 30169, 31066)	211,218.26		165,414.86
1932 (IH 31092, 32066, 32199)		262,700.00	104,060.91

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	\$2.13	\$	\$
Resident			
Hungary			
(IH 29199)			
CONTROL AND INVESTIGATION OF SPECIFIC DISEASES			
Hookworm Disease			
Control			
Europe			
Spain			
1931 (IH 30114)	850.00	.....	213.05
South America			
Colombia			
1931 (IH 30115)	3,019.01	.....	992.16
1932 (IH 31100, 32009)	.....	8,850.00	6,027.80
Paraguay			
1929 (IH 28197)	726.11	.....	.....
Venezuela			
1932 (IH 31101)	.....	1,000.00	339.93
The East			
Egypt			
1931 (IH 30116)	3,498.01	.....	* 645.66
India, Travancore			
1932 (IH 32057)	.....	385.00	.....
Investigations and Surveys			
United States			
Alabama			
1931 (IH 30141, 31063)	4,624.56	.....	4,235.14
1932 (IH 31020, 31102)	150.00	.....	7,702.44
Johns Hopkins University, School of Hygiene and Public Health,			
Baltimore, Maryland			
1931-32 (IH 31017)	2,210.36		2,179.49
1932-33 (IH 32007)		3,400.00	1,183.06

EXHIBIT E—Continued

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CONTROL AND INVESTIGATION OF SPECIFIC DISEASES—Continued
Hookworm Disease—Continued
Investigations and Surveys—Continued
United States—Continued

	PRIOR DESIGNA- TIONS	1932 DESIGNA- TIONS	1932 PAYMENTS
Mississippi		\$3,350.00	\$.....
1932-33 (IH 32043)			
Vanderbilt University, Nashville, Tennessee			
Research in carbon tetrachloride	19,191.04		15,126.10
1931-32 (IH 31018)		30,000.00	4,396.82
1932-35 (IH 32039)			
Foreign Countries			
Egypt			
1931 (IH 30174)	1,704.34		511.14
1932 (IH 31103)		6,575.00	3,676.62
Western Samoa			
Hookworm and yaws campaign			
1932-34 (IH 31161)	6,800.00		2,376.78
Malaria			
Control			
United States			
Florida		3,000.00	
1932-34 (IH 32068)			
Georgia			
1931 (IH 30117)	982.43		828.06
1932 (IH 31104)		3,500.00	2,344.34
Louisiana			
1931 (IH 30118)	675.00		525.00
1932 (IH 31134)		600.00	

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Mississippi	\$6,117.92	\$.....	\$3,386.51
1931 (IH 30119)			
1932 (IH 31105)		3,750.00	
Virginia			
1931 (IH 30153)	250.00		250.00
Foreign Countries			
Central America			
Costa Rica			
1931 (IH 31013)	750.00		750.00
1932 (IH 31107)		1,500.00	750.00
Guatemala			
1932 (IH 31108)		750.00	269.60
Nicaragua			
1932 (IH 32012)		800.00	286.30
Panama			
1931 (IH 30159)	1,127.69		221.63
1932 (IH 31109)		1,000.00	670.42
Europe			
Albania			
1931 (IH 30121)	4,812.84		4,368.59
1932 (IH 31110)		10,000.00	6,145.70
Italy			
1932 (IH 31111)		15,000.00	11,582.03
Spain			
1931 (IH 30172)			
1932 (IH 31112)	3,254.98		1,246.51
South America			
Brazil			
1929-30 (IH 28183, 29217)	15,174.19		
The East			
India			
Mysore			
1928-30 (IH 28046)	148.50		

EXHIBIT E—Continued

CONTROL AND INVESTIGATION OF SPECIFIC DISEASES—Continued

	1932 DESIGNA- TIONS	1932 DESIGNA- TIONS	1932 PAYMENTS
Malaria—Continued			
Control—Continued			
Foreign Countries—Continued			
The East—Continued			
India—Continued			
Sawantwadi			
1931 (IH 31041)	\$1,417.52	\$	\$474.31
1932 (IH 31162)		1,700.00	372.95
West Indies			
Grenada			
1930-31 (IH 30065)	524.24		347.60
1932 (IH 31106)		2,205.00	1,383.09
Puerto Rico			
1932-33 (IH 32013, 32050)		15,000.00	5,866.08
Investigations and Surveys			
United States			
Florida			
1931 (IH 30155, 31037)	3,679.69		3,650.96
1932 (IH 31113, 32185)		17,000.00	12,078.34
University of Chicago, Chicago, Illinois			
1931 (IH 30133)	467.84		467.00
1932 (IH 31114)		2,888.00	2,477.82
1933 (IH 32075)		3,000.00	
Foreign Countries			
Central America			
Panama			
1932-33 (IH 32049)		1,000.00	

TREASURER'S REPORT

	•	\$	\$
Europe			
Albania			
1931 (IH 30127)	\$310.34		\$310.34
1932 (IH 31117)		4,000.00	3,769.64
Bulgaria			
1931 (IH 30124)	6,406.43		4,949.35
1932 (IH 31118)		18,100.00	10,722.00
France			
Corsica			
1930 (IH 29223)	3,252.43		
1931 (IH 30125)	3,320.00		401.06
Greece			
1930-31 (IH 30011, 30126)	9,302.70		6,101.41
1932 (IH 31121)		20,000.00	10,464.83
Italy			
Experiment station for malaria control			
1930 (IH 29222, 30017)	6,019.80		
1931 (IH 30120)	17,885.71		14,742.14
1932 (IH 31111)		28,000.00	21,509.50
Special studies in therapeutic malaria			
1931 (IH 30128)	599.99		507.52
1932 (IH 31120)		2,000.00	1,738.82
Italy and Germany			
1931 (IH 30129)	928.39		775.38
1932 (IH 31119)		3,000.00	2,250.62
Netherlands			
Amsterdam			
1929-33 (IH 29091)	14,112.73		4,684.18
Yugoslavia			
1931 (IH 30130)	2,100.00		1,803.72

EXHIBIT E—Continued

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CONTROL AND INVESTIGATION OF SPECIFIC DISEASES—Continued

	PRIOR DESIGNA- TIONS	1932 DESIGNA- TIONS	1932 PAYMENTS
<i>Malaria—Continued</i>			
Investigations and Surveys—Continued			
South America			
Colombia			
1932 (IH 31130)	\$.....	\$4,000.00	\$880.46
Venezuela			
1931 (IH 30123, 31044)	2,179.46		173.64
1932 (IH 31116)	.....	3,200.00	1,594.07
The East			
India, Travancore		750.00	.....
1932 (IH 32056)	.....		.....
Philippine Islands			
1930 (IH 29224, 30008)	558.91	.....	.....
1931 (IH 30131-32, 31009)	4,185.57	.....	3,711.87
1932 (IH 31123-24)	.....	9,600.00	5,802.62
West Indies			
Jamaica			
1931 (IH 30122)	197.36	.....	73.58
1932 (IH 31115)	.....	840.00	447.07
Puerto Rico			
1929-31 (IH 30039)	55.02	.....	.....
1931-32 (IH 31059)	6,575.73	.....	6,501.23
1932-33 (IH 32030)		8,500.00	1,475.98
Yellow Fever			
Control			
Brazil			
1930 (IH 30068)	90,303.31		55,891.58

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1931 (IH 30134)	\$270,000.00	\$.....	\$144,704.70
1932 (IH 31125)		350,000.00	134,305.27
Investigations			
Bolivia			
1932-33 (IH 32061)	.....	18,000.00	.....
Brazil, Bahia			
1931 (IH 30134)	12,032.92	.....	9,914.59
1932 (IH 31125)	.....	50,000.00	30,988.49
New York. Yellow Fever Laboratory of the International Health Division			
1931 (IH 30134)	9,328.82	.....	5,969.92
1932 (IH 31125, 32060)	.....	70,000.00	58,138.54
Paraguay			
1932 (IH 32062)	.....	9,000.00	.....
West Africa			
1931 (IH 30134, 31125)	33,876.45	.....	3,601.98
1932 (IH 31125)	.....	65,000.00	39,534.51
History of Yellow Fever			
1931 (IH 31047)	1,300.00	.....	1,200.00
Respiratory Diseases			
Field research			
1931 (IH 30052)	6,010.93	.....	1,153.26
Tuberculosis			
United States			
Cornell University Medical School, New York City			
1932-35 (IH 32037)	.....	36,000.00	6,000.00
Tennessee			
1931-33 (IH 31055)	30,482.50	.....	14,933.46
University of Pennsylvania, Philadelphia, Pennsylvania			
Henry Phipps Institute for the Study, Treatment, and Prevention of Tuberculosis. 1930-32 (IH 30044)	20,000.00		20,000.00

EXHIBIT E—Continued

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CONTROL AND INVESTIGATION OF SPECIFIC DISEASES—Continued

THE ROCKEFELLER FOUNDATION			
	PRIOR DESIGNA- TIONS	1932 DESIGNA- TIONS	1932 PAYMENTS
Tuberculosis—Continued			
Foreign Countries			
Jamaica, West Indies			
Studies in tuberculosis			
Roentgenological laboratory			
1930-31 (IH 30161, 31010)			\$2,051.08
1932 (IH 31126)		16,650.00	11,238.71
Tuberculosis study clinic			
1931 (IH 30137)	1,391.43		462.61
1932 (IH 31127)		10,500.00	7,129.42
Equipment and supplies			
(IH 31043)	2,626.25		2,626.25
Survey			
Trelawney Unit (IH 31128)		3,150.00	1,461.35
Yaws Study			
Jamaica, West Indies. Survey			
1932 (IH 31164)	500.00	15,938.00	13,803.28
Undulant Fever			
France			
Investigations			
1930 (IH 30043)	3,476.51		3,303.88
1931 (IH 31046)	4,475.20		4,373.96
1932-33 (IH 31168)		25,000.00	185.72
Sanitation			
Ceylon			
Complete sanitation of a village with bored-hole latrines			
1931 (IH 30136)	670.02		27.87

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1932 (IH 32053)	\$.....	\$1,850.00	\$.....
Cook Islands			
Soil sanitation			
1931-35 (IH 31160)	7,875.00		
India			
Burma. Field research on bored-hole latrines			
1930 (IH 29230)	246.76		1,417.17
1931 (IH 30135, 31040)	5,102.43		
Mysore			
1932-33 (IH 32014)		1,080.00	
Philippine Islands			
1930-31 (IH 30054)	5,377.64		771.45
1931-32 (IH 31058)	5,250.00		2,314.82
Epidemiological Studies			
United States			
Alabama			
Study of typhus fever			
1932-33 (IH 32067)		8,985.00	
Maryland			
Field study of dysentery			
1930-32 (IH 30035)	6,900.00		
Massachusetts			
Study of cancer			
1932-35 (IH 31154)		10,200.00	
Tennessee			
Research, developing methods, and training of personnel			
1930-33 (IH 30021)	6,229.00		3,282.81
Field study of <i>Endamoeba histolytica</i>			
1930-32 (IH 30034)	10,469.74		6,239.13
Study of smallpox vaccine virus			
1932-33 (IH 32071)		2,000.00	

EXHIBIT E—Continued

CONTROL AND INVESTIGATION OF SPECIFIC DISEASES—Continued
Epidemiological Studies—Continued

	PRIOR DESIGNA- TIONS	1932 DESIGNA- TIONS	1932 PAYMENTS
United States—Continued			
Virginia			
Field study of dysentery			
1930-31 (IH 30036, 30154)	\$2,656.48	\$	\$1,761.46
1932-33 (IH 31157)	16,200.00		5,809.32
Study of scarlet fever			
1932-34 (IH 31156)	15,000.00		2,461.14
Foreign Countries			
Mexico			
Anthelmintics; malaria and yellow fever studies			
1931-32 (IH 31007)	3,750.00	3,750.00	2,853.57
1932-33 (IH 32026)			266.30
Puerto Rico, West Indies			
Anemia investigations			
1931-32 (IH 31050, 31165)	19,010.96		17,327.55
FIELD SERVICE			
1931-32 (IH 30139, 31129)			
Salaries and expenses of staff			
Salaries	35,403.32	507,000.00	500,947.21
Commutation	18,103.54	54,300.00	42,092.09
Travel	39,800.54	157,700.00	133,757.62
Medical examinations	326.80	1,000.00	818.30
Field equipment and supplies	1,269.60	8,000.00	7,887.21
Pamphlets and charts	1,343.50	6,000.00	5,590.19
Express, freight, and exchange	639.25	1,000.00	363.08

Insurance and retirement allowances.....
 Bonding.....
 Automobiles.....
 Greece. Services of malarialogist and sanitary engineer, 1931-34
 (IH 30167).....
 Director's fund for budget revision (IH 31020).....

Totals

\$25,000.88	\$60,000.00	\$46,371.39
1,240.00	3,000.00	1,943.37
2,000.00	1,000.00	300.00
40,000.00		
2,884.00		
<u>\$2,339,578.10</u>	<u>\$2,725,346.08</u>	<u>\$2,405,311.79</u>

* The Foundation appropriated during 1932 for the work of the International Health Division \$2,729,214, the undesignated balance of \$3,867.92 being allowed to lapse as of December 31, 1932.

EXHIBIT F
SUMMARY OF PRIOR OBLIGATIONS ACCOUNT
DECEMBER 31, 1932

PRIOR OBLIGATIONS ACCOUNT		
Unpaid appropriations, December 31, 1931	\$12,243,314.66	\$12,708,314.66
Appropriations made during the year 1932, from pledges and authorizations	465,000.00	
Less unexpended balances of appropriations allowed to lapse		169,507.57
Less payments made during the year		<u>\$12,538,807.09</u>
		3,095,315.25
Appropriations payable		\$9,443,491.84
Pledges and authorizations for which appropriations had not been made, December 31, 1931	\$4,494,960.00	
Less		
Appropriations made during the year 1932 (as above)	\$465,000.00	
Authorizations allowed to lapse, returned to Principal Fund	2,595,500.00	3,060,500.00
Balance on December 31, 1932, payable on appropriations, pledges, and authorizations made prior to January 3, 1929		<u>\$10,877,951.84</u>

EXHIBIT G
SUMMARY OF APPROPRIATIONS ACCOUNT
DECEMBER 31, 1932

CURRENT APPROPRIATIONS ACCOUNT		
Unpaid appropriations, December 31, 1931	\$31,787,031.00	
Appropriations made during the year 1932 (of this sum \$1,080,000 was appropriated from current pledges and authorizations)	11,112,064.00	\$42,899,095.00
Less unused balances of appropriations allowed to lapse		1,513,237.82
Less payments made during the year		<u>\$41,385,857.18</u>
		10,642,543.03
Appropriations payable		\$30,743,314.15
Pledges and authorizations for which appropriations had not been made, December 31, 1931	\$8,971,000.00	
Pledges and authorizations made during the year	4,287,700.02	
	<u>\$13,258,700.02</u>	
Appropriations made on pledges and authorizations during the year (see above)	\$1,080,000.00	
Pledges and authorizations allowed to lapse	1,001,750.00	2,081,750.00
Balance on December 31, 1932, payable on appropriations, pledges, and authorizations made on or subsequent to January 3, 1929		<u>\$41,920,264.17</u>

EXHIBIT H
STATEMENT OF PRINCIPAL FUND

Unappropriated principal, December 31, 1931.....	\$141,375,978.13
Authorizations allowed to lapse (prior obligations)	2,595,500.00
Contingent projects cancelled.....	6,075,000.00
	\$150,046,478.13

Less

Amount transferred to Appropriations Account in accordance with a resolution of the Board of Trustees dated April 13, 1932.....	\$2,509,833.82
Amount transferred to the Reserve for Contingent Projects in accordance with a resolution of the Executive Committee dated February 24, 1932	14,000.00
	2,523,833.82
Balance, December 31, 1932.....	\$147,522,644.31

This fund is accounted for in securities.

STATEMENT OF RESERVE FOR CONTINGENT PROJECTS

Balance, December 31, 1931.....	\$7,575,000.00
Amount transferred from principal (see above)	14,000.00

Less amount cancelled in accordance with resolutions of February 24 and December 14, 1932.....	\$7,589,000.00
	6,075,000.00

Balance, December 31, 1932.....	\$1,514,000.00
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This fund is accounted for in securities.

EXHIBIT I
STATEMENT OF LAND, BUILDINGS, AND EQUIPMENT FUND

	TOTAL	EXPENDI- TURES	TOTAL
	Dec. 31, 1931	1932	Dec. 31, 1932
New York Office			
Library	\$12,655.53	\$596.39	\$13,251.92
Equipment.....	\$35,860.99		
Less depreciation 1932.....	4,452.60	3,274.76	34,683.15
Paris Office			
Part interest in building occupied by Paris office.....	66,686.79	705.61 Cr.	65,981.18
Land in Shanghai	298,331.95		298,331.95
	\$409,082.66	\$3,165.54	\$412,248.20

EXHIBIT J
SCHEDULE OF SECURITIES ON DECEMBER 31, 1932
BONDS

NAME	INTEREST RATE PER CENT	DATE OF MATURITY	AMOUNT	FOUNDATION'S LEDGER VALUE PER CENT	FOUNDATION'S TOTAL LEDGER VALUE
American Telephone & Telegraph Co. Thirty-Year Collateral Trust	5	Dec., 1946	\$100,000.00	97.75	\$97,750.00
American Water Works & Electric Co., Inc. Twenty-Year Collateral Trust Gold	5	Apr., 1934	532,000.00	101.97827	542,524.40
Armour & Co. (Illinois) Real Estate First Mortgage Gold	4½	June, 1939	1,142,000.00	87.	993,540.00
Atchison, Topeka & Santa Fe Ry. One Hun- dred-Year Adjustment Mortgage Gold	4	July, 1995	420,000.00	75.	315,000.00
Atchison, Topeka & Santa Fe Ry. Twenty- Year Convertible Gold	4½	Dec., 1948	274,000.00	118.	323,320.00
The Baltimore & Ohio R. R. Twenty-Year Convertible Gold (Stamped) (10% paid)	4½	Mar., 1933	991 bonds @ \$900 each or 891,900.00	101.04712	901,239.38
Baltimore & Ohio R. R. Equipment Gold Series "F"	4½	Nov., 1933	175,000.00	100.596382	176,043.67
Baltimore & Ohio R. R. Refunding & Gen- eral Mortgage Gold Series "A"	5	Dec., 1995	1,750,000.00	80.	1,400,000.00
Boston & Maine R. R. First Mortgage Gold Series "M"	6	Jan., 1933	8,007.00	100.5625	8,045.00

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Brooklyn Manhattan Transit Corporation Two-Year Secured Gold Notes	6	Aug., 1934	\$350,000.00	96.	\$336,000.00
Burlington, Cedar Rapids & Northern Ry. Consolidated First Gold	5	Apr., 1934	64,000.00	101.5625	65,000.00
Calgary Protestant Public School District No. 19, Province of Alberta	5	Serially June 2, 1933-48	138,250.00	85.	117,512.50
Canadian Pacific Ry. Ten-Year Collateral Gold	5	Apr. 15, 1934	146,000.00	100.932369	147,361.26
Carolina, Clinchfield & Ohio Ry. First Mort- gage Thirty-Year Gold	5	June, 1938	1,488,000.00	75.	1,116,000.00
The Central R. R. of New Jersey Equipment Trust Gold of 1926	4½	Aug., 1933	106,000.00	100.609424	106,645.99
The Central R. R. of New Jersey Equipment Trust Gold of 1926	4½	Aug., 1934	106,000.00	100.826415	106,876.00
Chesapeake & Ohio Ry. Equipment Gold of 1930	4½	May, 1936	125,000.00	100.381032	125,476.29
Chicago & Alton R. R. Refunding Mortgage Gold	3	Oct., 1949	551,000.00	65.	358,150.00
Chicago City & Connecting Rys. Collateral Trust (Certificates of Deposit)	5	Jan., 1927	1,305,000.00	52.	678,600.00
Chicago & Erie R. R. First Mortgage Gold	5	May, 1982	156,000.00	93.	145,080.00
Chicago Gas Light & Coke Co. First Mort- gage	5	July, 1937	22,000.00	102.389227	22,525.63
Chicago Junction Rys. & Union Stockyards Co. Forty-Year Mortgage and Collateral Refunding	5	Apr., 1940	500,000.00	93.	465,000.00
Chicago, Milwaukee & St. Paul Ry. Receiv- ers' Equipment Gold Series "D"	5	\$133,000 due Aug. 1st each year, 1933-40	1,064,000.00	98.25	1,045,380.00

EXHIBIT J—Continued

NAME	INTEREST RATE PER CENT	DATE OF MATURITY	AMOUNT	FOUNDATION'S LEDGER VALUE PER CENT	FOUNDATION'S TOTAL LEDGER VALUE
Chicago, Milwaukee & St. Paul Ry. General Mortgage Gold Series "C"	4½	May, 1989	\$500,000.00	103.	\$515,000.00
Chicago, Milwaukee, St. Paul & Pacific R. R. Fifty-Year Mortgage Series "A"	5	Feb., 1975	446,300.00	95.	423,985.00
Chicago, Milwaukee, St. Paul & Pacific R. R. Convertible Adjustment Mortgage Series "A"	5	Jan., 2000	1,785,200.00	62.50	1,115,750.00
Chicago & North Western Ry. General Mortgage	5	Nov., 1987	195,000.00	98.	191,100.00
Chicago & North Western Ry. Sinking Fund Debenture	5	May, 1933	12,000.00	100.625	12,075.00
Chicago Ry. Co. First Mortgage Gold (20% paid) (Certificates of Deposit)	5	Feb., 1927	500 bonds @ \$800 each or 400,000.00	96.25	385,000.00
Chicago, Rock Island & Pacific Ry. First and Refunding Mortgage Gold	4	Apr., 1934	2,732,000.00	95.92119	2,620,566.93
Chicago, Rock Island & Pacific Ry. Equipment Gold of 1929 Series "P"	4½	Aug., 1934	128,000.00	100.66364	128,849.46
Chicago, Rock Island & Pacific Ry. Equipment of 1927 Series "O"	4½	July, 1936	129,000.00	100.549186	129,708.45
Chicago, Rock Island & Pacific Ry. Equipment of 1927 Series "O"	4½	July, 1937	143,000.00	100.061573	143,088.05

Chicago, Rock Island & Pacific Ry. Equipment Gold Series "Q"	4½	June, 1935	\$100,000.00	100.456268	\$100,456.27
Chicago, Rock Island & Pacific Ry. Equipment Gold Series "Q"	4½	Dec., 1935	100,000.00	100.49664	100,496.64
Chicago, Rock Island & Pacific Ry. Equipment Gold Series "Q"	4½	June, 1936	100,000.00	100.53614	100,536.14
Chicago, St. Louis & New Orleans R. R. Consolidated Mortgage Gold	3½	June 15, 1951	200,000.00	66.	132,000.00
Cleveland, Cincinnati, Chicago & St. Louis Ry. General Mortgage	4	June, 1993	700,000.00	83.89285	587,250.00
Cleveland Short Line Ry. First Mortgage Gold	4½	Apr., 1961	500,000.00	95.	475,000.00
Colorado & Southern Ry. Refunding and Extension Mortgage Gold	4½	May, 1935	480,000.00	92.377477	443,411.89
Consolidated Gas, Electric Light & Power Co. General Mortgage Gold	4½	Feb. 14, 1935	63,000.00	101.169635	63,736.87
Consolidation Coal Co. Secured Gold Notes (Stamped)	5	Apr., 1934	500,000.00	100.	500,000.00
Corn Products Refining Co. First Mortgage Sinking Fund Twenty-Five-Year Gold	5	May, 1934	34,000.00	103.1875	35,083.75
The Delaware & Hudson Co. Fifteen-Year Gold	5½	May, 1937	178,000.00	105.380623	187,577.51
Denver & Rio Grande R. R. First Consolidated Mortgage Gold	4	Jan., 1936	810,000.00	96.4238456	781,033.15
Denver & Rio Grande Western R. R. General Mortgage	5	Aug., 1955	574,000.00	59.	338,660.00
The Detroit Edison Co. First Mortgage Gold	5	Jan., 1933	146,000.00	102.5513767	149,725.01

EXHIBIT J—Continued

NAME	INTEREST RATE PER CENT	DATE OF MATURITY	AMOUNT	FOUNDATION'S LEDGER VALUE PER CENT	FOUNDATION'S TOTAL LEDGER VALUE
The Edison Electric Illuminating Co. of Boston Three-Year Gold Notes	5	Jan. 15, 1933	\$1,038,000.00	102.01204	\$1,058,885.04
Edmonton Public School District No. 7 of the Province of Alberta, Debenture	5	Apr. 15, 1953	350,000.00	81.	283,500.00
irie R. R. General Mortgage Convertible Gold Series "B"	4	Apr., 1953	1,065,000.00	74.717586	795,742.30
General Motors Acceptance Corp. Serial Gold Notes Series "G"	5	Mar., 1933	244,000.00	100.52895	245,290.64
General Motors Acceptance Corp. Serial Gold Notes Series "H"	5	Mar., 1934	473,000.00	100.538716	475,548.13
General Motors Acceptance Corp. Serial Gold Notes Series "I"	5	Mar., 1935	163,000.00	100.455147	163,741.89
Great Northern Ry. General Mortgage Gold Series "A"	7	July, 1936	1,095,000.00	110.910052	1,214,465.07
Houston Belt & Terminal Ry. First Mortgage Sinking Fund Gold	5	July, 1937	5,000.00	100.5	5,025.00
Illinois Central R. R. Fifteen-Year Secured Gold	6½	July, 1936	89,000.00	108.8055	96,836.89
Illinois Central R. R. Refunding Mortgage Gold	4	Nov., 1955	1,233,000.00	82.45985	1,016,730.00
Illinois Central R. R. Equipment Series "M"	4½	\$80,000 due May 1st each year, 1933-41	720,000.00	98.5	709,200.00

Illinois Central R. R. & Chicago, St. Louis & New Orleans R. R. Joint First Refunding Gold Series "A"	5	Dec., 1963	\$1,000,000.00	90.	\$900,000.00
Imperial Chinese Government Hu Kuang Ry. Sinking Fund Loan of 1911	5	June 15, 1951	£189,000.00	34.	321,300.00
Interborough Rapid Transit Co. First & Refunding Mortgage (Stamped) Gold (Certificates of Deposit)	5	Jan., 1966	\$1,750,000.00	96.85713	1,695,000.00
Kansas City, Fort Scott & Memphis Ry. Refunding Mortgage Gold	4	Oct., 1936	274,000.00	95.755708	262,370.64
Kansas City Southern Ry. Refunding & Improvement Mortgage Gold	5	Apr., 1950	550,000.00	84.	462,000.00
Kansas City-Terminal Ry. First Mortgage Gold	4	Jan., 1960	500,000.00	75.	375,000.00
The Laclede Gas Light Co. Refunding & Extension Mortgage Gold	5	Apr., 1934	200,000.00	102.3797	204,759.41
Lake Erie & Western R. R. Second Mortgage Gold	5	July, 1941	100,000.00	100.	100,000.00
Lake Shore & Michigan Southern Ry. First Mortgage Gold	3½	June, 1997	926,000.00	87.	805,620.00
Louisville & Nashville-Southern Ry. Monon Collateral Joint Fifty-Year Gold	4	July, 1952	775,000.00	72.	558,000.00
Magnolia Petroleum Co. Serial Gold Debenture Series "H"	4½	Feb. 15, 1933	10,000.00	100.375	10,037.50
Magnolia Petroleum Co. Serial Gold Debenture Series "I"	4½	Feb. 15, 1934	35,000.00	100.3303428	35,115.62
Magnolia Petroleum Co. Serial Gold Debenture Series "J"	4½	Feb. 15, 1935	5,000.00	100.25	5,012.50

EXHIBIT J—Continued

NAME	INTEREST RATE PER CENT	DATE OF MATURITY	AMOUNT	FOUNDATION'S LEDGER VALUE PER CENT	FOUNDATION'S TOTAL LEDGER VALUE
Mexico, Republic of, Consolidated External Loan, Series "C" (Assenting bonds).....	5	June, 1945	\$354,000.00	34.	\$120,360.00
Class "A" Certificates for interest in arrears Middle West Utilities Co. Serial Convertible Gold Notes (Certificates of Deposit).....	5	June, 1932	150,228.75	6.	9,013.73
Missouri-Kansas-Texas R. R. Prior Lien Gold Series "A".....	5	Jan., 1962	2,132,000.00	100.113539	2,134,420.66
Missouri-Kansas-Texas R. R. Prior Lien Gold Series "B".....	4	Jan., 1962	331,250.00	78.5	260,031.25
Montreal Light, Heat & Power Co. (Lachine Power) Sinking Fund Gold.....	5	Apr., 1933	331,250.00	64.5	213,656.25
Morris & Essex R. R. First Refunding Mortgage Gold.....	5	Apr., 1933	84,000.00	101.224714	85,028.76
Mutual Fuel Gas Co. First Mortgage Gold.....	3½	Dec., 2000	175,000.00	82.75	144,812.50
National Ry. of Mexico Prior Lien Fifty-Year Sinking Fund.....	5	Nov., 1947	250,000.00	100.	250,000.00
Secured 6% Notes for coupon due January 1, 1914.....	4½	July, 1957	350,000.00	13.	45,500.00
National Ry. of Mexico Certificates Series "A" Interest in arrears.....		Jan., 1933	1,125.00	59.	663.75
National Ry. of Mexico Certificates Series "B" Interest in arrears.....			47,857.50	5.50	2,632.16
			94,500.00	.50	472.50

New Orleans, Texas & Mexico Ry. Non Cumulative Income Gold Series "A",.....	5	Oct., 1935	\$75,000.00	99.05	\$74,287.52
New York Central & Hudson River R. R. Thirty-Year Debenture Gold.....	4	May, 1934	1,043,000.00	96.37266	1,005,166.90
New York Central R. R. Twenty-Year Convertible Debenture Gold.....	6	May, 1935	235,000.00	106.485377	250,240.64
New York Central R. R. Equipment Gold of 1929.....	4½	Apr. 15, 1933	50,000.00	100.5	50,250.00
New York Central R. R. Equipment Gold (Second Trust of 1929).....	4½	Dec., 1933	11,000.00	100.5	11,055.00
New York Central R. R. Equipment Gold of 1930.....	4½	May 15, 1935	15,000.00	100.674666	15,101.20
New York Central R. R. Equipment Gold of 1930.....	4½	May 15, 1936	50,000.00	100.835	50,417.50
New York Central R. R. Equipment Gold of 1930.....	4½	May 15, 1937	125,000.00	100.988664	126,235.83
New York Central R. R.-New York Central Lines Equipment Gold Series of 1922.....	5	June, 1937	29,000.00	103.3310689	29,966.01
New York Central R. R.-New York Central Lines Equipment Gold Series of 1923.....	5	June, 1937	14,000.00	103.4270714	14,479.79
New York Connecting R. R. First Mortgage Gold Series "A".....	4½	Aug., 1953	500,000.00	95.69073	478,453.65
New York, Lake Erie & Western Docks & Improvement Co. First Extended Gold.....	5	July, 1943	400,000.00	90.	360,000.00
Northern Pacific Ry. Refunding & Improvement Mortgage Gold Series "A".....	4½	July, 2047	1,390,000.00	85.04676	1,182,150.00
Northwestern Elevated R. R. First Mortgage Gold.....	5	Sept., 1941	500,000.00	70.	350,000.00

EXHIBIT J—Continued

NAME	INTEREST RATE PER CENT	DATE OF MATURITY	AMOUNT	FOUNDATION'S LEDGER VALUE PER CENT	FOUNDATION'S TOTAL LEDGER VALUE
The Pacific Telephone & Telegraph Co. First & Collateral Mortgage Gold	5	Jan. 2, 1937	\$500,000.00	89.5	\$447,500.00
Pennsylvania R. R. General Equipment Trust Certificates Series "D"	4½	\$30,000 due May 15th each year 1933-41	270,000.00	98.5	265,950.00
Pennsylvania R. R. General Mortgage Gold Series "A"	4½	June, 1965	1,500,000.00	98.25	1,473,750.00
Philadelphia & Reading Coal & Iron Co. Refunding Mortgage Sinking Fund Gold	5	Jan., 1973	167,000.00	94.25234	157,401.42
Pittsburgh, Cincinnati, Chicago & St. Louis Ry. Consolidated Mortgage Gold Series "I"	4½	Aug., 1963	500,000.00	103.	515,000.00
Portland General Electric Co. First Mort- gage Gold Sinking Fund	5	July, 1935	124,000.00	101.92692	126,389.38
Public Service Corporation of New Jersey Perpetual Interest Bearing Certificates	6		550,000.00	84.	462,000.00
Raleigh & Gaston R. R. First Mortgage Gold Fifty-Year (Certificates of Deposit)	5	Jan., 1947	250,000.00	95.	237,500.00
Reading Co. Equipment Trust Gold Series "M"	4½	Nov., 1937	100,000.00	102.10579	102,105.79
Reading Co. General and Refunding Mort- gage Gold Series "A"	4½	Jan., 1997	333,000.00	94.25	313,852.50

Rock Island, Arkansas & Louisiana R. R. First Mortgage Gold	4½	Mar., 1934	\$613,000.00	100.279368	\$614,712.53
St. Louis-San Francisco Ry. Equipment Gold Series "CC"	4	\$50,000 due May 15th each year 1933-43	550,000.00	92.51095	508,810.25
St. Louis-San Francisco Ry. Prior Lien Gold Series "A"	4	July, 1950	1,500,000.00	72.75	1,091,250.00
St. Louis-San Francisco Ry. Consolidated Mortgage Gold Series "A"	4½	Mar., 1978	2,500,000.00	14.	350,000.00
St. Louis Southwestern Ry. General & Re- funding Mortgage Gold Series "A"	5	July, 1990	1,918,500.00	66.792749	1,281,418.80
San Francisco Gas & Electric Co. General Mortgage Gold	4½	Nov., 1933	70,000.00	100.25	70,175.00
Seaboard Air Line Ry. First & Consolidated Mortgage Gold Series "A"	6	Sept., 1945	227,500.00	40.	91,000.00
Southern Pacific Co. Central Pacific Stock Collateral Gold	4	Aug., 1949	100,000.00	76.	76,000.00
Southern Pacific Co. Equipment Gold Series "I"	4½	\$100,000 due June 1st each year 1933-41	900,000.00	98.5	886,500.00
Southern Pacific Co. Equipment Gold Series "F"	5	Dec., 1934	37,000.00	102.903702	38,074.37
Southern Pacific Co. Equipment Gold Series "E"	7	June, 1935	32,000.00	110.771375	35,446.84
Southern Pacific R. R. First Refunding Mortgage Gold	4	Jan., 1955	100,000.00	86.	86,000.00

EXHIBIT J—Continued

NAME	INTEREST RATE PER CENT	DATE OF MATURITY	AMOUNT	FOUNDATION'S LEDGER VALUE PER CENT	FOUNDATION'S TOTAL LEDGER VALUE
Standard Oil Co. (New Jersey) Twenty-Year Gold Debenture	5	Dec. 15, 1946	\$10,273,000.00	100.5	\$10,324,365.00
Standard Oil Co. of New York Serial Debenture Gold	4½	Feb. 15, 1934	15,000.00	100.43746	15,065.62
Standard Oil Co. of New York Serial Debenture Gold	4½	Feb. 15, 1935	10,000.00	100.3125	10,031.25
Standard Oil Co. of New York Serial Debenture Gold	4½	Feb. 15, 1936	20,000.00	100.50	20,100.00
Standard Oil Co. of New York Serial Debenture Gold	4½	Feb. 15, 1937	39,000.00	99.9823589	38,993.12
Tennessee Coal, Iron & R. R. Co. General Mortgage	5	July, 1951	400,000.00	92.	368,000.00
Union Electric Light & Power Co. Twenty-Five Year Refunding & Extension Mortgage Gold	5	May, 1933	22,000.00	101.110818	22,244.38
Union Oil Co. of California Ten-Year Sinking Fund Gold Series "C"	5	Feb., 1935 \$100,000 due Oct. 1st each year 1933-36	400,000.00	100.30985	401,239.40
Union Tank Car Co. Equipment Gold	4½	Apr., 1933	400,000.00	98.54 100.973228	394,160.00 35,340.63
United Drug Co. Serial Gold Notes	5	June, 1949	35,000.00	72.	360,000.00
United Electric Co. of New Jersey First Mortgage Gold	4		500,000.00		

United States of America Fourth Liberty Loan Gold	4½	Oct. 15, 1933 to 1938	\$6,661,000.00	96.82635	\$6,449,603.20
United States Rubber Co. First and Refunding Mortgage Gold Series "A"	5	Jan., 1947	3,820,000.00	85.	3,247,000.00
Wabash R. R. Second Mortgage Gold	5	Feb., 1939	120,000.00	97.8	117,360.00
Washington Ry. & Electric Co. Consolidated Mortgage Gold	4	Dec., 1951	450,000.00	83.5	375,750.00
Western Maryland R. R. First Mortgage Gold	4	Oct., 1952	4,130,000.00	59.	2,436,700.00
Western Pacific R. R. First Mortgage Gold Series "A"	5	Mar., 1946	200,800.00	83.	166,664.00
TOTAL BONDS	..	.....	.....	.....	\$72,330,189.95

EXHIBIT J—Continued
STOCKS

NAME	NUMBER OF SHARES	FOUNDATION'S LEDGER VALUE PER SHARE	FOUNDATION'S TOTAL LEDGER VALUE
Atchison, Topeka & Santa Fe Ry. 5% Non-Cumulative Preferred	5,000	\$98.25	\$491,250.00
Archison, Topeka & Santa Fe Ry. Common	21,944	93.18882	2,044,935.53
Atlanta, Birmingham & Coast R. R. 5% Guaranteed Cumulative Preferred	4,062	94.	381,828.00
The Buckeye Pipe Line Co. Capital (Par \$50)	49,693	79.277299	3,939,526.82
Central United National Bank of Cleveland (Par \$20) (and Central United Co.) (No par value)	8,104	34.50422	279,622.22
Chehalis & Pacific Land Co. Capital	220		1.00
Chicago City & Connecting Rys. Participation Certificates, Preferred (Certificates of Deposit) (No par value)	17,530		1.00
Chicago City & Connecting Rys. Participation Certificates, Common (No par value)			
Chicago & Eastern Illinois Ry. 6% Cumulative Preferred	10,518		1.00
Cleveland Arcade Co. Capital	3,000	11.	33,000.00
Cleveland Trust Co. Capital	2,500	98.62222	246,555.56
Colorado & Southern Ry. 4% First Non-Cumulative Preferred	638	192.2282	122,641.62
Consolidated Gas Co. of New York \$5. Cumulative Preferred (No par value)	4,800	54.	259,200.00
Consolidation Coal Co. 7% Cumulative Preferred	13,333	91.75	1,223,302.76
Consolidation Coal Co. Common	5,875	20.	117,500.00
Continental Oil Co. (Delaware) Capital (No par)	23,500		
Cumberland Pipe Line Co. Liquidation Receipt Certificate	60,627	11.46601	695,149.77
Denver & Rio Grande Western R. R. 6% Cumulative Preferred	6,000		
	3,280	40.	131,200.00

Eureka Pipe Line Co. Capital	\$12,357	\$54.30	\$670,985.10
Illinois Central R. R. 6% Non-Cumulative Preferred "A"	2,857	15.50	44,283.50
Illinois Central R. R. Common	4,070	9.625	39,173.75
Indiana Pipe Line Co. Capital (Par \$10)	74,535	20.65221	1,539,312.93
International Harvester Co. 7% Cumulative Preferred	45,721	115	5,257,915.00
Interstate Natural Gas Co. Inc. Capital (No par)	33,763	14.95845	505,042.25
Kanawha & Hocking Coal & Coke Co. 7% Cumulative Preferred	202	20.	4,040.00
Kanawha & Hocking Coal & Coke Co. Common	668	4.	2,672.00
Manhattan Ry. Capital (Modified Guarantee)	10,000	60.	600,000.00
Missouri-Kansas-Texas R. R. 7% Cumulative Preferred, Series "A"	10,499	41.98228	440,772.00
National Fuel Gas Co. Capital (No par value)	847,060	7.75	6,564,715.00
National Transit Co. Capital (Par \$12.50)	126,481	21.50	2,719,341.50
New York Central R. R. Capital	52,635	19.125	1,006,644.38
New York Transit Co. Capital (Par \$5)	24,784	11.72913	290,694.86
Northern Pipe Line Co. Capital (Par \$10)	27,000	8.3333	225,000.00
The Ohio Oil Co. Common (No par value)	94,684	35.375	3,349,446.50
The Ohio Oil Co. Non-Voting Cumulative 6% Preferred	15,000	103.5	1,552,500.00
Pere Marquette Ry. Cumulative Preferred 5%	5,740	49.6600627	285,048.76
Provident Loan Society of New York Certificates	266,000	100%	266,000.00
Seaboard Air Line Ry. Common (No par value)	6,825	.50	3,412.50
Southern Pipe Line Co. Capital (Par \$10)	24,845	6.25	155,281.25
South West Pennsylvania Pipe Lines, Capital (Par \$50)	8,000	62.	496,000.00
Standard Oil Co. (California) Capital (No par)	60,967	17.25	1,051,680.75
Standard Oil Co. of Indiana, Capital (Par \$25)	691,140	28.90	19,973,946.00
Standard Oil Co. (N. J.) Capital (Par \$25)	1,077,005	34.826401	37,508,208.80
The Standard Oil Co. (Ohio) Cumulative 5% Preferred	15,000	101.	1,515,000.00
The Standard Oil Co. (Ohio) Common (Par \$25)	135,648	25.50	3,459,024.00

EXHIBIT J—Continued

NAME	NUMBER OF SHARES	FOUNDATION'S LEDGER VALUE PER SHARE	FOUNDATION'S TOTAL LEDGER VALUE
Standard Oil Export Corporation (Delaware) Cumulative 5% Non-Voting	87,964	\$99.	\$8,708,436.00
Guaranteed Preferred	890	27.350258	24,341.73
Tilden Iron Mining Co. Capital	2,300	110.	253,000.00
Underwood Elliot Fisher Co. 7% Cumulative Preferred	240,000	6.692033	1,606,087.97
Union Tank Car Co. Capital (No par value)	28,609	30.	858,270.00
Western Pacific R. R. Corporation 6% Preferred	591	1.00	591.00
Wilson Realty Co. Capital			
TOTAL STOCKS			\$110,941,992.81
SUMMARY			
Bonds			\$72,330,189.95
Stocks			110,941,992.81
TOTAL LEDGER VALUE OF INVESTMENTS			\$183,272,182.76

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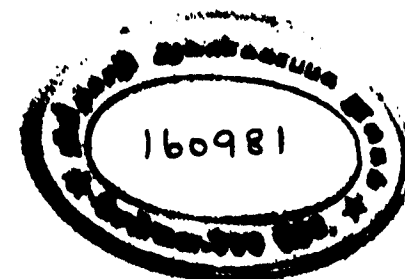
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