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A GEOGRAPHY OF DISEASE

A Preliminary Survey of the Incidence and Distribution of Tropical and Other Diseases

A GEOGRAPHY OF DISEASE

A PRELIMINARY SURVEY OF
THE INCIDENCE AND DISTRIBUTION OF
TROPICAL AND CERTAIN OTHER DISEASES

A Study Made Possible By a Grant
from
THE AMERICAN LEPROSY FOUNDATION (Formerly THE LEONARD WOOD MEMORIAL)
to the
DIVISION OF MEDICAL SCIENCES OF THE NATIONAL RESEARCH COUNCIL
Washington, D. C., U. S. A.

By

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Dean and Professor of Bacteriology, School of Medicine
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Studies of the Survey

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A PRELIMINARY SURVEY OF TROPICAL AND CERTAIN OTHER DISEASES

DIVISION OF MEDICAL SCIENCES

of the

NATIONAL RESEARCH COUNCIL

Washington, D. C.

Earl Baldwin McKinley, M.D.
Director of Studies

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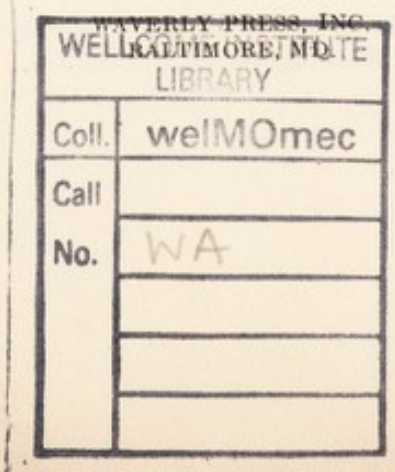

DEDICATED TO THE MEMORY
OF
THEOBALD SMITH

"He built temples to nature and communed in them by whispering questions to her. And nature answered back to this favored son—and he understood."

—Stockard

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TABLE OF CONTENTS

FOREWORD xi
ACKNOWLEDGMENTS xiii
INTRODUCTION xv
DISTRIBUTION AND INCIDENCE OF TROPICAL AND OTHER DISEASES 1
PART ONE
The United States of America
Selected States 3
Alabama 5
Arizona 6
California 6
Florida 8
Georgia 9
Kentucky 10
Louisiana 11
Mississippi 12
New Mexico 13
North Carolina 14
Oklahoma 15
Tennessee 16
Texas 17
Virginia 18
West Virginia 19
Hawaii 21
Puerto Rico 24
American Virgin Islands 30
The Canal Zone (*see* Panama)
Guam 32
Philippine Islands 34
American Samoan Islands 41
PART TWO
The British Empire
East Africa 45
Kenya Colony and Protectorate 45
Uganda Protectorate 52
Tanganyika Territory 55
Nyasaland Protectorate 59
Zanzibar Protectorate 61
Somaliland Protectorate 67
West Africa 72
Colony and Protectorate of Nigeria 72
Gold Coast Colony, Togoland, Ashanti, and the Northern Territories 79
Colony of Gambia 83
Colony of Sierra Leone 86
South Africa 88
Basutoland 88

Bechuanaland Protectorate 90
Southern Rhodesia 96
Northern Rhodesia 100
Union of South Africa 103
North Africa 108
The Anglo-Egyptian Sudan 108
Mauritius 111
Seychelles 117
Mediterranean Area 123
Palestine 123
Trans-Jordan 126
Cyprus 130
Gibraltar 136
Malta 139
PART THREE
Asia 141
Sarawak 141
State of Brunei 142
State of North Borneo 144
Ceylon 146
India and Dependencies 154
Straits Settlements and Federated Malay States 161
Burma 167
Unfederated Malay States 169
Johore 169
Kedah and Perlis 171
Kelantan 173
Trengganu 175
Hong Kong 177
Pacific Ocean 182
Fiji Islands 182
British Solomon Islands 187
Gilbert and Ellice Islands Colony 191
Commonwealth of Australia 192
West Atlantic 195
Bahamas 195
Barbados 200
Bermuda 205
British Guiana 210
British Honduras 216
Jamaica 218
Cayman Islands 221
Leeward Islands 222
Antigua 222
Dominica 223
Montserrat 225
British Virgin Islands 229
Windward Islands 230
Grenada 230
Saint Lucia 232
Saint Vincent 234
Trinidad and Tobago 236

PART FOUR
Republic of France
Syria and Lebanon ... 239
Morocco ... 245
Madagascar ... 247
Reunion ... 249
West Africa and the Sahara ... 250
French Equatorial Africa (French Congo) ... 252
French Cameroun ... 260
French Indo-China ... 264
French Pacific Group ... 270
French Atlantic Group ... 272
Guadeloupe ... 274
Martinique ... 278
French Indian Ocean Group ... 281
The Netherlands
Dutch East Indies ... 283
Other Countries
Abyssinia ... 285
Albania ... 287
Argentina ... 291
Bolivia ... 293
Brazil ... 294
Chile ... 299
China ... 304
Colombia ... 312
Belgian Congo ... 314
Costa Rica ... 319
Dominican Republic ... 322
Egypt ... 324
Greece ... 329
Haiti ... 332
Holland ... 337
Honduras ... 340
Italy ... 342
Liberia ... 344
Panama and the Canal Zone ... 348
Paraguay ... 355
Peru ... 359
Spain ... 360
Siam ... 364
Turkey ... 369
Venezuela ... 372
Yugoslavia ... 374
PART FIVE
Summaries of Selected Diseases (With Special Articles) ... 377
Malaria ... 378
Bacillary Dysentery ... 380
Amebiasis ... 389
The Typhoid Fevers ... 393
Tuberculosis ... 396
Brucellosis ... 400

Dengue Fever 402
Yellow Fever 409
Typhus Fever 411
Leprosy 412
Syphilis 415
Yaws 417
Trachoma 419
Tularaemia 423
Clonorchiasis 426
Schistosomiasis 432
Filariasis 434
Beriberi 437
Malnutrition and Undernutrition 439
Chemotherapy 440
Summaries of certain other diseases 441

APPENDIX

French Cameroun 454
Addis Ababa, Ethiopia 457
Republic of Columbia 458
Bahamas 459
India 459
Burma 460
Chile 462
British Honduras 464
Kenya East Africa 464
Ceylon 465
India 468
Jamaica 469
Syria 471
Belgian Congo 473
China 476
Panama 480
Brazil 481
California 485
Puerto Rico 488
Cancer in United States and certain Foreign Countries 488

INDEX 491

FOREWORD

This Preliminary Survey of the Incidence and Distribution of Tropical Diseases was undertaken chiefly for its scientific value and as an aid to investigators and other workers in the field of tropical medicine. However, the Advisory Committee on Survey and the Director of Studies were cognizant of the growing need for more specific information concerning the incidence and distribution of many of the diseases included in this study because of their increasing importance, not only in tropical countries but in areas outside the tropical belt as well. Furthermore, there exists no central source of information of this character and it was felt that such a preliminary study would give impetus and encouragement to the development of the field of tropical medicine by both lay and professional interests. It is realized that a study of this nature can not hope to be complete. It is no small task to gather such information from all parts of the world and various factors of time and distance operate to make such a survey most difficult. It is surprising how wide and devoted the coöperation has been in this study, and this in itself is some indication of the enthusiasm and loyalty which workers in the field of tropical medicine have for the subject.

In preparing the manuscript and assembling the various data for this work the Director of Studies, with the approval of the Advisory Committee, decided to present the statistical data in tabular form with the plan of supplementing such charts or tables with various items of factual knowledge regarding the social-economic background of each specific area. It is realized that such facts are available in standard reference works but they stand out with added significance when placed beside the public health problems of a given country. It is hoped that this plan will be of value to our readers. In addition, Part V of the Survey is devoted to short statements by leading American authorities concerning a selected group of diseases "as world problems," followed by statistical summaries of these special diseases. This section of the work should add value to the survey itself. Finally, an appendix has been included in which various comments of interest from different parts of the world are presented, since otherwise these would be lost in our files.

In offering this work the Advisory Committee on Survey and the Director of Studies do so with a feeling that this is, indeed, only a preliminary study. It is the result of two and one half years of effort to collect pertinent information regarding the incidence and distribution of a rather large number of diseases and the study indicates, in a measure at least, with what success such undertakings are possible. As an initial effort it is believed to have succeeded

beyond our original expectations but we must offer apologies for certain deficiencies which could not be helped. Amost unanimously those who have contributed data for this study from various parts of the world have indicated to us that they believed such a study would be of great value to them, and they favored a more detailed study of this nature whenever such could be made possible. May this survey then serve in a small measure as the beginning of a larger and broader study which may be accomplished sometime in the future.

EARL BALDWIN MCKINLEY, M.D.

ACKNOWLEDGMENTS

The Director of Studies of the Committee on Survey of Tropical Diseases, on behalf of the Advisory Committee, wishes to express his deep appreciation to all who have so generously given of their time and thought in assisting in the compilation of the data which appear in this study. In the beginning there was some doubt that such a study as this, relying upon questionnaire material and public health reports, would succeed. We believe that those who will examine the data included in this survey in the numerous charts will conclude that this preliminary survey has been well worthwhile. Many of these data are illuminating and will dispose of some of the general erroneous conceptions concerning the presence or absence of certain diseases in the tropics and, in some instances, the incidence of certain tropical diseases in temperate climates. The study is recognized as being far from complete but thanks are due to those who have given such splendid cooperation to make this initial effort in this type of study possible.

We are especially indebted to the various governments, educational institutions, research institutes and other organizations for their help. We wish to thank in particular the Colonial Office of Great Britain for its cooperation in requesting the various Colonies to send us material which we wished for the survey. We are indebted to the Pan-American Union and its Director General, Dr. L. S. Rowe, and to the Pan-American Sanitary Bureau, and in particular to Dr. Bolivar J. Lloyd, for the help and courtesies shown us. Thanks are given to the many offices and individuals for the advice and counsel extended to the Director of Studies during the summer of 1933 in various parts of Europe including Liverpool, London, Brussels, Antwerp, Amsterdam, Hamburg, Berlin, Munich, Lucerne, Rome and Paris. Of particular encouragement in the early planning of this study were the suggestions of Professor F. Fülleborne, now deceased. The staff at the London School of Hygiene and Tropical Medicine offered our Committee their cooperation and we have found the Medical and Sanitary Reports from British Colonies, Protectorates and Dependencies (Supplements to Tropical Diseases Bulletin) for 1929, 1930, 1931 and 1932 most useful. To Sir A. G. Bagshawe and Dr. H. Harold Scott we express our appreciation for furnishing us with these publications.

Special thanks are due to Mr. M. Epstein, Editor of the "Statesman's Year-Book," for his courtesy in permitting us to use material from his splendid volume. We have drawn in large part from this notable work, concerning the accuracy of whose data we were assured from several sources, for the

statistical information contained in the notes accompanying the charts of disease. While this information is easily available in such reference books it is hoped that, by including it with the charts of diseases for the various countries, it will prove helpful to the reader.

Appreciation is also expressed to the Smithsonian Institution of Washington, D. C. for the use of its new volume entitled "World Weather Records," arranged for publication by Mr. H. Halm Clayton, from which the data on weather conditions have been taken.

To the various contributors of special articles in Part Five the Committee on Survey of Tropical Diseases is most grateful. These articles from leading authorities, together with statistical summaries of the various diseases, should prove most valuable to this study. These articles were contributed at the request of the Director of Studies.

To the various editors of scientific journals and periodicals in the United States of America and elsewhere, to directors of public health in various parts of the world, to the Bureau of Insular Affairs, U. S. A., to the Department of Commerce, U. S. A., to the various Ambassadors and Foreign Ministers to the United States from other nations who have supplied us with information and to all others who have given us aid and counsel we express our deep appreciation.

Finally, the Committee on Survey of Tropical Diseases wishes to express its deep gratitude to The American Leprosy Foundation (formerly the Leonard Wood Memorial) and its President, Mr. Perry Burgess, for making this study and its publication possible through its financial assistance given through the Division of Medical Sciences of the National Research Council, under whose auspices and sponsorship the survey has been conducted.

EARL BALDWIN MCKINLEY, M.D.,
Director of Studies.

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INTRODUCTION[1]

The geography of disease has never been written and the exact picture of this important subject, of such deep significance to mankind, may never be painted. Nature has provided a wide variety of maladies with which living things, of all forms, must cope and no doubt she has certain fundamental biologic principles in mind when permitting the intrinsic and extrinsic agents of disease to fulfill their missions in more or less specific ways. The history of medicine is illuminating and illustrates the slow evolution of man's thinking about his greatest natural enemy—disease. We speak of today as being the day of *modern* medicine but a few hundred years from now this present time may be greatly overshadowed by problems of far larger significance in so far as disease is concerned. The scientific medicine of the future may reach levels of heights undreamed of by any of us. Only a few years ago we recognized only four types of pneumococci and now we believe we have at least thirty-two and there may still be others around the corner. The same is true of the meningococci. In the virus field we speak with much assurance of *the virus* of poliomyelitis, of smallpox, of yellow fever, et cetera, but it is possible that we may have to adopt the plural in speaking of these agents of disease in the years to come. Who knows? We know of many agents, such as bacteria, to which we assign little or no significance in so far as disease is concerned. Some of these agents may, occasionally, become pathogenic. One might imagine a whole little world of ultramicroscopic viruses of these saprophtic varieties which, at present, we are unable to demonstrate. When, however, will Nature change one of these little agents from friend (?) to enemy? The study of the geography of disease is important because it lifts our horizon and broadens our concepts of disease in the larger sense. Man is much concerned with these processes which affect his health and life. He is naturally interested as well in the problems which confront his neighbor. Such knowledge is helpful in formulating his own methods of protection. We return to Nature then as man's greatest friend and enemy. She is a paradox but she places before us new and interesting problems to challenge us. Many of the most interesting of these problems in medical science are found in the field which we speak of as tropical medicine.

The term "tropical medicine" has long been in use to define those diseases which, for one reason or another, have occurred chiefly in tropical climates.

[1] Much of the material in these introductory comments has been taken from a dossier, recently distributed to members of the American Academy of Tropical Medicine and other interested persons and institutions, prepared for the Council of the Academy by its Secretary, the Director of Studies of the Survey on Tropical Diseases.

This term, originally attempting to define freely the subject in which we are interested, has gradually become less definitive, but for lack of a better one it continues to be used. Other terms have been suggested, such as "exotic diseases" or "diseases of warm climates" or "romantic diseases," et cetera, but none of these terms is entirely satisfactory. The terms "tropical diseases" and "tropical medicine" seem to be here to stay and, indeed, their meanings have come to be well understood and approved by scientific people, so there seems to be no good reason why any change in terms should be contemplated at this time. However, we no longer think of these terms as connoting any particular geographical part of the world, though it is true that we still think of diseases which are more prevalent in the tropical belt as being "tropical"—and yet many diseases and conditions which commonly occur in temperate climates are also included in this group. Tropical medicine comprises many sciences, such as entomology, helminthology, protozoology, pathology, bacteriology, mycology, chemistry, physiology, pharmacology, et cetera, as well as the various clinical fields of medicine and other subjects. A science such as meteorology, as applied to medicine in the tropics, should be included in the term tropical medicine. Again tropical medicine is not limited to these sciences as applied to man, but to lower animals as well. In other words, we have a broad field of problems involving health and disease in which perhaps the realm of general learning as a whole may be concerned—a study of living things chiefly from the standpoint of disease processes under special environmental or other unusual conditions. The tropical physician may have to borrow knowledge from many fields of learning in the solution of his problem. Studies of his people from the standpoint of anthropology may be of inestimable value and certainly social customs, religions, superstitions and curious beliefs of magic may affect his problems in their more practical solution. It is impossible then to define tropical medicine in a word or phrase. That these diseases are among the most interesting to the medical and scientific mind few will question. The importance of the solution and control of many of them few will doubt. That their study offers still a great challenge to many scientific fields none will deny. To define this field more clearly therefore is perhaps not of utmost importance. Their further study and the application of existing knowledge for their control, however, is extremely important as a vast problem of world significance in public health.

In preparing the manuscript of this survey it was our original plan to reproduce the entire chart of the questionnaire for each country, including the various data which have been supplied. This would mean that for many countries a large proportion of the chart would be blank except for the form of the questionnaire, but it would have had the advantage of providing space for entries to be made concerning new data as they became available. However, publishing costs have made this impossible and indeed difficult to justify in such times as these.

We therefore reproduce herewith the form of the entire questionnaire which was employed as a basis for collecting the information which appears in the various tables. In the tables which follow there appear only the names of those diseases for which data were supplied and the absence of the names of other diseases indicates that there were no data supplied in the spaces provided in the questionnaire. We are to assume, therefore, that no record exists for these diseases in these particular countries at the present time.

FORM OF QUESTIONNAIRE EMPLOYED

COUNTRY:———————————

Reported by:——————— *Period:*———————

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
(1) Malaria					
(a) Benign tertian					
(b) Quartan					
(c) Subtertian					
(2) Blackwater Fever					
(3) Piroplasmosis					
(4) Leishmaniasis					
(a) Kala-azar					
(b) Oriental Sore					
(c) Espundia					
(5) Relapsing Fever					
(a) *S. recurrentis*					
(b) *S. duttoni*					
(c) *S. venezuelense*					
(d) *S. berberum*					
(6) Rat-Bite Fever					
(7) Yellow Fever					
(8) Dengue Fever					
(9) Pappataci Fever					
(10) Plague					
(11) Typhus Fever					
(12) Trypanosomiasis					
(a) African Human					
T. gambiense					
T. rhodesiense					
(b) South American					
T. cruzi					
(13) Oroya Fever					
(14) Undulant Fever					
(15) Leprosy					
(16) Syphilis					
(17) Yaws					
(18) Granuloma Inguinale					
(19) Tularemia					
(20) Smallpox					
(21) Amebiasis					

I. Tropical Diseases—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
(22) Balantidium Dysentery					
(23) Bacillary Dysentery					
(24) Cholera					
(25) Typhoid Fever					
(26) Para-Typhoid Infection					
(27) Sprue					
(28) Hill Diarrhea					
(29) Ascariasis					
(30) Hookworm Disease					
(31) Giardia Enteritis					
(32) Trichomonas Infection					
(33) Tropical Liver					
(34) Infantile Biliary Cirrhosis					
(35) Schistosomiasis					
(a) Urinary					
(b) Intestinal					
(c) Visceral					
(d) Far Eastern					
(36) Filariasis					
(a) *F. bancrofti*					
(b) *Loa Loa*					
(c) *O. volvulus*					
(d) *F. perstans*					
(e) *F. demarquayi*					
(f) *F. ozzardi*					
(37) Juxta-Articular Nodules					
(38) Elephantiasis					
(39) Chyluria					
(40) Dracontiasis					
(1) *D. medinensis*					
(41) Paragonimiasis					
(a) *P. ringeri*					
(b) *P. westermanii*					
(c) *P. compactus*					
(42) Clonorchiasis					
(a) *C. sinensis*					
(b) *O. felineus*					
(43) Fasciolopsis					
(a) *F. hepatica*					
(b) *F. buskii*					
(44) Cestodes					
(a) *Tænia saginata*					
(b) *Tænia solium*					
(c) *Dibothriocephalus latus*					
(d) *Hymenolepis nana*					
(e) *Sparganum mansoni*					
(f) *S. prolifer*					
(45) Trichuris					
(a) *T. trichiura*					
(b) *H. heptaticus*					

I. Tropical Diseases—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
(46) Trichinelliasis					
(a) *T. spiralis*					
(47) Climatic Bubo					
(48) Rhinosporidiosis					
(49) Goundou					
(50) Ainhum					
(51) Big Heel					
(52) Myiasis					
(a) Subcutaneous					
(b) Blood sucking					
(c) Intestinal					
(d) Larva Migrans					
(53) Leech Infection					
(54) Leucodermia					
(55) Cheloid					
(56) Ulcus Tropicum					
(57) Albinism					
(58) Septic Sore					
(59) Pemphigus Contagiosus					
(60) Ulcerating Dermatitis					
(61) Madura Foot					
(62) Other Mycetoma					
(63) Blastomycosis					
(64) Mossy Foot					
(65) Pityriasis Nigra					
(66) Pityriasis Versicolor					
(67) Dhobie's Itch					
(68) Seborrhoea					
(69) Pinta					
(70) Tinea Imbricata					
(71) Trichosporosis					
(72) Trichomycosis					
(73) Acarine Dermatomycosis					
(74) Epidemic Dropsy					
(75) Peripheral Neuritis					
(76) Beriberi					
(77) Pellagra					
(78) Scurvy					
(79) General Malnutrition or Undernutrition					
(80) Heat Stroke					

II. Diseases Usually Considered as of Temperate Climates

(1) Scarlet Fever					
(2) Diphtheria					
(3) Measles					
(4) German Measles					
(5) Varicella					
(6) Epidemic Meningitis					
(7) Infantile Paralysis					
(8) Epidemic Encephalitis					
(9) Syphilis of Central Nervous System					
(10) Influenza					

II. Diseases Usually Considered as of Temperate Climates—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
(11) Common Cold					
(12) The Pneumonias					
(13) Cholelithiasis					
(14) Urinary Calculus					
(15) Nephritis					
(16) Diabetes					
(17) Pernicious Anemia					
(18) Osteomyelitis					
(19) Tuberculosis					
(a) Pulmonary					
(b) Bone					
(c) Skin					
(20) Malignancy (all forms)					
(21) Trachoma					
(22) Weil's Disease					
(23) Tsutsugamushi Disease					
(24) Rabies					
(25) Unusual Skin Disease					
(26) Thyroid Disease (Goiter)					
(27) Rheumatic Fever					
(28) Arthritis (Nonspecific)					
(29) Rickets					
(30) Dental Caries					
(31) Toxemias of Pregnancy					
(32) Cardio-Vascular Diseases					
(a) Hypertension					
(b) Valvular Lesions					
(c) Aneurysm					
(d) Myocarditis					

It has also been necessary, in order to reduce publication costs to a minimum, to employ a certain number of symbols in the first and third columns of the tables where words instead of figures have been supplied. The symbols used, with the meanings assigned, appear below:

No Rec	No Record
No Rep	No Report
C	Common
Uc	Uncommon
R	Rare
ND	Not Diagnosed
V	Varies

HISTORY

Tropical medicine may be said to have begun more or less formally with the granting of a charter by Queen Elizabeth to the East India Company in 1600. Among the early pioneers in India from Great Britian were medical men.

These physicians soon recognized diseases which they had not seen at home and they began to think and write of special environmental conditions, such as climate and social customs, which they felt were related to those new problems in public health. To be sure diseases such as leprosy, malaria and plague were well known in other parts of the world, undoubtedly centuries before Christ, and were not regarded as purely "tropical," though today we think of a disease such as leprosy, for example, as one which for some reason or reasons seems to thrive best among people residing in warm climates. In leprosy, for example, we have one of the so-called tropical diseases which was rampant in parts of Europe, as well as in many tropical areas, until comparatively recent times. On account of the prevalence of this disease Emperor Frederick II in 1224 A.D. issued an edict regarding the practice of medicine for the purpose of commissioning physicians officially to determine the diagnosis of this disease because of the civil laws governing individuals so affected. Again, the modern hospital is an outgrowth of the old Lazar-houses (though hospitals were known of previously), which were discontinued in Europe when leprosy was finally brought under control. This tropical disease therefore has had a profound influence upon the development of our modern medicine. In 1768 James Lind published a treatise on tropical diseases and this date probably represents the real beginning of tropical medicine as a more or less formal subject.

Subsequent history of the many important discoveries bearing upon the etiology and transmission of tropical diseases is well known. Cinchona was introduced in 1640 for the treatment of malaria, though the parasite of this disease was not discovered until 1880 by Lavaran. Sir Patrick Manson, during the end of the past century, hypothesized that this parasite must have an extracorporeal existence and he suggested that certain mosquitoes must remove the parasite from the human body and that, in such insects, biological changes took place, preparing the parasite for entrance again into the human host. This hypothesis was confirmed as actual fact by the work of Ross and Grassi. This knowledge later made possible the building of the Panama Canal through sanitary and mosquito control measures instituted under the direction of General Gorgas, now commemorated by the Gorgas Memorial Institute in Panama, which is devoted to the study of tropical diseases. African Sleeping Sickness, of particular prevalence in the Belgian Congo, has been known for over one hundred years, but its etiology and the transmitting insect, the tsetse fly, were not discovered until the turn of the present century. In 1909 Cruz and Chagas discovered a new form of trypanosomiasis in Brazil and this disease has since been known as Chagas' disease. Yellow fever, it seems fairly certain, was confined to the Eastern Hemisphere before the time of Columbus. The transmission of this disease by mosquito vectors was foreshadowed by Finlay as early as 1891 and was confirmed later (in 1901) through the work of Reed, Carroll, Lazear and

Agramonte. Plague, of course, was well recognized as early as the sixth century A.D. and this disease has had a worldwide distribution. It has destroyed human life in untold numbers. Its cause was not discovered, however, until the work of Kitasato and, independently, by Yersin near the end of the past century. Later the intermediate rôles played by rats and fleas in the transmission of the disease to man were discovered. The work of Smith and Kilborn on Texas cattle fever during the past century emphasized clearly the importance of insects in the transmission of various diseases. Tropical diseases have been rather unique in their distribution and prevalence, because so many important ones are transmitted by insects which naturally thrive best in these warm climates.

The few examples mentioned above show in an extraordinary manner how intensively and relentlessly several of the so-called tropical diseases have been studied within the past century. One might also call to mind the brilliant work which has attended the study of such diseases as amebic dysentery, bacillary dysentery, the typhoid fevers, yaws, filariasis, beriberi, scurvy, pellagra, schistosomiasis and various other diseases prevalent in tropical countries. The conquest of hookworm in the United States and other parts of the world might constitute a treatise in itself. The problems of smallpox and such diseases as relapsing fever and dengue fever in tropical countries might be described. The diseases of syphilis and tuberculosis as special problems for control and treatment might be discussed. The intent here, however, is to present only a brief historical background to recall to mind some of the achievements which have been made in this field of work and thereby to emphasize once more the need for plans to coördinate future studies under a new program of economy of time, effort and funds. What price we have paid in lives and funds up to the present for our existing knowledge of these diseases no one could or would venture to guess. That this knowledge has advanced our civilization and saved enormous numbers of lives and vast interests in property and other values we cannot gainsay. Application of this knowledge and the search for new information must continue and should go hand in hand in a well-studied program. The past seems to adequately justify the prophesy that in the future equally important advances and contributions may be expected and society will be benefited in a corresponding degree. Today more tools are available with which to work. During the past three decades we have seen the unprecedented growth and development of many of the important basic sciences. A few of these sciences contributing to tropical medicine have been mentioned above. Much of the work in these fields has been spade work—the real significance of the knowledge gained for practical use has not yet dawned upon us. Other sciences have yet to enter the field to any extent. Certainly there is no evidence that all of the problems of the tropics related to the health of man and animals are even as

yet recognized. A new disease of seriously engaging proportions may manifest itself at any time. With the constant shifting of world centers more closely to one another because of more rapid transportation and greater facilities in communication it behooves us all to be concerned with these problems of tropical diseases and the necessity for their control. More knowledge is constantly needed to accomplish these ends and adapt newer methods to meet our changing civilization. Science must be the vanguard to prepare the way to meet these challenges as they appear.

ECONOMIC CONSIDERATIONS

When Great Britain expanded her Empire to the East she recognized that public health was to be an important function of the new governments which she intended to set up. This has been true of every nation which has been faced with the problem of colonial development. When these new developments have involved huge numbers of backward people with low standards of civilization the public health problems have been more difficult. Still all thinking people realize that without health there can be little social or economic progress. Health is a basic asset and necessity. The problems which America met in the Philippines, in the West Indies, Cuba and Panama are well known. Sanitation and public health measures instituted by this nation made possible to a large degree the development which these areas have achieved during the past three decades.

In the great expanses of the warm countries there dwell about 1,600,000,000 people. These are poor people for the most part, rich only in the inheritance of fertile soils and an equable climate. Special environmental conditions make possible the raising of certain raw products which cannot be produced in most temperate climates. These peoples possess very little in the way of manufactured goods. They do not own decent homes. They have no modern water supplies or sewage disposal systems. Their transporation is largely of ancient design and origin, if not entirely lacking. Their implements for working the soil are crude. They have little clothing and little to eat. In short, they need nearly everything regarded as necessities among more favored people, but they have little funds with which to purchase. Their earning power is very low because working conditions are poor and haphazard, if they exist at all, because many of them harbor parasities, are victims of undernutrition or malnutrition or other diesases, and are unable to give much labor in return for material reward.

Some of the problems of disease in these countries are of vast importance to us, since their entrance into other areas would not only be a health catastrophy but a huge economic tragedy to the people. Already problems of a tropical nature have faced us in some of the large cities of the world and the need for an alert program of study in tropical medicine has been clearly emphasized. This is particularly true in spreading the knowledge of the proper treatment

and control of these diseases, whether they arise from within our own borders or come to us from the outside. One of the greatest problems involving most tropical populations, and to a large extent all other peoples as well, is the problem of the dysenteries and diarrhœas. This group of diseases causes perhaps more illness and deaths than any other single ailment, unless it be malaria. In our opinion this group of diseases should be made the subject of a well-organized, financed and coödinated study in a broad program which could involve the active coöperation of several countries.

RECENT DEVELOPMENTS

In 1929 it suddenly seemed imminent that a philanthropist in America might endow the study of tropical medicine with a fund estimated at around $40,000,000. The economic crisis came and these plans failed to materialize. Since then a group of interested laymen and scientists have been carefully considering plans for the future development of this field of medicine, for it was realized, when the funds mentioned above were about to be turned over for this work, that really very little was known of the extent and importance of the problems involved. These discussions finally resulted in the appointment of a Committee on Survey of Tropical Diseases by the National Research Council.

The Committee on Survey of Tropical Diseases is now presenting the report of this preliminary study. A vast amount of material has been collected and the data regarding the incidence and distribution of the various diseases are to be found in the numerous tables which follow. Particular attention is invited to the summaries of several of the diseases, with special articles by noted authorities, in Part V. A summary of the countries for which data are available is to be found in the table of contents.

This has been a fact finding survey and no attempt has been made in this report to present any analysis of the data included. No conclusions have been drawn from the data but a careful study of the material will bring to light many points of interest, particularly to students of tropical medicine. While it is clearly recognized that the study is incomplete, this very fact will emphasize the deficiencies which exist in many parts of the world in our knowledge of the incidence and distribution of various diseases of public health moment. Though the information contained in the report and brought together under one cover at this time may serve workers in various fields, such a study will in time possess an additional value from an historical point of view as a partial world picture of geopathology in twentieth century medicine.

Note. In the questionnaire material which has been sent to us from various parts of the world and in some of the health reports from various countries there has been some confusion regarding the significance of the term "intermediate host" which was included in the questionnaire with the term "vector." Where an insect or arthropod

vector exists as a vector of a disease the answer has been clear but apparently this has not been true where lower animals are hosts for parasites which are also pathogenic for man. Since it is presumed that individuals filling out the questionnaires wished to give as much information as possible and indicate the presence of animals which harbored parasites pathogenic for man, we have decided to include their notations. Therefore a plus sign in the column under "Vector or Intermediate Host—" indicates in these particular cases that infected animals are present and no sign is employed where the disease does not exist, even though an animal host may exist. When the plus sign appears in diseases known to have true intermediate hosts it has the usual significance, meaning the animal in which a parasite passes its larval existence.

DISTRIBUTION AND INCIDENCE OF TROPICAL AND OTHER DISEASES

PART ONE

THE UNITED STATES OF AMERICA

We have included in the survey of tropical diseases a group of selected states of the United States of America, since several of the so-called tropical diseases are to be found in these areas. There are other states which could be included upon this basis (such as Illinois and South Carolina, for example) but our purpose in including the fifteen states which have been selected is to emphasize early in the presentation of this survey that tropical diseases cannot be defined in any geographic sense. We have pointed out elsewhere [McKinley, Earl B., *Am. J. Trop. Med.* 14: 299–307 (1934); *Sci. Monthly* 39: 117–128 (1934)] that the terms "tropical disease" and "tropical medicine" have become terms of common usage but they should not be taken to indicate that the diseases so described occur only in tropical environments. That they are more common in tropical countries is well known and, although these terms are not entirely satisfactory, they have become terms of general usage. Provided we keep in mind that many of these diseases occur in wide areas north of the Tropic of Cancer and south of the Tropic of Capricorn, these terms are satisfactory. The examples met with in the few states selected in the United States of America clearly illustrate this point.

For most of the countries and smaller communities in the tropics we have presented data concerning the social-economic level to provide a background for the problems of disease which are met with in these localities. Information of this character is perhaps better known for the various states in America, or at least is easily available to students, and therefore will be omitted in this discussion.

Among the diseases usually considered and classified under the general heading of tropical diseases or tropical medicine and which are found to occur in many of the states in America included in our list are the following: malaria, typhoid, ascariasis, hookworm disease, bacillary dysentery, relapsing fever, plague, leprosy, amebic dysentery, beriberi and dengue fever. The states included are Alabama, Arizona, California, Florida, Georgia, Kentucky, Louisiana, Mississippi, New Mexico, North Carolina, Oklahoma, Tennessee, Texas, Virginia and West Virginia. The survey of these states, employing their last published health report as the source of our data, indicates that typhoid fever is listed as present in every state. Malaria is found to be present in thirteen of the group; hookworm disease and bacillary dysentery

are found in ten states; ascariasis is present in eight states; amebic dysentery is known to be present in four of the states, leprosy in four, relapsing fever and plague in at least one state and dengue fever is found in five states.

The state reporting the greatest number of cases of malaria is Mississippi with 36,133 cases for the year 1932. Next in order comes Georgia with 3411 cases in 1932 and Louisiana with 3214 cases of this disease in 1933. Typhoid fever is still widespread in certain parts of America. Many of the fifteen states report several hundred cases of this disease but Oklahoma heads the list with 2620 cases of typhoid fever in 1931 and Georgia following with 1799 cases in 1932.

The state reporting the largest number of individuals infested with hookworms is Alabama, which reports 16,380 positive stools among those examined in 1932. Florida comes second on the list with 13,750 positives in 1933. However, this is no indication of the number of clinical cases of hookworm disease in these two states but represents only the presence of hookworm eggs in the stools examined during the periods specified. The other states (eight of those included in the list) report smaller numbers of these cases.

Mississippi again leads the list for cases of bacillary dysentery; in 1932 it reported 5688 cases of this disease. Georgia reported, in 1932, 435 cases.

California, Florida, Georgia and Louisiana all report leprosy. The cases reported from Louisiana do not include those in the leprosarium at Carville but represent eight new cases reported in 1932–33. Florida reported 25 cases of leprosy in 1933, California 19 cases of this disease in 1931 and Georgia one case in 1932. It is reported that upwards of forty cases of this disease exist in New York, largely in New York City.

Besides the diseases mentioned as occurring in this list of fifteen selected states other exotic diseases are found in many of them, such as typhus fever, pellagra, tularemia, et cetera.

Further details of the incidence of the various tropical diseases in this group of selected states in America may be found in the tables which follow. In further reference to the problem of malaria in America the reader is also referred to the report of the Health Organization of the League of Nations entitled"Enquiry into the Quinine Requirements of Malarial Countries and the World Prevalence of Malaria," which was published at Geneva in 1932. This report indicates that in 1923 there were estimates made of around one million cases of malaria in a group of twelve states, most of which are included in our selected group but include, in addition, Arkansas and South Carolina.

TABLE 1

STATE OF ALABAMA

Reported by: Annual Report of the State Board of Health *Period:* 1932

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Widespread	2,203	+	+
Benign tertian	+		553	+	+
Subtertian	+		175	+	+
Dengue Fever	+		3	+	
Typhus Fever	+	Certain southern counties	237	+	+
Undulant Fever	+		17	+	
Leprosy	+		0		
Syphilis	+		11,285[1]		+
Tularemia	+		28	+	
Smallpox	+	Outbreak in 2 counties	464		+
Typhoid Fever	+		772		+
Ascariasis	+		159		
Hookworm Disease	+		16,380[2]		
Cestodes	+				
Tænia saginata	+		8	+	
Hymenolepis nana	+		684		+
Trichuris	+		6		
Pellagra	+		702		+

II. Diseases Usually Considered as of Temperate Climates

Scarlet Fever	+		1,459		+
Diphtheria	+	Epidemic in four counties	1,888		+
Measles	+		291		
Varicella	+		1,104		
Epidemic Meningitis	+		23[3,4]		
Infantile Paralysis	+		35		
Epidemic Encephalitis	+		26[5]		
Influenza	+	Epidemic	30,584		+
The Pneumonias	+		2,855		+
Nephritis	+		2,313[3]		
Diabetes	+		288[3]		
Tuberculosis	+		4,366[6]		+
Pulmonary	+		738[7]		+
Malignancy (all forms)	+		1,532[3]		+
Trachoma	+		2		
Rabies	+		1	+	
Cardio-Vascular Diseases	+		3,177[3,8]		+

[1] New cases.
[2] Figure is number of positive stools; 23,109 treatments were given.
[3] Deaths.
[4] 65 cases of "meningitis" were reported.
[5] Listed as encephalitis.
[6] 21,327 cases of tuberculosis and suspects are under supervision of county health units.
[7] 1964 deaths reported due to pulmonary tuberculosis.
[8] "Diseases of Heart."

TABLE 2

STATE OF ARIZONA

Reported by: Public Health News *Period:* February and October, 1934[1]

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+		14	+	−
Undulant Fever	+		27	+	−
Syphilis	+		165		+
Tularemia	+		2	+	
Smallpox	+		10		
Bacillary Dysentery	+		100[2]		+
Typhoid Fever	+		152		+
Pellagra	+		4		

II. Diseases Usually Considered as of Temperate Climates

Scarlet Fever	+		544		+
Diphtheria	+		174		+
Measles	+		1,674		+
German Measles	+		43		
Varicella	+		586		+
Epidemic Meningitis	+		25[3]		
Infantile Paralysis	+		31		
Epidemic Encephalitis	+		4[3]		
Influenza	+		566		+
The Pneumonias	+		219		+
Tuberculosis	+		957[4]		+
Trachoma	+		795		+

[1] Figures are for 1933 (the whole year).
[2] "Dysentery."
[3] Deaths.
[4] 1073 deaths.

TABLE 3

STATE OF CALIFORNIA

Reported by: Biennial Report of the Department of Public Health *Period:* 1930–32[1]

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+		80	+	−
Relapsing Fever	+	Lake Tahoe, Big Bear, Paker Lake, Sierra County	12	+	+
Yellow Fever	+		0		
Plague	+		0[2]	+	+
Typhus Fever	+		2	+	
Undulant Fever	+	Widespread	106	+	+
Leprosy	+		19		
Syphilis	+		9,333		+

TABLE 3

STATE OF CALIFORNIA—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Yaws	+		0		
Tularemia	+		11	+	
Smallpox	+	Widespread	1,524		+
Amebiasis	+		100		+
Bacillary Dysentery	+		193		+
Typhoid Fever	+	Outbreaks 9 counties; widespread	711		+
Para-Typhoid Infection	+		75		+
Hookworm Disease	+		5		−
Clonorchiasis	+		0		−
Trichinelliasis	+	Outbreak Marin County; San Jose County	40	+	+
Beriberi	+		1		−
Pellagra	+		76		+
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+		5,854		+
Diphtheria	+	Widespread	3,421		+
Measles	+		29,748		+
German Measles	+		595		+
Varicella	+		16,644		+
Epidemic Meningitis	+		261		+
Infantile Paralysis	+	Thirty-three counties	293		+
Epidemic Encephalitis	+		56		−
Influenza	+		7,016		+
The Pneumonias	+		3,971[3]		+
Nephritis	+		4,876[3]		+
Diabetes	+		1,142[3]		+
Tuberculosis	+	Widespread	10,176		+
Pulmonary	+		9,984		+
Malignancy (all forms)	+		7,411[3]		+
Trachoma	+		244		+
Weil's Disease	+		18[4]		
Rabies	+	Widespread in animals, Fresno and Los Angeles Counties	2[5]	+	+
Rheumatic Fever	+				
Toxemias of Pregnancy	+		19[3]		
Cardio-Vascular Diseases	+		17,027[3,6]		+
Hypertension	+		1,461[3]		
Aneurysm	+		199[3]		
Myocarditis	+		8,678[3]		+

Other diseases present: Rocky Mountain spotted fever, 1. Psittacosis, 12.[7] Actinomycosis, 7. Coccidioidal granuloma, 17.

[1] All figures for 1931.

[2] Monterey and San Benito counties (1929). According to Meyer there were two cases of plague in California during the summer of 1934. The disease was discovered for the first time in rodents in Modoc county at the extreme northern end of the state. See Appendix for special report.

[3] Deaths.

[4] "Epidemic jaundice."

[5] 800 animal cases; outbreaks in 18 counties.

[6] "Diseases of the circulatory system." Heart disease is major cause of death.

[7] Includes January, 1932.

TABLE 4

STATE OF FLORIDA

Reported by: Annual Report of the State Board of Health *Period:* 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+		1,011	+	+
Typhus Fever	+		54	+	+
Undulant Fever	+		6	+	
Leprosy	+	Key West chiefly[1]	25		
Syphilis	+		4,833		+
Tularemia	+		1	+	
Smallpox	+		1		
Amebiasis	+		9[2,3]		
Bacillary Dysentery	+		14[2,4]		
Typhoid Fever	+		183		+
Ascariasis	+		953[2]		
Hookworm Disease	+		13,750[5]		+
Cestodes	+		138[5,6]	+	
Trichuris	+		406[5]		
Pellagra	+		73		+
Scurvy	+		1[2]		

II. Diseases Usually Considered as of Temperate Climates

Scarlet Fever	+		203		+
Diphtheria	+		452		+
Measles	+		1,048		+
German Measles	+				
Varicella	+		1[2]		
Epidemic Meningitis	+		3[2]		
Infantile Paralysis	+		7		
Epidemic Encephalitis	+		2[7]		
Influenza	+		1,267[8]		+
The Pneumonias	+		847[2]		+
Cholelithiasis	+		25[2]		
Urinary Calculus	+		26[2]		
Nephritis	+		1,722[2]		
Diabetes	+		247[2]		
Pernicious Anemia	+		33[2]		
Osteomyelitis	+		7[2]		
Tuberculosis	+		1,690		+
Pulmonary	+		1,019[2]		+
Bone	+		9[2]		
Skin	+		1[2]		
Malignancy (all forms)	+		1,244[2]		+
Rabies	+		0[9]	+	−
Thyroid Disease (Goiter)	+		35[2]		
Rheumatic Fever	+		30[2]		
Rickets	+		7[2]		
Toxemias of Pregnancy	+		14[2]		
Cardio-Vascular Diseases	+				
Hypertension	+		159[2]		
Valvular Lesions	+		747[10]		
Aneurysm	+		35[2]		
Myocarditis	+		690[2]		

TABLE 4
STATE OF FLORIDA—*Concluded*

[1] Cases sent to Carville, La.
[2] Deaths.
[3] All deaths are for 1932.
[4] 20 deaths due to dysentery "unspecified."
[5] Laboratory findings.
[6] Reported as "Tapeworm."
[7] "Encephalitis." 6 deaths in 1932 due to epidemic encephalitis.
[8] At Palatka an outbreak involving 400–500 people occurred and "intestinal influenza" was suggested as most probable diagnosis.
[9] 20 rabid dogs (laboratory findings).
[10] "Chronic endocarditis, valvular diseases."

TABLE 5
STATE OF GEORGIA

Reported by: Biennial Report of the Department of Public Health *Period:* 1931–32[1]

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Widespread in south	3,411	+	+
Benign tertian	+			+	+
Subtertian	+			+	+
Dengue Fever	+		6	+	−
Pappataci Fever	+	Outbreak at Waycross 1931		+	
Typhus Fever	+	At Leslie and Blakely (1932)	308[2]	+	+
Undulant Fever	+	LaFayette	35	+	+
Leprosy	+		1		−
Syphilis	+		6,776		+
Tularemia	+		29	+	+
Smallpox	+		20		+
Amebiasis	+		3[3]		−
Bacillary Dysentery	+	Manchester. Epidemic at Warm Springs Foundation	435[4]		+
Typhoid Fever	+	Widespread epidemics	1,799		+
Para-Typhoid Infection	+		19		−
Ascariasis	+		428[3]		+
Hookworm Disease	+		9,140		+
Cestodes	+				
Hymenolepis nana	+		325[3]		−
Trichuris	+		44[3]		−
Trichinelliasis	+				
Pellagra	+		986		+

II. Diseases Usually Considered as of Temperate Climates

Scarlet Fever	+	Widespread	802		+
Diphtheria	+	Outbreak Union County	1,362		+
Measles	+		1,075		+
Varicella	+		346		+
Epidemic Meningitis	+	Atlanta, Statesboro, Carrolton, scattered	78[5]		+

TABLE 5

STATE OF GEORGIA—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Infantile Paralysis	+		42		+
Epidemic Encephalitis	+		22		+
Influenza	+		15,685		+
The Pneumonias	+		4,252		+
Nephritis	+		3,216[6]		+
Diabetes	+		343[6]		−
Tuberculosis	+		3,321		+
Malignancy (all forms)	+		1,531		+
Trachoma	+	S.N.W. central; endemic Decatur and Mitchell Counties	1,930		+
Rabies	+		3[7]	+	+
Dental Caries	+				
Cardio-Vascular Diseases	+		4,102[8]		+
Psittacosis	+		1		

[1] Figures for 1932. Division of Epidemiology was not established until February. The increases may be due to better reporting rather than more actual cases.
[2] Brill's disease (American typhus).
[3] Laboratory findings.
[4] Reported dysentery. Epidemic was bacillary in origin.
[5] Reported "Cer. meningitis."
[6] Deaths.
[7] 343 animal heads positive for negri bodies.
[8] "Heart disease."

TABLE 6

STATE OF KENTUCKY

Reported by: Bulletin of the State Board of Health (Annual Report) *Period:* 1933

I. TROPICAL DISEASES

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Carlisle County		+	
Typhus Fever	+	Powell County	1[1]	+	
Syphilis	+	Widespread	C		+
Smallpox	+	Perry County	8		
Bacillary Dysentery	+	Widespread	C		+
Typhoid Fever	+	Widespread	81		+
Para-Typhoid Infection	+	Epidemic Owsley County			
Ascariasis	+	Widespread	C[2]		+
Hookworm Disease	+	General	C[2]		+
Cestodes	+			+	
Hymenolepis nana	+	Pulaski County;[3] Green County?[4]			
Trichuris	+	Pulaski County; Green County?			
Pellagra	+	McLean County			+
General Malnutrition or Undernutrition	+	Widespread	C		+

TABLE 6

STATE OF KENTUCKY—*Concluded*

II. Diseases Usually Considered as of Temperate Climates

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Scarlet Fever	+	Sporadic. Epidemic Lincoln County			+
Diphtheria	+	Epidemic, widespread	98		+
Tuberculosis	+	Widespread	C		+
Trachoma	+	Widespread	C		+
Rabies	+	Widespread in animals	250[5]	+	+
Rickets	+	McLean County	C		+

[1] All figures (except possibly this one, as this was only typhus mentioned) are of little value as most counties gave none.

[2] Tests among "many thousands of children and adults" show that as high as 90% in some counties harbor some one of the intestinal parasites. "In quite a large percentage of cases, as many as four different types were found in a single individual."

[3] 75% of pupils of 3 schools showed infestation of one or more of following: ascaris 15%, trichuris 10%, dwarf tapeworm 3%.

[4] Survey showed that of *each 100* children examined in county 5 had hookworm, 55 ascaris, 13 trichuris, 2 Hymenolepis nana.

[5] Number of indigent persons given anti-rabic vaccine by county health officers.

TABLE 7

STATE OF LOUISIANA

Reported by: Biennial Report of the State Board of Health *Period:* 1932–33

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Outbreak Springfield and vicinity. Widespread	3,214[1]	+	+
Relapsing Fever	+		0		−
Yellow Fever	+		0		
Dengue Fever	+		3	+	−
Plague	+		0	+	
Typhus Fever	+	Small outbreak	11	+	+
Undulant Fever	+	Chiefly Orleans County	28	+	+
Leprosy	+	Orleans, Tammany and Washington Counties	8[2]		+
Tularemia	+	Scattered	37	+	+
Smallpox	+	Scattered	75		+
Bacillary Dysentery	+	Widespread	79[3]		+
Cholera	+		0		
Typhoid Fever	+	Widespread	960		+
Para-Typhoid Infection	+		16		
Ascariasis	+	Scattered: Washington, Webster, Natchitoches Counties	240		
Pellagra	+	Certain localities	378[4]		+

TABLE 7

STATE OF LOUISIANA—*Concluded*

II. Diseases Usually Considered as of Temperate Climates

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Scarlet Fever	+	Widespread	634		+
Diphtheria	+	General	1,025		+
Measles	+	General	944		+
Varicella	+		286		+
Epidemic Meningitis	+	Scattered; Orleans County	47		+
Infantile Paralysis	+	Scattered	31		+
Epidemic Encephalitis	+		11		−
Influenza	+		2,397		+
The Pneumonias	+	Widespread	2,394		+
Tuberculosis	+	Widespread			+
Pulmonary	+	General	2,014		+
Malignancy (all forms)	+		1,500[4]		+
Trachoma	+		1		−
Rabies	+		3[5]	+	−
Cardio-Vascular Diseases	+		4,065[6,7]		+

[1] All figures are for 1933.
[2] There are approximately 350 cases of leprosy at Carville, Louisiana.
[3] Listed as "epidemic dysentery."
[4] This disease is not well reported.
[5] 145 cases of animal rabies.
[6] Deaths due to "diseases of the heart."
[7] Deaths.

TABLE 8

STATE OF MISSISSIPPI

Reported by: Biennial Report of the State Board of Health *Period:* 1931–33[1]

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Widespread	36,133	+	+
Dengue Fever	+		47	+	−
Undulant Fever	+		10[2]	+	+
Syphilis	+	Widespread	10,521		+
Tularemia	+		55[2,3]	+	+
Smallpox	+	Widespread; epidemic Sunflower County	641		+
Amebiasis	+		481		+
Bacillary Dysentery	+		5,688		+
Typhoid Fever	+	Widespread	928		+
Hookworm Disease	+		2,351		+
Pellagra	+	Adams, Hancock and Sunflower Counties	5,741		+

TABLE 8

STATE OF MISSISSIPPI—*Concluded*

II. Diseases Usually Considered as of Temperate Climates

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Scarlet Fever	+	General; epidemic Hinds County	771		+
Diphtheria	+	General	1,089		+
Measles	+		690		+
Varicella	+		4,795		+
Epidemic Meningitis	+		34		+
Infantile Paralysis	+		34		+
Epidemic Encephalitis	+		3[4]		−
Influenza	+	General	63,449		+
The Pneumonias	+	General	1,052[4]		+
Nephritis	+		1,553[4]		+
Diabetes	+		168[4]		+
Tuberculosis	+	General	1,396[4]		+
Pulmonary	+		1,331[4]		+
Malignancy (all forms)	+		1,737		+
Trachoma	+		43		+
Rabies	+		1[5]	+	−
Cardio-Vascular Diseases	+		1,865[4,6]		+
Hypertension	+		234[4]		
Aneurysm	+		11[4]		

[1] All figures for 1932 unless otherwise specified.
[2] In no way represents the number of cases.
[3] Figure for biennium.
[4] Deaths.
[5] Bolivar County; epidemic animal rabies resulting in 2 human deaths.
[6] "Heart Disease."

TABLE 9

STATE OF NEW MEXICO

Reported by: Seventh Biennial Report of the Bureau of Public Health

Period: 1931–32[1]

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Rio Arriba, Sante Fe and Dona Ana Counties; San Juan Valley	?[2]	+	+
Undulant Fever	+			+	+
Syphilis	+		369		+
Smallpox	+	Eastern border of state			+
Typhoid Fever	+	Isolated cases			−

II. Diseases Usually Considered as of Temperate Climates

Diphtheria	+		664		+
Tuberculosis	+		?[3]		+

TABLE 9

STATE OF NEW MEXICO—*Concluded*

[1] Figures are for 1932. No vital statistics printed owing to cost.
[2] Dr. M. A. Barber (Rockefeller Foundation) warns: "Malaria in New Mexico may show a high degree of intensity and once established may be very difficult to eradicate."
[3] Figures mean little because patients come from all over world. Death rate 149.5 per 100,000 population.

TABLE 10

STATE OF NORTH CAROLINA

Reported by: Biennial Report of the State Board of Health *Period:* 1932–34[1]

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+			+	+
Yellow Fever	+		0		
Plague	+		0		
Typhus Fever	+		46[2]	+	+
Undulant Fever	+		15	+	+
Syphilis	+		4,570		+
Tularemia	+		28	+	+
Smallpox	+		35		+
Bacillary Dysentery	+		1		−
Cholera	+		0		
Typhoid Fever	+		684		+
Para-Typhoid Infection	+		12		−
Ascariasis	+		?[3]		
Pellagra	+		833		+
General Malnutrition or Undernutrition	+		16,384[4]		+

II. Diseases Usually Considered as of Temperate Climates

Scarlet Fever	+		3,662		+
Diphtheria	+		2,497		+
Measles	+	Epidemic	16,197		+
German Measles	+		187		−
Varicella	+		4,167		+
Epidemic Meningitis	+		66[5]		+
Infantile Paralysis	+		30		+
Influenza	+		7,215		+
Tuberculosis	+		2,524		+
Trachoma	+		5		−
Rabies	+	Animal rabies widespread	1	+	−
Dental Caries	+		67,197[6]		+
Rocky Mountain Spotted Fever[7]	+		27		+

[1] All figures for 1933 unless otherwise stated.
[2] Endemic typhus; European O cases.
[3] 1332 positive examinations for intestinal parasites from July 1932–July 1934.
[4] "Children with defective nutrition." Figures for biennium.
[5] "Meningitis." Listed under reportable diseases.
[6] Children with "defective teeth." Figures for biennium.
[7] Eastern type.

TABLE 11

STATE OF OKLAHOMA

Reported by: Biennial Report of the State Health Department *Period:* 1930–32[1]

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	East and southeastern counties	85[2,3]	+	+
Undulant Fever	+		6[2]	+	+
Syphilis	+		101[2,4]		+
Smallpox	+		11[2]		+
Bacillary Dysentery	+		38[2,5]		+
Typhoid Fever	+		2,620		+
Para-Typhoid Infection	+		1[2]		−
Hookworm Disease	+		1[2]		−
Pellagra	+		239[2]		+
Scurvy	+		3[2]		
General Malnutrition or Undernutrition	+		8[2]		
Heat Stroke	+		15[2]		

II. Diseases Usually Considered as of Temperate Climates

Scarlet Fever	+		37[2]		+
Diphtheria	+		290[2]		+
Measles	+		12[2]		+
Epidemic Meningitis	+		26[2]		+
Infantile Paralysis	+		20[2,6]		+
Epidemic Encephalitis	+		5[2]		−
Influenza	+		481[2]		+
The Pneumonias	+		2,087[2]		+
Cholelithiasis	+		23[2]		
Urinary Calculus	+		4[2]		
Nephritis	+		1,112[2]		+
Diabetes	+		201[2]		
Pernicious Anemia	+		71[2]		
Osteomyelitis	+		32[2]		
Tuberculosis	+		1,310[2]		+
Pulmonary	+		1,191[2]		+
Bone	+		11[2]		
Malignancy (all forms)	+		1,279[2]		+
Rabies	+		1[2]	+	−
Thyroid Disease (Goiter)	+		12[2]		
Rheumatic Fever	+		35[2]		
Rickets	+		4[2]		
Toxemias of Pregnancy	+		18[2]		
Cardio-Vascular Diseases	+				
Hypertension	+		181[2]		+
Aneurysm	+		3[2]		
Myocarditis	+		393[2]		+
Hydatid cysts	+		1[2]		

[1] Figures for 1931.

[2] Deaths.

[3] According to Canavan [Am. J. Trop. Med., 15: 229 (1935)] there were 2219, 1518, 1161 and 1581 cases of malaria in Oklahoma in 1930, 1931, 1932 and 1933, respectively.

[4] 17,008 positive Kolmer specimens from Jan., 1931 to Dec., 1932.

[5] "Dysentery."

[6] Including acute polioencephalitis.

TABLE 12

STATE OF TENNESSEE

Reported by: Biennial Report of the Department of Public Health *Period:* 1931–1933[1]

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General; counties along Mississippi River	478	+	+
Benign tertian	+		325	+	+
Subtertian	+		153	+	+
Typhus Fever	+		16[2]	+	+
Undulant Fever	+		68	+	+
Leprosy	+?				
Syphilis	+		7,849[3]		+
Tularemia	+		47	+	+
Bacillary Dysentery	+		24		+
Typhoid Fever	+		493		+
Para-Typhoid Infection	+		40		+
Ascariasis	+		64		
Hookworm Disease	+		98		+
Cestodes	+				
Tænia saginata	+		1	+	
Hymenolepis nana	+		35		
Trichuris	+		14		
Pellagra	+				

II. Diseases Usually Considered as of Temperate Climates

Scarlet Fever	+[4]				+
Diphtheria	+		1,201		+
Epidemic Meningitis	+		60		+
Infantile Paralysis	+				
Influenza	+		20,000[5]		+
Tuberculosis	+		3,392[6]		+
Pulmonary	+		831		+
Trachoma	+	Central and eastern Tenn.	1,406[6]		+
Rabies	+		?[7]	+	+
Dental Caries	+		7,064[8]		+
Rocky Mountain Spotted Fever	+		6[9]	+	

[1] All figures are taken from the laboratory findings except No. 16 in (I) and Nos. 10, 19, 21, 30 in (II). Rocky Mountain spotted fever, special study. All figures are for the fiscal year 1932–33 unless otherwise stated.

[2] Endemic typhus.

[3] New cases.

[4] 18,277 field visits for acute communicable diseases by County Health Department.

[5] Figure represents cases from November 1932 to March 1933.

[6] Cases for biennium.

[7] Negri bodies found in 600 cats, dogs, cows, horses and other animals.

[8] "Dental defects" for 15 month period.

[9] Ticks present.

TABLE 13

STATE OF TEXAS

Reported by: Biennial Report of the State Department of Health *Period:* 1931–32

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Widespread	7,332[1]	+	+
Dengue Fever	+		18	+	−
Typhus Fever	+	Epidemics Gulf Coast, east and central Texas	150	+	+
Undulant Fever	+		3	+	−
Leprosy	+		0		−
Syphilis	+		2,502[2]		+
Tularemia	+		14	+	+
Smallpox	+		1,032		+
Bacillary Dysentery	+		73[3]		+
Typhoid Fever	+	Widespread; epidemic at Maxwell, Swearengen and Dunlap	965		+
Para-Typhoid Infection	+		40		+
Hookworm Disease	+	Nolan, Cameron Counties	7[4]		−
Pellagra	+		12		+

II. Diseases Usually Considered as of Temperate Climates

Scarlet Fever	+		2,061		+
Diphtheria	+		3,092		+
Measles	+		3,560		+
Varicella	+		1,929		+
Epidemic Meningitis	+		28[5]		+
Infantile Paralysis	+		56		+
Epidemic Encephalitis	+		4		−
Influenza	+		3,984		+
The Pneumonias	+		774[6]		+
Nephritis	+		3,415[7]		+
Diabetes	+		636[7]		+
Tuberculosis	+		984		+
Pulmonary	+		4,233[7]		+
Skin	+		4		
Malignancy (all forms)	+		3,435[7]		+
Trachoma	+		14		+
Rabies	+		11	+	+
Thyroid Disease (Goiter)	+	Cass, Nolan and Cameron Counties	41[8]		−
Cardio-Vascular Diseases	+		6,482[7,9]		+

[1] Deaths for 1931. Other figures are for year 1931–32 (Sept. to Sept.) unless otherwise stated.

[2] Figure for positive Kahn tests 1930–32.

[3] Listed "dysenteries."

[4] Figure is total for 18 months and 14 months in respective counties.

[5] Listed as "meningitis" in reportable diseases.

[6] 3845 deaths due to pneumonia in 1931.

[7] Deaths.

[8] Figure is total for 15, 18 and 14 months in respective countries.

[9] Deaths due to "heart disease." Figure not reliable.

TABLE 14
STATE OF VIRGINIA

Reported by: Annual Report of the State Department of Health *Period:* 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Especially Greensville County	339	+	+
Rat-bite Fever	+				
Typhus Fever	+		22[1]	+	+
Undulant Fever	+	Augusta County	37	+	+
Smallpox	+	Outbreak Buchanan County	17		+
Amebiasis	+		2[2]		
Bacillary Dysentery	+	Epidemic, Wise, Buchanan Counties	270[3]		+
Typhoid Fever	+	Widespread	1,155[4]		+
Para-Typhoid Infection	+				
Pellagra	+	Widespread	530		+
Scurvy	+		3[2]		−
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+	Epidemic	3,032		+
Diphtheria	+	General	2,057		+
Measles	+	General	4,269		+
Varicella	+		4,141		+
Epidemic Meningitis	+	Outbreak in Accomac County and near Pocahontas; scattered	73		+
Infantile Paralysis	+		63		+
Epidemic Encephalitis	+		17[2]		+
Influenza	+		51,318		+
The Pneumonias	+		3,766		+
Cholelithiasis	+		42[2]		
Urinary Calculus	+		21[2]		
Nephritis	+		2,577[2]		+
Diabetes	+		412[2]		+
Osteomyelitis	+		25[2]		
Tuberculosis	+		2,165[2]		+
Pulmonary	+		1,947[2]		+
Bone	+		37[2]		
Skin	+		1[2]		
Malignancy (all forms)	+		1,818[2]		+
Weil's Disease	+	Westmoreland epidemic	21[5]		+
Rabies	+	Outbreaks	26[6]	+	+
Thyroid Disease (Goiter)	+		57[2]		+
Rheumatic Fever	+		57[2]		+
Rickets	+		21[2]		+
Dental Caries	+		C		+
Toxemias of Pregnancy	+		10[2]		
Cardio-Vascular Diseases	+				
Hypertension	+		288[2]		+
Valvular Lesions	+		1,434[2,7]		+
Aneurysm	+		50[2]		
Myocarditis	+		1,483[2]		+
Rocky Mountain Spotted Fever	+		9		
Hydatid cysts of liver	+		1[2]		

TABLE 14

STATE OF VIRGINIA—*Concluded*

[1] Brill's disease.
[2] Deaths.
[3] 5,940 cases of dysentery and diarrhoea.
[4] Includes para-typhoid.
[5] Cases suggest infectious type jaundice but could not isolate organism.
[6] Figure represents number of persons given Pasteur treatments. Outbreaks occurred in Pulaski, Chesterfield, Roanoke and Washington Counties. Animal rabies.
[7] Chronic endocarditis and valvular disease.

TABLE 15

STATE OF WEST VIRGINIA

Reported by: Biennial Report of the State Health Department *Period:* 1930–32[1]

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Typhus Fever	+(?)	Clay County	30[2]	+	+
Syphilis	+		167[3,4]		+
Tularemia	+	Wood County	3		−
Smallpox	+	Widespread	242		+
Bacillary Dysentery	+				
Typhoid Fever	+	Widespread, especially Kanawha County	1,203		+
Ascariasis	+(?)		?[5]		−
Hookworm Disease	+		38		−
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+	General	1,812		+
Diphtheria	+	General	1,281		+
Measles	+	General	4,371		+
German Measles	+	Mineral County chiefly. Scattered	632		+
Varicella	+	General	2,277		+
Epidemic Meningitis	+	Kanawha County. Scattered	44		+
Infantile Paralysis	+	Logan County; scattered	80		+
Influenza	+	General	2,393		+
The Pneumonias	+		1,457[3]		+
Nephritis	+		1,140[3]		+
Diabetes	+		208[3]		+
Pernicious Anemia	+				
Tuberculosis	+	General	1,055[3]		+
Malignancy (all forms)	+		1,029[3]		+
Trachoma	+	Logan and Lincoln Counties	5		−
Rabies	+	Scattered. Animal rabies widespread	4	+	−
Cardio-Vascular Diseases	+		1,954[3,6]		+

[1] Figures for 1931.
[2] Cases gave positive agglutination for Brill's disease, but none of the cases gave history, symptoms or clinical course which would confirm diagnosis of endemic typhus fever. [3] Deaths.
[4] Number of cases treated monthly varied from 1864–2763.
[5] "Intestinal parasite infestation has been found in almost all localities from which specimens have been received." [6] "Heart disease."

TABLE 15A

Summaries of the Incidence of Certain Diseases in Fifteen Selected States of the United States of America

STATES	MALARIA	DENGUE FEVER	TYPHUS FEVER	BRUCEL-LOSIS	LEPROSY[1]
Alabama	2,203	3	237	17	0
Arizona	14	0	0	27	0
California	80	0	2	106	19
Florida	1,011	0	54	6	25
Georgia	3,411	6	308	35	1
Kentucky	+(?)	0	1	0	0
Louisiana	3,214	3	11	28	8
Mississippi	36,133	47	0	10	0
New Mexico	+(?)	0	0	+(?)	0
North Carolina	+(?)	0	46	15	0
Oklahoma	85	0	0	6	0
Tennessee	478	0	16	68	0
Texas	7,332	0	150	3	0
Virginia	339	0	22	37	0
West Virginia	0	0	30	0	0
Totals	54,300	59	877	358	53

STATES	SYPHILIS	TULAREMIA	AMEBIASIS	BACILLARY DYSENTERY	TYPHOID FEVERS
Alabama	11,285	28	0	0	772
Arizona	165	2	0	100	152
California	9,333	11	100	193	786
Florida	4,833	1	9	14	183
Georgia	6,776	29	3	435	1,818
Kentucky	C	0	0	C	81
Louisiana	No Rep.	37	No Rep.	79	976
Mississippi	10,521	55	481	5,688	928
New Mexico	369	0	0	0	+(?)
North Carolina	4,570	28	0	1	696
Oklahoma	101	0	0	38	2,621
Tennessee	7,849	47	0	24	537
Texas	2,502	14	0	73	1,005
Virginia	No Rep.	0	2	270	1,155
West Virginia	167	3	0	0	1,203
Totals	58,471	255	595	6,915	12,913

STATES	HOOKWORM	PELLAGRA	BERIBERI	TUBERCU-LOSIS	TRACHOMA
Alabama	16,380	702	0	4,366	2
Arizona	0	4	0	957	795
California	5	76	1	10,176	244
Florida	13,750	73	0	1,690	0
Georgia	9,140	986	0	3,321	1,930
Kentucky	C	+(?)	0	C	C
Louisiana	No Rep.	378	0	2,014	1
Mississippi	2,351	5,741	0	1,396	43
New Mexico	0	0	0	+(?)	No Rep.
North Carolina	0	833	0	2,524	5
Oklahoma	1	239	0	1,310	0
Tennessee	98	+(?)	0	3,392	1,406
Texas	7	12	0	5,217	14
Virginia	No Rep.	530	0	2,165	0
West Virginia	38	0	0	1,055	5
Totals	41,770	9,574	1	39,583	4,445

[1] The figures on leprosy do not include about 350 cases in isolation at Carville, La.

HAWAII

The Hawaiian Islands, consisting of twenty islands with an area of 6,407 square miles and formerly known as the Sandwich Islands, lie in the North Pacific Ocean about 2,000 miles south-west of San Francisco. These Islands were discovered by Captain Cook and celebrated their 150th anniversary in 1928. In 1898 the Islands were formally annexed to the United States after more than a century as an independent kingdom which ended with the formation of a Republic in 1894, following a provisional government for about one year.

In 1930 the total population of the Hawaiian Islands was 368,336. The population of the capital, Honolulu, on the Island of Oahu was over 137,000. The population of the Islands is mixed, there being Hawaiians, part Hawaiians, Chinese (over 139,000), Japanese (over 27,000), Portuguese, Filipinos, Porto Ricans, Spanish, Americans, British, Germans, Koreans, Russians and others. The religion of the people is Christian. There are numerous denominations. English is taught in the schools, there being over 180 schools with 2,657 teachers and over 76,000 students. Various special schools also exist, such as trade schools, normal schools, etc.; the University of Hawaii is located in Honolulu, having been founded in 1907.

In 1931 the revenue of the Islands amounted to $13,594,170 and the expenditures amounted to $11,895,693. The bonded indebtedness of the Islands in 1931 was $32,000,000 and the assessed value of property was $332-198,835. In 1930 there were nearly 6,000 farms with a total acreage of 2,815-026. The chief products are sugar, pineapple, coffee, bananas and wool. Nearly 850,000 short tons of sugar were produced in 1930 and there were over 12,000,000 cases of pineapple produced. In 1931 the imports amounted to over $91,000,000 and the exports to over $100,000,000. During the same year some 1,283 vessels, representing a total of over 10,000,000 tons, entered the Islands' ports. Various steamship lines ply between the ports of Hawaii and the Far East, America and Great Britain.

Among the diseases of public health importance in the Hawaiian Islands, according to Dr. F. E. Trotter, President of the Board of Health, are plague, leprosy, syphilis, the typhoid fevers, hookworm disease, various respiratory infections including tuberculosis and trachoma. Plague has been present in the Islands since 1899 and leprosy much before this time.

According to "World Weather Records" the mean pressure for the ten year period, 1921–30, (corrected) (29 inches plus) was 0.982. The mean temperature for this same period was 75.1°F. and the average precipitation was 25.54 inches.

TABLE 16

TERRITORY OF HAWAII

Reported by: Dr. F. E. Trotter, President, Board of Health and Drs. Nils P. Larsen and F. L. Putman *Period:* Questionnaire dated October, 1933[1]

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	−				−
Blackwater Fever	−				−
Piroplasmosis	−				−
Leishmaniasis	+			?	−
Kala-azar	−				−
Oriental Sore	+		R	?	−
Espundia	−				−
Relapsing Fever	−				−
S. recurrentis	−				−
S. duttoni	−				−
S. venezuelense	−				−
S. berberum	−				−
Rat-Bite Fever	+		R	+	−
Yellow Fever	−				−
Dengue Fever	−				−
Pappataci Fever	−				−
Plague	+[2]	Islands of Hawaii and Maui	5	+	+
Typhus Fever	−				−
Trypanosomiasis	−				−
African Human	−				−
T. gambiense	−				−
T. rhodesiense	−				−
South American	−				−
T. cruzi	−				−
Oroya Fever	−				−
Undulant Fever	+	Everywhere	10	+	−
Leprosy	+[3]	Everywhere	56		+
Syphilis	+	General	42[4]		+
Yaws	+		3		−
Granuloma Inguinale	+		R		−
Tularemia	−				−
Smallpox	[5]				−
Amebiasis	+		R		−
Balantidium Dysentery	−				−
Bacillary Dysentery	+	General	5		
Cholera	[6]				
Typhoid Fever	+	General	125		+
Para-Typhoid Infection	+		4		
Sprue	−				−
Hill Diarrhea	−				−
Ascariasis	+		C		
Hookworm Disease	+	General	479		+
Giardia Enteritis	+		R		
Trichomonas Infection	+		R		
Tropical Liver	−				−
Infantile Biliary Cirrhosis	−				−
Schistosomiasis	−				−
Filariasis	−				−
Juxta-Articular Nodules	−				−
Elephantiasis	+		1		

TABLE 16

TERRITORY OF HAWAII—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Chyluria	+		R		
Dracontiasis	−				−
Paragonimiasis	−				−
Clonorchiasis	+		1		
Fasciolopsis	−				−
Cestodes	+			+	
Tænia saginata	+		C	+	
Tænia solium	+		R	+	
Dibothriocephalus latus	−				
Hymenolepis nana	−				
Sparganum mansoni	−				
S. prolifer	−				
Trichuris	+		C		
Trichinelliasis	−				−
Climatic Bubo	−				−
Rhinosporidiosis	−				−
Goundou	−				−
Ainhum	−				−
Big Heel	−				−
Myiasis	−				−
Leech Infection	−				−
Leucodermia	−				−
Cheloid	−				−
Ulcus Tropicum	−				−
Albinism	−				−
Septic Sore	+		4		
Pemphigus Contagiosus	−				−
Ulcerating Dermatitis	−				−
Madura Foot	−				−
Other Mycetoma	−				−
Blastomycosis	−				
Mossy Foot	−				
Pityriasis Nigra	−				
Pityriasis Versicolor	+		R		
Dhobie's Itch	+		C		
Seborrhoea	+		C		
Pinta	−				−
Tinea Imbricata	−				−
Trichosporosis	−				−
Trichomycosis	−				−
Acarine Dermatomycosis	−				−
Epidemic Dropsy	−				−
Peripheral Neuritis	−				−
Beriberi	+		C		−
Pellagra	+		R		−
Scurvy	+		R		−
General Malnutrition or Undernutrition	+		C		
Heat Stroke	−				−
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+	General	12		−
Diphtheria	+	General	171		+
Measles	+	General	20		−

TABLE 16

TERRITORY OF HAWAII—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
German Measles	−				−
Varicella	+	General	510		−
Epidemic Meningitis	+	General	7		+
Infantile Paralysis	+	General	7		+
Epidemic Encephalitis	+		0, R		−
Syphilis of Central Nervous System	+	General	?		+
Influenza	+	General	6,659		+
Common Cold	+	General	C		+
The Pneumonias	+	General	283		+
Cholelithiasis	+		C		
Urinary Calculus	+		C		
Nephritis	+		C		
Diabetes	+		C		
Pernicious Anemia	+		R		
Osteomyelitis	+		C		
Tuberculosis	+	General	842		+
Pulmonary	+	General	741		+
Bone	+	General	19		
Skin	−				
Malignancy (all forms)	+		283[4]		+
Trachoma	+	General	187		+
Weil's Disease	−				−
Tsutsugamushi Disease	−				−
Rabies	−				−
Unusual Skin Disease	−				−
Thyroid Disease (Goiter)	+		R		
Rheumatic Fever	+		R		
Arthritis (Nonspecific)	+		C		
Rickets	+		R		
Dental Caries	+		C		
Toxemias of Pregnancy	+		C		
Cardio-Vascular Diseases	+	General	C		
Hypertension	+		C		
Valvular Lesions	+		C		
Aneurysm	+		C		
Myocarditis	+		C		

[1] Data are given for fiscal year ending June 30, 1933.
[2] Since 1899.
[3] Since 1860.
[4] Deaths.
[5] Not since 1903.
[6] Not since 1900.

PUERTO RICO

Puerto Rico is an island having an area of some 3,435 square miles and a population, in 1930, of 1,543,913. For an agricultural country its density of population is one of the highest, it being about 450 persons per square mile. Much of the hill country, however, is very sparsely settled, so that the density in the more settled areas is much higher than indicated. This density of

population has contributed largely to the seriousness of the public health problems in Puerto Rico. The chief income of the people is derived from labor in agriculture and wages are very low. Sugar, tobacco, citrus fruits and coffee are the main agricultural products. In 1930 the population was distributed as 1,141,114 whites, 397,156 colored, 5,605 foreign-born whites and a few representatives of other races. About 60 per cent of the people depend upon agriculture. Tropical hurricanes during the past few years have been a tremendous handicap to an island already hampered in its development by fundamental maladjustments in its social-economic existence.

Education in Puerto Rico is compulsory and free. In 1932 there were listed 1,997 schools with some 230,000 students. These facilities, however, do not provide adequate opportunity for education for all the children on the Island. There is a University for higher education on the Island with excellent facilities particularly for the training of teachers. The School of Tropical Medicine of the University of Puerto Rico is under the auspices of Columbia University, New York, and its educational policies are vested in a special Board of Trustees. This institution is of particular value as a research center and many important contributions to our knowledge of medicine have come from its scientific staff. This school has also had a definite effect in raising the standards of the medical profession in Puerto Rico. Religion in Puerto Rico is chiefly Catholic and several schools are maintained by the church.

In 1930 the cultivated land of the Island was divided into 52,113 holdings. The concentration of land in the hands of the few is one of the main difficulties in Puerto Rico. Besides the main crops already mentioned above, the Island also produces coconuts, honey, some sea island cotton, textile fibers, phosphate and tropical vegetables. The embroideries, hats and cigar making constitute the chief industries. In 1931–32 the coffee crop amounted to 589,602 pounds, a reduction from over 19,000,000 pounds produced before the hurricane in 1928. Other crops were also seriously impaired. In 1931 some 992,432 tons of sugar were produced. For 1934, however, there is an excess of nearly 250,000 tons of sugar over the quota established by the United States for entrance. The general economic situation in the Island is rapidly approaching a major crisis, although past years may in general be regarded as very critical ones from this point of view. The imports into Puerto Rico in 1932 amounted to $61,271,101 and the exports were valued at $86,645,863. During 1931–32 over 3,300 vessels entered and cleared the ports of Puerto Rico.

According to the official health reports of Puerto Rico and data supplied for this Survey by the staff of the School of Tropical Medicine, the chief diseases in Puerto Rico are malaria, hookworm disease and ascariasis, filariasis, schistosomiasis, leprosy, "enteritis," syphilis, tuberculosis, tropical ulcer and general malnutrition or undernutrition. Sprue is also present in considerable

numbers of cases. The health report for 1932 lists some 497 cases as dysentery but there is, as yet, no accepted proof that bacillary dysentery exists on the Island. Infestation with encysted forms of ameba is fairly common but clinical cases of the disease are rare. There are many skin diseases in Puerto Rico which need further investigation. The facilities of the School of Tropical Medicine make this institution an ideal place for investigative work on the several tropical disease present in Puerto Rico. Further information concerning many of the health problems found in the Island may be found in the *Porto Rico Journal of Public Health and Tropical Medicine.*

According to World Weather Records there was a mean pressure (29 inches plus) (corrected) for the ten year period, 1921–1930, of 0.906. The mean temperature for this period was 77.5° F. and the average precipitation was 58.28 inches.

A brief discussion of sprue by Ashford is to be found in the Appendix under Puerto Rico.

TABLE 17

PUERTO RICO

Reported by: School of Tropical Medicine, Dr. George W. Bachman and members of staff
Period: Questionnaire dated, October, 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Coastal	C	+	+
Benign tertian	+			+	+
Quartan	+			+	
Subtertian	+			+	+
Blackwater Fever	+	Sparse	R		−
Piroplasmosis	[1]		?		−
Leishmaniasis	−				−
Relapsing Fever	[1]				
Rat-Bite Fever	+	Sparse	2	+	−
Yellow Fever	+		0	+[2]	−
Dengue Fever	+	General		+	−
Pappataci Fever	[1]				
Plague	+	Focal	0[3]	+	−
Typhus Fever	[1]				−
Trypanosomiasis	[1]				−
Oroya Fever	[1]				−
Undulant Fever	+		2	+	−
Leprosy	+	Coastal	100		+
Syphilis	+	General			+
Yaws	+	Northwest of Island			−
Granuloma Inguinale	+	Sparse	R		−
Tularemia	[1]				−
Smallpox	+		0		
Amebiasis	+	General			−
Balantidium Dysentery	+	?	?		−
Bacillary Dysentery	+	?	R[4]		−
Cholera	+		0		−

TABLE 17

PUERTO RICO—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Typhoid Fever	+				+
Para-Typhoid Infection	+				+
Sprue	+[5]	General	C		+
Hill Diarrhea	−				−
Ascariasis	+	General			+
Hookworm Disease	+	Coffee plantations	C		+
Giardia Enteritis	+	General			−
Trichomonas Infection	+	General			−
Tropical Liver	−				−
Infantile Biliary Cirrhosis	[1]				
Schistosomiasis	+			+	+
Intestinal	+	General	C	+	+
Filariasis	+			+	+
F. bancrofti	+	Coastal and urban	C	+	+
Juxta-Articular Nodules	?				−
Elephantiasis	+	Coastal	C		+
Chyluria	+				−
Paragonimiasis	[1]				−
Fasciolopsis	+				−
F. hepatica	+	General	R[6]	+	−
Cestodes	+				−
Tænia saginata	+	Widespread		+	−
Tænia solium	+				
Dibothriocephalus latus	−				
Hymenolepis nana	+		R		
Trichuris	+				
T. trichiura	+	Widespread	C		−
Climatic Bubo	+	Sparse			−
Rhinosporidiosis	[1]				−
Goundou	[1]				−
Ainhum	[1]				−
Big Heel	[1]				−
Myiasis	+	General	R	+	−
Subcutaneous	+	?	R	+	−
Leech Infection	−				−
Leucodermia	+	General			−
Cheloid	+	Sparse	R		−
Ulcus Tropicum	+	General	C		+
Albinism	+	Sparse	R		−
Madura Foot	+	?	R		−
Blastomycosis	[1,7]				
Pityriasis Versicolor	+	General	C		−
Dhobie's Itch	+	General	C		−
Seborrhoea	+	General	C		−
Pinta	[1]				
Epidemic Dropsy	+	Rural	?		−
Beriberi	−				−
Scurvy	+	?	?		−
General Malnutrition or Undernutrition	+	General	C		+
Heat Stroke	+	?	R		−
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	−				−
Diphtheria	+	Sparse	C		−

TABLE 17
PUERTO RICO—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Measles	+	Sparse	C		+
German Measles	+	Sparse	C		+
Varicella	+	Sparse	C		+
Epidemic Meningitis	+				
Infantile Paralysis	+		12		−
Epidemic Encephalitis	+	Sparse	R		−
Syphilis of Central Nervous System	+	General	?		?
Influenza	+	Sparse			+
Common Cold	+	Sparse			+
The Pneumonias	+	Sparse			+
Cholelithiasis	+	Sparse	R	−	−
Urinary Calculus	+	Sparse	R	−	−
Nephritis	+	Sparse	R	−	−
Diabetes	+	Sparse	R	−	−
Pernicious Anemia	+	Sparse	R	−	−
Osteomyelitis	+	General	C	−	−
Tuberculosis	+				+
Pulmonary	+		30,000		+
Bone	+		R		+
Skin	+		R		−
Malignancy (all forms)	+	General	C		−
Trachoma	−				
Weil's Disease	[1]				
Tsutsugamushi Disease	[1]				
Rabies	+	Sparse	R	+	−
Thyroid Disease (Goiter)	+	?	R		−
Rheumatic Fever	+	Sparse	11[8]		−
Arthritis (Nonspecific)	+	Sparse	R		−
Rickets	−				−
Dental Caries	+	General	C		−
Toxemias of Pregnancy	+	General	C		−
Cardio-Vascular Diseases	+				
Hypertension	+	General	C		−
Valvular Lesions	+	Sparse	R		−
Aneurysm	+	General	C		−
Myocarditis	+	General	Few		−

Reported by: Commissioner of Health *Period:* Report for year ending June 30, 1932

I. TROPICAL DISEASES

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+		53,222	+	+
Leprosy	+		80		+
Syphilis	+		2,788		+
Yaws	+		92		−
Balantidium Dysentery	+				
Bacillary Dysentery	+		497[10]		
Typhoid Fever	+	Outbreaks at Caguas, Loiza and Rio Piedras	302		+
Para-Typhoid Infection	+				

TABLE 17

PUERTO RICO—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (if any) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Ascariasis	+	General	C		+
Hookworm Disease	+		C[11]		
Trichomonas Infection	+			+	+
Schistosomiasis	+		152	+	+
Filariasis	+			+	
Fasciolopsis	+				
F. hepatica	+			+	
Cestodes	+				
Tænia saginata	+				
Trichuris	+				
T. trichiura	+				
Beriberi	+		[9] 32		
Pellagra	+				
General Malnutrition or Undernutrition	+	General			+
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	−				−
Diphtheria	+		617		+
Measles	+	Chiefly San Juan	2,033		+
Epidemic Meningitis	+		[9,12] 193		+
Infantile Paralysis	+	Outbreak in Tejas; sporadic	23		−
			[9] 1		−
Epidemic Encephalitis	+		956		+
Influenza	+		[9] 3,133		+
The Pneumonias	+		[9] 7		
Cholelithiasis	+		[9] 4		
Urinary Calculus	+		[9] 1,960		+
Nephritis	+		[9] 48		
Diabetes	+		[9] 3		
Osteomyelitis	+		7,267		+
Tuberculosis	+		6,861		+
Pulmonary	+		[13] 192		
Bone	+				
Skin	+				
Malignancy (all forms)	+		[9] 676		+
Trachoma	+		[14] 68		
Rheumatic Fever	+		[9] 24		
Dental Caries	+		C		
Toxemias of Pregnancy	+		[9] 9		
Cardio-Vascular Diseases	+		[9] 1,466		+
Hypertension	+		[9] 320		
Valvular Lesions	+		[9] 276		
Aneurysm	+		[9] 12		
Myocarditis	+		[9] 371		

[1] Never reported. [2] Very common. [3] 88 cases before 1933.
[4] There are those who believe evidence of bacillary dysentery of both Flexner and Shiga types is present, but data and methods are confusing and will require suitable confirmation. [5] See Appendix for special note by Ashford concerning etiology.
[6] Eight cases reported 1931–1935.
[7] Four cases of chromoblastomycosis have been reported within the past five years.
[8] Figure taken from 692 autopsies. [9] Deaths.
[10] Reported as dysentery. See footnote dealing with this subject in questionnaire.
[11] 20,499 treatments given. [12] Reported as meningitis.
[13] Skin and bone listed together. [14] Doubtful if this is true trachoma.

AMERICAN VIRGIN ISLANDS

The Virgin Islands, formerly known as the Danish West Indies, have been under the United States flag since their purchase from Denmark in 1917. The Virgin Islands group, composed of the Islands of St. Thomas, St. John, St. Croix and some 50 smaller islands and keys (mostly uninhabited), lies about 60 miles east of Puerto Rico. The total area of the three large islands is 133 square miles. The total population, in 1930, was 22,000, a decrease of over 4,000 since 1917. The population has continuously decreased since 1835, due largely to lack of employment. Education is compulsory. In the three principal islands there are 23 public schools and 11 private schools.

The total revenue for 1932 was estimated at 1,171,995 francs and the expenditures were estimated at 4,749,897 francs, the deficit being met by the United States Congress. In 1930 there was a total of 329 farms in the three main Islands. The chief product on the Island of St. John is bay oil and bay rum is extracted from this oil on the island of St. Thomas; 69,000 gallons of bay rum were exported in 1931–32. The chief product of St. Croix is sugar, about 4,500 tons being produced in 1932. Cattle raising is also found on this Island. The total exports for the group in 1931–32 amounted to $656,532 and the imports amounted to $1,796,420.

Diseases of public health importance in the Virgin Islands, according to Dr. R. B. Stafford, include malaria, leprosy, hookworm disease, filariasis, pellagra, general malnutrition and undernutrition, syphilis and tuberculosis.

The mean temperature at Christiansted for the ten year period, 1921–1930, was 25.9°C. The mean precipitation for this same period was 949.9 millimeters.

TABLE 18

VIRGIN ISLANDS

Reported by: Dr. R. B. Stafford, Commissioner of Health
Period: Questionnaire dated, October 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+			+	+
Subtertian	+	St. John, St. Thomas, St. Croix	500	+	+
Leprosy	+	General	80		+
Syphilis	+	General	?		+
Sprue	+		2		
Hookworm Disease	+	General	200(?)		+
Filariasis	+	General in St. Croix. Occasional in St. Thomas	?	+	+

TABLE 18

VIRGIN ISLANDS—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
F. bancrofti	+	General in St. Croix. Occasional in St. Thomas	?	+	+
Pellagra	+	St. Thomas and St. Croix	?		+
General Malnutrition or Undernutrition	+	General	?		+
II. Diseases Usually Considered as of Temperate Climates					
Measles	+	General	2,000		+
Varicella	+	General	?		−
Syphilis or Central Nervous System	+				+
The Pneumonias	+	General	?		+
Nephritis	+	General			+
Tuberculosis	+	General			+
Trachoma	?				

Reported by: Annual Report of the Governor *Period:* June 30, 1934

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	St. Thomas, St. Croix	542	+	+
Leprosy	+				
Syphilis	+				
Yaws	+				
Bacillary Dysentery	+				
Typhoid Fever	+	Imported on infected fruit	14		
Filariasis	+	General	C[1]	+	+
Elephantiasis	+	General	C		
General Malnutrition or Undernutrition	+	General	C		
II. Diseases Usually Considered as of Temperate Climates					
Measles	+				
The Pneumonias	+				
Nephritis	+				
Diabetes	+				
Tuberculosis	+				
Malignancy (all forms)	+				
Rheumatic Fever	+				
Dental Caries	+		C		
Cardio-Vascular Diseases	+				

[1] "Practically 100% of the old people of the island show filariasis." 138 of 842 children or 16.3% had micro-filaria in their blood.

ISLAND OF GUAM

The Island of Guam was ceded to the United States by Spain in 1898. The Island is under the administration of the United States Navy. Guam is 32 miles long and 4 to 10 miles wide and has an area of 206 square miles. The port of entrance is Piti. The population, including military, in 1932 was 19,673, of whom 18,297 were natives. English is the official language but the native language, Chamorro, and Spanish are spoken. Elementary education is compulsory and there are nearly 4,000 students. The Island produces maize, copra, rice, sweet potatoes, coffee, coco, sugar and timber. In 1931–32 the imports amounted to $514,431 and the exports to $53,821.

According to Admiral P. S. Rossiter, Surgeon-General of the United States Navy, the following diseases exist in Guam and are regarded as of public health importance: Leprosy, yaws, ascariasis, hookworm disease and tuberculosis. See Table 19 for further detailed information which the Medical Department of the United States Navy has kindly furnished for this survey.

The mean annual pressure (700 mm. plus) at Ladrone Island, Guam, over a ten year period, 1921–30, was 56.43. The mean temperature for the same period was 27.4°C. and the mean total precipitation was 2212.9 millimeters.

TABLE 19

GUAM

Reported by: P. S. Rossiter, Surgeon General, U.S.N.M.C. *Period:* Statistics for 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	−				
Blackwater Fever	−				
Piroplasmosis	−				
Leishmaniasis	−				
Kala-azar	−				
Oriental Sore	−				
Espundia	−				
Relapsing Fever	−				
Rat-Bite Fever	−				
Yellow Fever	−				
Dengue Fever	+		R	+	−
Pappataci Fever	−				
Plague	−				
Typhus Fever	−				
Trypanosomiasis	−				
Oroya Fever	−				
Undulant Fever	−				
Leprosy	+	General	8		+
Syphilis	−				−
Yaws	+	General	44[1]		+
Granuloma Inguinale	−				−
Tularemia	−				−
Smallpox	−				−

TABLE 19

GUAM—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Amebiasis	+		22[2]		
Balantidium Dysentery	?				−
Bacillary Dysentery	+		R		−
Cholera	−				−
Typhoid Fever	+	Sporadic			−
Para-Typhoid Infection	?				−
Sprue	−				−
Hill Diarrhea	−				−
Ascariasis	+	General	307		+
Hookworm Disease	+		44		+
Giardia Enteritis	?				
Trichomonas Infection	?				
Tropical Liver	?				
Infantile Biliary Cirrhosis	−				−
Schistosomiasis	−				−
Filariasis	−				−
Juxta-Articular Nodules	−				−
Elephantiasis	−				−
Chyluria	−				−
Dracontiasis	−				−
Paragonimiasis	−				−
Clonorchiasis	−				−
Fasciolopsis	−				−
Cestodes	−				−
Trichuris	+		C		
Trichinelliasis	−				−
Climatic Bubo	−				−
Rhinosporidiosis	−				−
Goundou	−				−
Ainhum	?				
Big Heel	?				
Myiasis	?				
Leech Infection	?				
Leucodermia	?				
Cheloid	?				
Ulcus Tropicum	?				
Albinism	?				
Septic Sore	?				
Pemphigus Contagiosus	−				−
Ulcerating Dermatitis	−				−
Madura Foot	−				−
Blastomycosis	−				−
Mossy Foot	−				−
Pityriasis Nigra	?				
Pityriasis Versicolor	?				
Dhobie's Itch	+		R		−
Seborrhoea	−				−
Pinta	[3]				
Tinea Imbricata	[3]				
Trichosporosis	[3]				
Trichomycosis	−				−
Acarine Dermatomycosis	−				−
Epidemic Dropsy	−				−
Peripheral Neuritis	−				−
Beriberi	[3]				

TABLE 19

GUAM—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Pellagra	[3]				
Scurvy	[3]				
General Malnutrition or Undernutrition	−				
Heat Stroke	−				−
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	−				−
Diphtheria	−				−
Measles	+		10		−
Varicella	+		13		−
Epidemic Meningitis	+		1		−
Infantile Paralysis	−				−
Epidemic Encephalitis	−				−
Syphilis of Central Nervous System	−				−
Influenza	−				−
Common Cold	+		68		−
The Pneumonias	+		82		−
Cholelithiasis	−				−
Nephritis	+		0		
Diabetes	+		0		
Pernicious Anemia	+		0		
Osteomyelitis	+		0		
Tuberculosis	+		57		+
Pulmonary	+		49		+
Malignancy (all forms)	−				−
Trachoma	−				−
Weil's Disease	−				−
Tsutsugamushi Disease	−				−
Rabies	−				−
Unusual Skin Disease	+		C[4]		
Thyroid Disease (Goiter)	−				−
Rheumatic Fever	+		3		−

[1] 399 under treatment in 1933. 44 admissions.
[2] 4 cases. 18 positive examinations.
[3] Not recorded.
[4] Skin infections.

PHILIPPINE ISLANDS

The Philippine Islands were ceded by Spain to the United States in April, 1899 and have remained under the United States Government without change for the past 35 years. Recently the Government of the United States has agreed to give the Islands their indpendence after a ten year period of adjustment, during which time the Philippines will develop under their own constitution. There are 7,083 islands in the Philippine group with a total area of

114,400 square miles. Only 466 of the islands have areas of one square mile or over. The most important islands are Luzon, Mindanao, Samar, Negros, Palawan, Panay, Mindoro, Leyte, Cebu, Bohol and Masbate. In 1931 the population was estimated at 12,420,927. Malays constitute about 91 per cent of the population and 9 per cent are Moros and Pagans. The capital is Manila with a population of 341,034 in 1932.

Education in the Philippines is free and co-educational and English is taught as the common language. In 1930–31 there were 1,205,427 students, which represented about 39 per cent of those of school age. There were 7,761 schools with 28,209 Filipino and 260 American teachers. In addition to a few private schools there are also in the Philippines two universities, nine normal schools, a School of Arts and Trades, some 30 agricultural schools and 282 farm settlement schools. About 100,000 students are enrolled in these various higher institutions and nearly 4,000 teachers are employed for instruction purposes.

The revenue during 1931–32 amounted to $29,919,888 and the expenditures to $32,845,225. The imports, in 1931, amounted to $99,178,719 and the exports to $103,972,074. Among the products produced in the Philippines are hemp, coconut, sugar-cane, corn, tobacco and manguey. Bananas, mangoes, papaya, anonas, oranges, pilinut and mandarin are also produced. In 1931 there were 1,427,200 metric tons of cleaned rice produced. The production of rubber is increasing and the Chief of the Bureau of Forestry informs us that quinine production is being developed rapidly. In 1931, 419,600 metric tons of copra and 164,970 tons of coconut oil were produced and exported. Another industry of great importance is live-stock, including carabaos, cattle, horses, mules and hogs. A new method of preventing the disease rinderpest, which has been applied within recent year, has aided the raising of cattle and carabaos considerably. Besides the products mentioned, these islands are also rich in certain metals, such as gold, silver and certain amounts of platinum and chromite. Exporting of logs and sawn timber is also an industry of considerable importance. Over seventy million board feet were reported in 1931.

The imports include chiefly manufactured goods, provisions, machinery, automobiles and fabrics while, in addition to the products already mentioned, the exports also include embroideries and hats, which constitute important industries in some of the islands.

According to Dr. Eugenio Hernando, Chief, Division of Epidemiology, and Dr. Jacobo Fajardo, Director of Health, the following diseases are of public health importance in the Philippines: malaria, dengue fever, leprosy, syphilis, yaws, amebiasis, bacillary dysentery, cholera, typhoid fever, paratyphoid infections, ascariasis, hookworm disease, schistosomiasis, filariasis, tropical ulcer, beriberi, general malnutrition and undernutrition, influenza and tuberculosis. Further detailed information may be found in Table 20.

The following mean data are available concerning weather conditions as regards pressure (700 mm. plus), temperature in degrees C. and millimeters of precipitation, over a ten year period from 1921–1930:

LOCATION	PRESSURE	TEMPERATURE	PRECIPITATION
Aparri	57.70	26.0	2329.2
Iloilo	56.69	27.0	2494.1
Legaspi	56.91	27.0	3967.3
Manila	57.20	26.4	2301.3

Specific diseases in the Philippines are discussed in the Appendix.

TABLE 20

PHILIPPINE ISLANDS

Reported by: Eugenio Hernando, Chief of Division of Epidemiology, Bureau of Health, Manila, P. I. *Period:* Questionnaire dated 1934

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	48 of 50 provinces	74,000	+	+
Benign tertian	+		60%[1]	+	+
Quartan	+		1%[1]	+	+
Subtertian	+		39%[1,2]	+	+
Blackwater Fever	+	2 provinces	3	?	−
Piroplasmosis	−				−
Leishmaniasis	−				−
Kala-azar	−				−
Oriental Sore	−				−
Espundia	−				−
Relapsing Fever	−				−
S. recurrentis	−				−
S. duttoni	−				−
S. venezuelense	−				−
S. berberum	−				−
Rat-Bite Fever	+	Mostly City of Manila, few in provinces	6	+	−
Yellow Fever	−			+	−
Dengue Fever	+	General	500	+	+
Pappataci Fever	−				−
Plague	[3]			+	−
Typhus Fever	−				−
Trypanosomiasis	−				−
African Human	−				−
T. gambiense	−				−
T. rhodesiense	−				−
South American	−				−
T. cruzi	−				−
Oroya Fever	−				−
Undulant Fever	−				−
Leprosy	+	General	25,000[4]	+	+
Syphilis	+	Cities	50		+
Yaws	+	General	60		+

TABLE 20

PHILIPPINE ISLANDS—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Granuloma Inguinale	−				−
Tularemia	+	Manila	3		−
Smallpox	[5]				−
Amebiasis	+	General	500		+
Balantidium Dysentery	+	General	100		−
Bacillary Dysentery	+	General	13,000		+
Cholera	+	6 provinces of the Southern Islands of archipelago	800		+
Typhoid Fever	+	General	1,800		+
Para-Typhoid Infection	+	General	60		+
Sprue	+	Mostly white and well-to-do people	30		−
Hill Diarrhea	−				−
Ascariasis	+	Whole archipelago	C		+
Hookworm Disease	+	Whole archipelago	C		+
Giardia Enteritis	+	Whole archipelago	C		+
Trichomonas Infection	+	Whole archipelago	C		+
Tropical Liver	+	Whole archipelago	100		−
Infantile Biliary Cirrhosis	−				−
Schistosomiasis	+	Leyte, Samar and Northern Mindanao	2,000	+	+
Urinary	−				−
Intestinal	−				−
Visceral	+	Leyte, Samar and Northern Mindanao	1,000	+	+
Far Eastern	+	Leyte, Samar and Northern Mindanao	1,000	+	+
Filariasis	+	Ricol Province and Northern Mindanao	1,000	+	+
F. bancrofti	+	Ricol Province and Northern Mindanao	1,000	+	+
Loa Loa	?				−
O. volvulus	−				−
F. perstans	−				−
F. demarquayi	−				−
F. ozzardi	−				−
Juxta-Articular Nodules	+	General	1,000		+
Elephantiasis	+	More common in certain islands of archipelago	50		−
Chyluria	+	Provinces	50		−
Dracontiasis	−				−
D. medinensis	−				−
Paragonimiasis	+	General	200		−
P. ringeri	+	General	100	+	+
P. westermanii	+	General	100	+	+
P. compactus	−				−

TABLE 20

PHILIPPINE ISLANDS—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Clonorchiasis	+	Only among Chinese	10		−
C. sinensis	−				
O. felineus	+	Certain people and dogs	50		−
Fasciolopsis	+	Endemic in cattle	1,000		+
F. hepatica	+		1,000	+	
F. buskii	+	Chinese	20	+	−
Cestodes	+				+
Tænia saginata	+	General	1,000	+	+
Tænia solium	+	General	600	+	+
Dibothriocephalus latus	+	General	?	+	−
Hymenolepis nana	+	General	10		
Sparganum mansoni	+	General	C		
S. prolifer	−				−
Trichuris	+				+
T. trichiura	+	General	C		+
H. heptaticus	+	General	C		−
Trichinelliasis	−				−
T. spiralis	−				−
Climatic Bubo	−				−
Rhinosporidiosis	+	Manila and perhaps provinces	2		−
Goundou	+	Manila and perhaps provinces	3		−
Ainhum	−				−
Big Heel	−				−
Myiasis	+			+	
Subcutaneous	+	General	5	+	−
Blood sucking	−				−
Intestinal	+	General	5	+	−
Larva Migrans	+	Manila	2		
Leech Infection	−				−
Leucodermia	+	Whole archipelago	20		−
Cheloid	+	Whole archipelago	500		−
Ulcus Tropicum	+	Whole archipelago	14,000		+
Albinism	+	Whole archipelago	2,000		−
Septic Sore	+	Manila	35		−
Pemphigus Contagiosus	+	Whole archipelago	C		+
Ulcerating Dermatitis	−				−
Madura Foot	+	Farmers in whole archipelago	?		+
Other Mycetoma	−				−
Blastomycosis	+		R		−
Mossy Foot	−				−
Pityriasis Nigra	+	Whole archipelago	2,000		−
Pityriasis Versicolor	+		2,000		−
Dhobie's Itch	+		C		+
Seborrhoea	+	General	C		−
Pinta	−				−
Tinea Imbricata	+	Certain parts	?		+
Trichosporosis	+	?	?		−
Trichomycosis	+	General	?		−
Acarine Dermatomycosis	+	General	C		−
Epidemic Dropsy	−				−

TABLE 20

PHILIPPINE ISLANDS—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Peripheral Neuritis	+	General	200		−
Beriberi	+	General	150,000		+
Pellagra	−				−
Scurvy	+	Mostly Manila	100		−
General Malnutrition or Undernutrition	+	General	C		+
Heat Stroke	+	General	10		−
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	−				−
Diphtheria	+	30 provinces	200		+
Measles	+	General	4,000		+
German Measles	−				−
Varicella	+	General	1,700		−
Epidemic Meningitis	+	10 provinces	23		−
Infantile Paralysis	+	Manila and some provinces	10		−
Epidemic Encephalitis	+	14 provinces	21		−
Syphilis of Central Nervous System	+	General	20		
Influenza	+	General	25,000		+
Common Cold	+	General	C		−
The Pneumonias	+	General	10,000		−
Cholelithiasis	+	General	800		
Urinary Calculus	+	General	?		
Nephritis	+	General	6,000[6]		
Diabetes	+	General	124[6]		
Pernicious Anemia	+	General	274[6]		
Osteomyelitis	+	General	22[6]		
Tuberculosis	+				
Pulmonary	+	General	33,000		+
Bone	+	General	50		+
Skin	+	General	50		−
Malignancy (all forms)	+	General	1,200		+
Trachoma	+	General	?[7]		+
Weil's Disease	+	Southern Islands	2[6]		−
Tsutsugamushi Disease	−				−
Rabies	+	General	113[6]	+	−
Unusual Skin Disease	+	Certain parts	50	?	−
Thyroid Disease (Goiter)	+	Certain provinces	20[6]		−
Rheumatic Fever	+	General	318[6]		
Arthritis (Nonspecific)	+	General	727[6]		
Rickets	+	General	1,617[6]		
Dental Caries	+	General	C		+
Toxemias of Pregnancy	+	General	140[6]		−
Cardio-Vascular Diseases	+	General	1,000[6]		+
Hypertension	+	General	C		+
Valvular Lesions	+	General	C		+
Aneurysm	+	General	?		
Myocarditis	+	General	C		+

TABLE 20

PHILIPPINE ISLANDS—*Continued*

Reported by: Report of the Health Service *Period:* 1929

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Widespread	63,518	+	+
Benign tertian	+			+	+
Quartan	+			+	+
Subtertian	+		?[8]	+	+
Pappataci Fever				+	
Plague	+		0	+	
Leprosy	+	Widespread	6,469[9]		+
Syphilis	+		263		
Yaws	+		15,475		+
Smallpox	+	Epidemics Sarangani and Balut Island, Davao Provinces	367		+
Amebiasis	+		2,318[6]		
Bacillary Dysentery	+	Epidemics (widespread)	14,802[10]		+
Cholera	+	Sporadic; Bulacan	1[11]		
Typhoid Fever	+	General	1,339[6,12]		
Para-Typhoid Infection	+		16[6]		
Ascariasis	+		679		
Hookworm Disease	+		1,310		+
Filariasis	+		1	+	
Juxta-Articular Nodules	+		1		
Chyluria	+		4[6]		
Trichuris	+		313		
Leucodermia	+		33		−
Cheloid	+		1		−
Ulcus Tropicum	+	Children	8,240[13]		+
Blastomycosis	+		1		−
Pityriasis Nigra	+		67[14]		−
Pityriasis Versicolor	+		1		−
Seborrhoea	+		292[13]		−
Tinea Imbricata	+		1,048[15]		−
Acarine Dermatomycosis	+		45,637[16]		
Beriberi	+		23,057		+
Pellagra	+		2[6]		
Scurvy	+		66[6]		

II. Diseases Usually Considered as of Temperate Climates

Diphtheria	+	General	286		+
Measles	+	General	2,749		+
Varicella	+		14		
Epidemic Meningitis	+	Sporadic	20[6]		+
Infantile Paralysis	+		8[6]		
Epidemic Encephalitis	+	Sporadic	15[6]		
Influenza	+	General	19,361[17]		+
The Pneumonias	+		18,917[6]		+
Cholelithiasis	+		60[6]		
Urinary Calculus	+		111[6]		
Nephritis	+		7,416[6]		

TABLE 20

PHILIPPINE ISLANDS—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Diabetes	+		124[6]		
Pernicious Anemia	+		274[6]		
Tuberculosis	+	General	32,480[6]		+
Pulmonary	+		30,432[6]		+
Bone	+		202[6]		
Skin	+		145[6]		
Malignancy (all forms)	+		1,232[6]		
Trachoma	+	General	16,453[7]		+
Weil's Disease	+		1[6]		
Rabies	+	General	436	+	
Thyroid Disease (Goiter)	+		23[6]		
Rheumatic Fever	+		318[6]		
Rickets	+		1,617[6]		
Cardio-Vascular Diseases	+				
Hypertension	+		418[6]		
Aneurysm	+		22[6]		
Myocarditis	+		551[6,18]		

[1] This is the percentage of the total cases of malaria.
[2] Mixed infection present. About 2% of the total, 400 cases.
[3] Not since 1914.
[4] 25,000 everywhere; 9,000 isolated.
[5] Not since 1922.
[6] Deaths.
[7] About 50% of school children. (Probably not true trachoma but conjunctivitis.)
[8] "Malignant tertian," 504.
[9] Without doubt refers only to cases in isolation. It is estimated that there are at least 15,000 cases in the Islands.
[10] Includes all dysenteries; it is estimated that 90% of cases are bacillary. 2276 deaths due to bacillary dysentery.
[11] Carriers admitted to San Lazaro hospital include 182 cholera, 81 diphtheria, 37 dysentery, 126 meningococcus and 13 typhoid carriers.
[12] 2331 cases enteric fever.
[13] Referred to as "very common."
[14] "Pityriasis."
[15] "*T. flava*," also *T. circinata* 9, *T. versicolor* 5, *T. alba* 9, *T. barbae* 1, *T. negra* 1 and undefined 9.
[16] Scabies.
[17] Figure "far from being accurate."
[18] "Endocarditis and myocarditis (acute)."

AMERICAN SAMOAN ISLANDS

In 1872 the harbour of Pagopago, in Tutuila, was ceded to the United States for a naval and coaling station. In 1899 Great Britian and Germany renounced all rights over the Samoan Islands east of 171 degrees of longitude west of Greenwich to the United States, the islands to the west being assigned at the time to Germany. The area of the American Samoan Islands is 76 square miles with a population of 10,055. The island of Tutuila has an area of 40.2 square miles and is about 70 miles from Apia. Tutuila has a population

of 7,809. Ta'u has an area of 14 square miles. Swain's Island, annexed in 1925, has a population of about 100. There are no public lands in Samoa and nearly all of the land is owned by natives who produce oranges, limes, bananas, mangoes, alligator pears and copra. Copra is the only material exported. In 1931 the imports amounted to $148,168 and the exports to $60,132. Breadfruit, taro and yams are also grown for local consumption. There are 24 schools maintained by the Government and in 1932 there were 2,135 students enrolled. There are also four parochial schools with 350 students.

Among the diseases of public health importance, according to Admiral P. R. Rossiter, Surgeon-General of the United States Navy, are filariasis, the pneumonias and tuberculosis. See Table 21 for further information which has been furnished the survey by the Medical Department of the United States Navy.

The mean annual pressure (750 mm. plus) at Apia, Samoa, over a ten year period, 1921–30, was 7.51. The mean temperature for the same period was 26.41°C. and the mean total annual precipitation was 3033.8 millimeters.

TABLE 21

SAMOA

Reported by: P. S. Rossiter, Surgeon General, U.S.N.M.C. *Period:* 1935

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	−				−
Leishmaniasis	−				−
Relapsing Fever	−				−
Rat-Bite Fever	−				
Yellow Fever	−			+	−
Dengue Fever	−			+	−
Pappataci Fever	−				
Plague	−			+	−
Typhus Fever	−				
Trypanosomiasis	−				
Oroya Fever	−				−
Undulant Fever	−				−
Leprosy	+				
Syphilis	−				−
Yaws	+		1,511[1]		+
Granuloma Inguinale	−				−
Tularemia	−				−
Smallpox	−				−
Amebiasis	+	Isolated cases	R		
Balantidium Dysentery	−				−
Bacillary Dysentery	+	Occasional epidemics	3		
Cholera	−				−
Typhoid Fever	+		7		−
Para-Typhoid Infection	+		1		

TABLE 21

SAMOA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Sprue	−				−
Hill Diarrhea	−				−
Ascariasis	+	General	2,011		−
Hookworm Disease	+		18		−
Giardia Enteritis	−				−
Trichomonas Infection	−				−
Tropical Liver	−				−
Infantile Biliary Cirrhosis	−				−
Schistosomiasis	−				−
Filariasis	+	General	260	+	+
Juxta-Articular Nodules	−				−
Elephantiasis	+				
Chyluria	+		R		−
Dracontiasis	−				−
Paragonimiasis	−				−
Clonorchiasis	+		R		−
Fasciolopsis	−				−
Cestodes	?				
Trichuris	+		C[2]		−
Trichinelliasis	−				−
Climatic Bubo	−				−
Rhinosporidiosis	−				−
Goundou	−				−
Ainhum	−				−
Big Heel	−				−
Myiasis	−				−
Leech Infection	−				−
Leucodermia	−				−
Cheloid	−				−
Ulcus Tropicum	−				−
Albinism	+		R		−
Septic Sore	−				−
Pemphigus Contagiosus	−				−
Ulcerating Dermatitis	−				−
Madura Foot	−				−
Other Mycetoma	−				−
Blastomycosis	−				−
Mossy Foot	−				−
Pityriasis Versicolor	+		C		−
Dhobie's Itch	+		1,260		
Seborrhoea	−				−
Pinta	−				−
Tinea Imbricata	+		R		−
Trichosporosis	−				−
Trichomycosis	−				−
Acarine Dermatomycosis	−				−
Epidemic Dropsy	−				−
Peripheral Neuritis	−				−
Beriberi	−				−
Pellagra	−				−
Scurvy	−				−
General Malnutrition or Undernutrition	−				−
Heat Stroke	−				−

TABLE 21

SAMOA—*Concluded*

II. Diseases Usually Considered as of Temperate Climates

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Varicella	+		4		−
Epidemic Meningitis	+		3		−
Influenza	+		3		−
Common Cold	+		1,366		−
The Pneumonias	+		48		+
Tuberculosis	+		28		+
Trachoma	+				
Unusual Skin Disease	+		2,668[3]		−
Dental Caries	+	People not on native diet	?		+

[1] Positive Kahns in 33.8 per cent of 1607 school children.
[2] Forty per cent of stools examined in 1933 were positive.
[3] Skin infections.
Infectious conjunctivitis. Everywhere. 1932 were 1206 cases.
Blindness is common. In 1933, right eye 109, left eye 120, both 68.
Scabies present. 197 cases in 1933.
Ringworm present. 1260 cases in 1933.

PART TWO

THE BRITISH EMPIRE

KENYA COLONY AND PROTECTORATE

Kenya Colony and Protectorate consist of territory having an area of 224,960 square miles and extend, on the Indian Ocean, from the Umba River to Dick's Head, and inland as far as Lake Victoria and Uganda. The territory on the coast, rented from the Sultan of Zanzibar, composes the Kenya Protectorate. The population in 1931 was estimated at 3,041,181, of which 2,966,993 were Africans, 56,903 were Arabs and Asians and 17,285 were Europeans. The prevailing religions are pagan. In 1931 there were 65 (including 16 European) government schools and 2,266 mission and native schools. The total revenue of Kenya in 1931 amounted to £3,066,930 and expenditures amounted to £3,216,089. Climatic conditions are extremely variable and tropical, subtropical and temperate crops are grown from sea level to elevations of over 9000 feet. In the highlands the chief crops are coffee, maize, wheat, sisal, tea and wattle. In the lowlands maize, sisal, sugar, coconuts and cotton are of chief importance. Dairy and wool industries are increasing and considerable quantities of hides are exported. In some areas potatoes, beans, essential oils and other products are produced. Imports for 1931 amounted to £5,092,026 and exports amounted to £4,322,136. There were 3,780,336 tons of shipping entered and cleared. The chief imports were cotton goods, textiles and textile manufactures, motor cars, parts and accessories, trucks and various types of machinery, grain and flour, tobacco in various forms, spirits, clothing, oil, iron sheets, chemicals, tea, sugar, cement, etc. The main exports were cotton, coffee, fibers, maize, hides, seeds, oil, ivory, wood and timber, wheat, wool, rubber, barks, sugar, potatoes, tin ore, etc.

Dr. A. R. Paterson has kindly furnished us with information regarding health conditions in Kenya and his report has been augmented by the Medical Department Annual Report for 1931. Among the diseases listed as being of definite public health importance are malaria (three forms), plague, syphilis, yaws, amebiasis, bacillary dysentery, typhoid fever, para-typhoid infections, ascariasis, hookworm disease, infantile biliary cirrhosis, schistosomiasis, tropical ulcer, scabies and general malnutrition. The respiratory diseases are also quite common.

The Medical and Sanitary Reports from British Colonies, Protectorates and Dependencies for 1931 (*Tropical Diseases Bulletin*, Vol. 30, 1933, Supple-

ment) states that a new laboratory and a new medical store were completed and occupied during 1931. In regard to birth and death registrations this report indicates that such registration is not satisfactory; that these returns are kept better in the larger centers but even there should be accepted with caution. In 1931 the native hospitals had 30,090 in-patients and 246,335 out-patients. Hospitals for infectious diseases are maintained at Mombasa and Nairobi. Treatment for yaws and venereal diseases may be had at these institutions. During 1931 there were 41 (44) cases of blackwater fever treated. There were 470 cases of leprosy treated of whom 238 were new admissions. The report states that leprosy is not regarded as serious by the large majority and the native has little faith in treatment, probably because the disease is protracted. There were 874 cases of tuberculosis reported but the report quoted above states that this disease is far more common than these figures would suggest. In a recent study of trypanosomiasis 164 cases were found in seven locations of South Kavirondo among nearly 35,000 persons examined and in Central Kavirondo 194 cases were found in 61,119 persons examined. Altogether 468 cases of this disease were found during this investigation. Syphilis and yaws are both quite common, there being 23,733 cases of syphilis reported in 1931 and 92,050 cases of yaws.

No data on climatic conditions in Kenya are available in "World Weather Records". For further information concerning health conditions in Kenya consult table 22 and the *Tropical Diseases Bulletin* (Supplements), Vols. 28 to 31 for 1931 to 1934 inclusive. According to Knox in his "Climate of the Continent of Africa" the mean temperature at Mombasa ranges from 78.5°F. to 83.3°F., depending upon the month of the year. The rainfall varies from 0.87 inches to 13.82 inches (means) and 47.69 inches for the year, figures based upon 16 years of observation.

TABLE 22

KENYA COLONY AND PROTECTORATE

Reported by: Dr. A. R. Paterson, Acting Director

Period: Questionnaire dated August, 1933[1]

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General		+	+
Benign tertian	+	General	R	+	+
Quartan	+	General	R	+	+
Subtertian	+	General		+	+
Blackwater fever	+	General	R		−
Piroplasmosis	+		6	+	−

TABLE 22

KENYA COLONY AND PROTECTORATE—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Leishmaniasis	+				−
Kala-azar	+	?	R		−
Oriental Sore	?				
Espundia	−				−
Relapsing Fever	+	Many areas		+	−
S. recurrentis	+	Many areas	R	+	−
Rat-Bite Fever	−				
Yellow Fever	−			+	−
Dengue Fever	+(?)			+	−
Pappataci Fever	+	Coast	?	+	−
Plague	+	Victoria, Nyanga and Highlands		+	+
Typhus Fever	+	Highlands	R	+	−
Trypanosomiasis	+				
African Human					
T. gambiense	+	Victoria	50–100	+	−
T. rhodesiense	−				
South American	−				
T. cruzi	−				
Oroya Fever	−				
Undulant Fever	+	General	R	+	−
Leprosy	+	General			−
Syphilis	+	Mostly urban			+
Yaws	+	Rural			+
Granuloma Inguinale	+	?	R		−
Tularemia	[2]				−
Smallpox	+		R		−
Amebiasis	+	General			+
Balantidium Dysentery	[3]				−
Bacillary Dysentery	+	General			+
Cholera	[4]		0		−
Typhoid Fever	+	General	R		+
Para-Typhoid Infection	+	General	C		+
Sprue	[3]				−
Ascariasis	+	General	C		+
Hookworm Disease	+	Coast	C		+
Giardia Enteritis	+		C		−
Trichomonas Infection	+		R		−
Infantile Biliary Cirrhosis	+	General	C		+
Schistosomiasis	+	General	C	+	+(?)
Urinary	+	General	C	+	+(?)
Intestinal	+	General	C	+	+(?)
Visceral	+	Victoria		+	+
Far Eastern	−				−
Filariasis	+		R	+	−
F. bancrofti	+	Coast	R	+	−
Loa Loa	−				−
O. volvulus	−				−
F. perstans	−				−
F. demarquayi	−				−
F. ozzardi	−				−
Juxta-Articular Nodules	+	Yaws areas	C		−
Elephantiasis	+	Coast		+	−
Chyluria	−				−

TABLE 22

KENYA COLONY AND PROTECTORATE—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Dracontiasis	?				−
D. medinensis	−				−
Paragonimiasis	−				−
P. ringeri	−				−
P. westermanii	−				−
P. compactus	−				−
Clonorchiasis	−				−
C. sinensis	−				−
O. felineus	−				−
Fasciolopsis	−				−
F. hepatica	−				−
F. buskii	−				−
Cestodes	+				+
Tænia saginata	+	General	C	+	+
Tænia solium	−				−
Dibothriocephalus latus	−				−
Hymenolepis nana	+	General	C	+(?)	−
Sparganum mansoni	−				−
S. prolifer	−				−
Trichuris	+				
T. trichiura	+	General	C		−
H. heptaticus	−				−
Trichinelliasis	+				
T. spiralis	−				−
Climatic Bubo	+				−
Rhinosporidiosis	−				−
Goundou	+	General (?)	R		−
Ainhum	+	?	R		−
Myiasis	+	General	C	+	−
Subcutaneous	+	General	C	+	−
Leucodermia	+	General	C		−
Cheloid	+	General	C		−
Ulcus Tropicum	+	General	C		+
Albinism	+	?	R		−
Septic Sore	+		C		
Pemphigus Contagiosus	+		R		−
Ulcerating Dermatitis	+	General	C		−
Madura Foot	+	?	R		−
Other Mycetoma	+	?	R		−
Blastomycosis	+	?	R		−
Pityriasis Nigra	+	?	R		−
Pityriasis Versicolor	+	?	R		−
Dhobie's Itch	+	?	C		−
Seborrhoea	+	General	C		−
Pinta	−				
Tinea Imbricata	+	General	C		−
Trichosporosis	+	General	R		−
Trichomycosis	+	General	R		−
Acarine Dermatomycosis	+	General	C[5]		+
Peripheral Neuritis	+	General	Uc		−
Beriberi	+	Desert areas and laborers	R		−
Pellagra	[3]				
Scurvy	+	Sporadic among laborers	R		−

TABLE 22

KENYA COLONY AND PROTECTORATE—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
General Malnutrition or Undernutrition	+	General	C		+
Heat Stroke	+?	?	R		−
Anthrax	+	General	C		+
Gonorrhoea	+	Urban	C		+
Jigger	+	General	C		+
Mental Disorder	+	General	C		+
Amentia	+	General	C		+
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+		R		−
Diphtheria	+	Urban			−
Measles	+	General			−
German Measles	+	General	R		−
Varicella	+	General	C		−
Epidemic Meningitis	+	General	R		−
Infantile Paralysis	+	Sporadic everywhere	R		−
Epidemic Encephalitis	+	?	R		−
Syphilis of Central Nervous System	+	General	R(?)		+(?)
Influenza	+	General			+
Common Cold	+	General			+
The Pneumonias	+	General			+
Cholelithiasis	+	?	R		−
Urinary Calculus	+	?	R		−
Nephritis	+	General	R		−
Diabetes	+	?	R		−
Pernicious Anemia	+	?	R		−
Osteomyelitis	+	General	C		−
Tuberculosis	+	Mostly urban	V		+
Pulmonary	+	Urban	V		+
Bone	+	?	R		−
Skin	+	?	R		−
Malignancy (all forms)	+	General	C		−
Trachoma	+	Urban			−
Weil's Disease	−				
Tsutsugamushi Disease	−				
Rabies	+	Victoria and Highlands	R		−
Unusual Skin Disease	+		C(?)		
Thyroid Disease (Goiter)	+	Lake areas	C		−
Rheumatic Fever	+		R		−
Arthritis (Nonspecific)	+	General	C		+
Rickets	+		R		−
Dental Caries	+	General	C		+
Toxemias of Pregnancy	+		?		?
Cardio-Vascular Diseases	+				
Hypertension	?				
Valvular Lesions	+	General	R		−
Aneurysm	+	General	C		−
Myocarditis	+	General	C		−

TABLE 22

KENYA COLONY AND PROTECTORATE—*Continued*

Reported by: Medical Dept. Annual Report *Period:* 1931

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+		28,507	+	+
Benign tertian	+		1,173	+	+
Quartan	+		571	+	+
Subtertian	+		4,175	+	+
Blackwater Fever	+	Mostly non-Europeans	44		
Leishmaniasis	+				
Kala-azar	+				
Espundia	+		202		
Relapsing Fever	+		77	+	+
Yellow Fever	+		0		
Dengue Fever	+		0		
Pappataci Fever	+		0		
Plague	+	Epidemic in 1930	604	+	+
Typhus Fever	+	Chiefly Europeans	30	+	
Trypanosomiasis	+		468	+	+
Undulant Fever	+	Meru	52	+	+
Leprosy	+		470		+
Syphilis	+		23,733		+
Yaws	+		92,050		+
Smallpox	+		0		
Amebiasis	+		364		+
Bacillary Dysentery	+		696[6]		+
Cholera	+		0		
Typhoid Fever	+		105		+
Para-Typhoid Infection	+		13		
Sprue	+		5		
Ascariasis	+	General	8,091[7]		+
Hookworm Disease	+		1,151		+
Schistosomiasis	+	Kisumu, endemic on the coast. General		+	+
Urinary	+		258	+	+
Visceral	+		0		
Filariasis	+		0		
Elephantiasis	+		162		
Chyluria	+		1		
Dracontiasis	+		8	+	
Paragonimiasis	+		[8]	+	
P. compactus	+		[8]	+	
Fasciolopsis	+		[8]	+	
Cestodes	+	General	15,794[9]	+	+
Trichuris	+	General			
T. trichiura	+		11		
Trichinelliasis	+		159	+	
Ainhum	+		0		
Myiasis	+		32	+	
Madura Foot	+		2		
Tinea Imbricata	+		555		
Acarine Dermatomycosis	+		14,490[10]		+
Epidemic Dropsy	+		0		

TABLE 22

KENYA COLONY AND PROTECTORATE—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Beriberi	+		11		
Pellagra	+		0		
Scurvy	+		48		
Heat Stroke	+		14		
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+		4		
Diphtheria	+	Nairobi and Nakuru	7		
Measles	+		252		
German Measles	+		3		
Varicella	+		631		
Epidemic Meningitis	+	Machakos epidemic (1930)	42		
Infantile Paralysis	+		3		
Epidemic Encephalitis	+		8		
Influenza	+		7,463		+
Common Cold	+		5,322		+
The Pneumonias	+		2,214		+
Cholelithiasis	+		8		
Urinary Calculus	+		10		
Nephritis	+		105		
Diabetes	+		52		
Pernicious Anemia	+		26		
Osteomyelitis	+		38		
Tuberculosis	+	Towns and native reserves	874		+
Pulmonary	+		684[11]		+
Bone	+		96		
Skin	+		12		
Malignancy (all forms)	+		118		
Trachoma	+		233		+
Weil's Disease	+		0		
Rabies	+		0		
Thyroid Disease (Goiter)	+		7		
Rheumatic Fever					
Arthritis (Nonspecific)	+		837		+
Rickets	+		12		
Dental Caries	+		6,959		+
Cardio-Vascular Diseases	+				
Hypertension	+		8		
Valvular Lesions	+		167		
Aneurysm	+		10		
Myocarditis	+		41		

[1] See Appendix.
[2] Unknown.
[3] Not diagnosed.
[4] Not for 60 years.
[5] Scabies.
[6] Undefined dysenteries.
[7] Over 1000 cases of patients with unclassified intestinal parasites.
[8] 95 cases altogether.
[9] Taeniasis.
[10] Scabies.
[11] Pulmonary and laryngeal.

UGANDA PROTECTORATE

In 1890 the territories included in the Uganda Protectorate came under British influence and at the present time they comprise a total area of 94,204 square miles; over 13,000 square miles are water. The area, for administrative purposes, is divided into four provinces. While the Protectorate is under direct administration, the native Kings or Chiefs by treaty are encouraged to govern the affairs of their own subjects. The total population of Uganda, in 1931, was 3,553,534, of which 3,536,267 were natives. The first educational work was carried on by missionary societies and these still receive grants from the Government. However, for some years now, the Government has been developing an educational system. The Government has established a University College at Makerere. In 1931, there were 264,177 students in the various schools. Most of the natives speak the Bantu language. The chief products of Uganda are cotton, coffee, chilies, oil-seeds, tin ore, hides, ivory, sugar, tobacco and timber. The exports for 1931 amounted to £1,978,262 and the imports amounted to £1,308,726. The revenue, in 1931, amounted to £1,399,913 and the expenditures amounted to £1,456,752.

Among the diseases of public health importance, according to the Annual Medical & Sanitary Report for 1933, are malaria, relapsing fever, plague, typhus fever, trypanosomiasis, leprosy, syphilis, yaws (49,546 cases), amebiasis, bacillary dysentery, hookworm disease, schistosomiasis, elephantiasis, drancontiasis, climatic bubo, various skin diseases, including acarine dermatomycosis (37,412 cases), the common cold, influenza and tuberculosis, which is widespread. Further details appear in Table 23. Additional data concerning health conditions in Uganda may also be found in the *Tropical Diseases Bulletin* (Supplements), Vols. 28 to 31 for 1931 to 1934.

According to "World Weather Records" the mean pressure (26 inches plus), for the ten year period 1921–30, was 0.106. The mean temperature for this period was 70.5°F. and the mean precipitation was 59.95 inches. All data were collected at Entebbe, Uganda.

TABLE 23

UGANDA PROTECTORATE

Reported by: Annual Medical and Sanitary Report *Period:* 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General	48,702	+	+
Benign tertian	+		1,086	+	+
Quartan	+		829	+	+
Subtertian	+		6,089	+	+

TABLE 23

UGANDA PROTECTORATE—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Blackwater Fever	+	Eastern and northern provinces especially	146		
Leishmaniasis	+				
Kala-azar	+		0		
Espundia	+		3		
Relapsing Fever	+	Ankole and Masaka districts	1,387	+	+
Yellow Fever	+		0	+	
Dengue Fever	+		1	+	
Pappataci Fever	+		0		
Plague	+	Endemic in Eastern, northern and Bunganda provinces	858	+[1]	+
Typhus Fever	+	Endemic Kabale area	140	+	+
Trypanosomiasis	+	Endemic Busongora, West Nile, Lake Edward-Geo, Vic. Nyanza	695[2]	+	+
African Human	+				
T. gambiense	+		693	+	+
T. rhodesiense	+	Masaka District	2	+	
Undulant Fever	+		2	+	
Leprosy	+	General	3,081		+
Syphilis	+	General	72,218		+
Yaws	+	General	49,546		+
Smallpox	+		0		
Amebiasis	+		446		+
Bacillary Dysentery	+	Chiefly northern province	426[3]		+
Cholera	+		0		
Typhoid Fever	+	Kampala	34[4]		
Para-Typhoid Infection	+		7		
Sprue	+		1		
Ascariasis	+	Western Province mostly; general	1,481[5]		
Hookworm Disease	+		1,021[6]		+
Infantile Biliary Cirrhosis	+		19[7]		
Schistosomiasis	+	Sporadic throughout Uganda	155[8]	+	+
Urinary	+		25	+	+
Elephantiasis	+		486		+
Chyluria	+		2		
Dracontiasis	+	Madi, Kitgum, Gulu, Arua	1,402	+	+
D. medinensis	+	Northern Uganda		+	
Cestodes	+	General. Mbarara, Mbala Ft. Portal, Masaka, Kampala	2,957	+	+
Tænia saginata	+				
Tænia solium	+				
Trichuris	+		1		
Trichinelliasis	+		1	+	
Climatic Bubo	+		2,230[9]		+
Myiasis	+		14	+	

TABLE 23

UGANDA PROTECTORATE—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Ulcus Tropicum	+		43,909[10]		+
Tinea Imbricata	+		2,241[11]		
Acarine Dermatomycosis	+		37,412[12]		+
Epidemic Dropsy	+		0		
Beriberi	+		5		
Pellagra	+		1		
Scurvy	+		1		
General Malnutrition or Undernutrition	+	General, children	C		
Heat Stroke	+		19		
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+		0		
Diphtheria	+	African[13]	1[14]		
Measles	+		655		+
German Measles	+		33		
Varicella	+		1,403		+
Epidemic Meningitis	+	Epidemic Mwirasandu mine; sporadic Gulu, etc.[15]	82		+
Infantile Paralysis	+		3		
Epidemic Encephalitis	+	Kigezi district and Mbale, Lira	6		
Influenza	+	Buganda province especially	9,688		+
Common Cold	+		21,298		+
The Pneumonias	+		3,809		+
Cholelithiasis	+		1		
Urinary Calculus	+		2		
Nephritis	+		190		
Diabetes	+		4		
Pernicious Anemia	+		57		
Osteomyelitis	+		254[16]		
Tuberculosis	+	General	807		+
Pulmonary	+		719[17]		+
Bone	+		41		
Skin	+		2		
Malignancy (all forms)	+		56		
Trachoma	+	General	5,515		+
Weil's Disease	+		1		
Rabies	+		0		
Thyroid Disease (Goiter)	+		6		
Rheumatic Fever	+		293[18]		
Arthritis (Nonspecific)	+		1,208		+

TABLE 23

UGANDA PROTECTORATE—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Rickets	+		9		
Dental Caries	+		5,108[19]		+
Cardio-Vascular Diseases	+				
Hypertension	+		3		
Valvular Lesions	+		485		
Aneurysm	+		26		
Myocarditis	+				

Other diseases include anthrax, epidemic in Ankole district, 62 cases, and pyrexia of undetermined origin, 1629 cases.

[1] *X. brasiliensis, C. cabirus, X. cheopis, D. lypusus.*

[2] Figure represents new cases; 541 old cases were seen.

[3] 2,245 undefined cases of dysentery.

[4] 9 cases not defined.

[5] Of 4,267 African stools examined for ova, there were 1,923 ankylostoma, 307 trichuris, 80 ascaris, 78 taenia.

[6] "In certain district, notably Busago, it is thought that the incidence must approximate 100 per cent."

[7] Cirrhosis of the liver due to other causes than alcohol.

[8] 98 cases of *S. mansoni.*

[9] "Non-specific" bubo.

[10] "Ulcers."

[11] Taenia.

[12] Scabies. Also 74,001 cases of affections of the skin and cellular tissue.

[13] "No previous instance of the isolation of a virulent diphtheria bacillus from a native of Uganda appears to have been recorded."

[14] Deaths.

[15] Also in Mulago, Bombo, Masaka and Mbale.

[16] Osteitis and periostitis.

[17] Pulmonary and laryngeal.

[18] Acute rheumatism.

[19] Dental caries is spoken of as being "rare" among the children of Jinja.

TANGANYIKA TERRITORY

In 1918 German East Africa was divided between the British and the Belgians and in 1921 the district of Ujiji and part of Bykoba were turned over to Britain by the Belgians. The Tanganyika Territory extends from the Umba River on the north to the Rovuma River on the south. The coast line is about 500 miles long and includes the nearby islands. The total area is about 374,000 square miles, including about 20,000 square miles of water. The capital is Dar-es-Salaam with a population of 33,147. The total population, in 1931, was 5,022,640.

For educational purposes the Territory had, in 1931, nearly 100 Government schools with 6,560 students and 3,345 mission schools with 105,797 students. The Government appropriated for education, in 1930–31, £124,-893. Besides these institutions there are a few schools for the Dutch, the Germans and the English. Slavery was abolished in 1922.

The revenue (1931–32) amounted to £1,522,368 and the expenditures to £1,820,928. The chief exports of the Territory include sisal fiber, coffee, cotton, ground-nuts, copra, simsim, grains and beeswax. Cattle, sheep and goats are raised in large numbers. Diamonds, gold, salt, mica, tin, red ocher and building minerals are all found. The chief imports include cotton goods, iron and steel manufactures, provisions, machinery, building materials, kerosene and spirits, sugar, rice and tobacco. In 1931 there were 2,078,815 tons of shipping entered and cleared.

According to the Annual Medical and Sanitary Report for 1932 the following diseases were present which are of particular interest to our survey: malaria (32,245 cases), blackwater fever (98 cases), relapsing fever (664 cases), plague (12 cases), trypanosomiasis (2,861 cases), leprosy (858 cases), syphilis, yaws (114,115 cases), amebiasis, bacillary dysentery, ascariasis, hookworm disease, schistosomiasis (2,681 cases), filariasis, elephantiasis, climatic bubo, tropical ulcer, various skin diseases, beriberi, scurvy, pellagra and respiratory diseases, including tuberculosis. Further details may be found in Table 24. Additional information may also be found in the *Tropical Diseases Bulletin* (Supplements), Vols. 28 to 31 for 1931 to 1934.

No data are available in "World Weather Records" concerning weather conditious in Tanganyika. Knox in his "Climate of the Continent of Africa" reports a mean temperature for the year of 77.6°F. and a mean relative humidity of 83.7 per cent. The rainfall is recorded by him for a year at 45.6 inches.

TABLE 24

TANGANYIKA TERRITORY

Reported by: Annual Medical and Sanitary Report *Period:* 1932

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General	32,245	+	+
Benign tertian	+		1,121	+	+
Quartan	+		1,001	+	+
Subtertian	+		26,122	+	+
Blackwater Fever	+		98		+

TABLE 24

TANGANYIKA TERRITORY—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Leishmaniasis	+				
Kala-azar	+		0		
Espundia	+		1		
Relapsing Fever	+	Lake Province, Tanga	664	+	+
Yellow Fever	+		0		
Dengue Fever	+		2	+	−
Pappataci Fever	+		0		
Plague	+	Endemic in Mbulu; Shinyanga	12	+	−
Typhus Fever	+		1	+	−
Trypanosomiasis	+	Lake, Western and Lindi Provinces	2,861	+	+
Undulant Fever	+		0		
Leprosy	+	General	858		+
Syphilis	+		35,229		+
Yaws	+	General	114,115		+
Smallpox	+	Outbreak Iringa Province and Tabora	768		+
Amebiasis	+		794		+
Bacillary Dysentery	+		116[1]		
Cholera	+		0		
Typhoid Fever	+	Epidemic Mbeya	40[2]		
Para-Typhoid Infection	+		7		
Sprue	+		0		
Ascariasis	+	Lake Province	8,490		+
Hookworm Disease	+	Lake Province	16,629		+
Schistosomiasis	+	Lake Province and Northern Province	2,681	+	+
Urinary	+	Lake Province	+[3]	+	
Intestinal	+	Lake Province	+	+	
Filariasis	+		50	+	+
F. bancrofti	+			+	+
Elephantiasis	+		421		+
Chyluria	+		5		
Dracontiasis	+		2	+	
Cestodes	+	Northern Province	13,984[4]	+	+
Trichuris	+		8		
Trichinelliasis	+		1	+	
Climatic Bubo	+		887[5]		+
Myiasis	+		10	+	
Ulcus Tropicum	+		42,111[6]		+
Tinea Imbricata	+		797[4]		
Acarine Dermatomycosis	+		15,240[7]		+
Epidemic Dropsy	+		0		
Beriberi	+		17		
Pellagra	+		16		
Scurvy	+		29		
General Malnutrition or Undernutrition	+		7[8]		
Heat Stroke	+		4[9]		

TABLE 24

TANGANYIKA TERRITORY—*Concluded*

II. Diseases Usually Considered as of Temperate Climates

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Scarlet Fever	+	Lake Province	5–6[10]		
Measles	+		105		
German Measles	+		1		
Varicella	+		773		+
Epidemic Meningitis	+		12		
Infantile Paralysis	+		0		
Epidemic Encephalitis	+		0		
Influenza	+		4,730		+
Common Cold	+		7,116		+
The Pneumonias	+		1,437		+
Cholelithiasis	+		6		
Urinary Calculus	+		12		
Nephritis	+		162		
Diabetes	+		133		
Pernicious Anemia	+		51		
Tuberculosis	+	General	1,311		+
Pulmonary	+		746[11]		+
Bone	+		90		
Skin	+		4		
Malignancy (all forms)	+		85		
Trachoma	+		849		+
Weil's Disease	+		0		
Rabies	+		0		
Thyroid Disease (Goiter)	+		3		
Rheumatic Fever	+		320[12]		
Arthritis (Nonspecific)	+		960		+
Rickets	+		41		
Dental Caries	+		13,612[13]		+
Toxemias of Pregnancy	+		1		
Cardio-Vascular Diseases	+				
Hypertension	+		6		
Valvular Lesions	+		339		
Aneurysm	+		4		
Myocarditis	+		20		
Glanders	+		5		
Anthrax	+		52		

[1] 379 cases undefined dysentery.

[2] 6 cases of undefined.

[3] Of 368 urine specimens examined 105 had *S. haematobium* ova.

[4] Taenia

[5] "Non-specific" bubo.

[6] "Ulcers."

[7] Scabies. 17,410 cases of "other diseases of skin and cellular tissue."

[8] Cases of hunger or thirst.

[9] Also 2 cases sunstroke.

[10] 2 American and 2–3 native children in American mission station reported to have scarlatina; might have been dengue.

[11] Including pulmonary and laryngeal.

[12] Acute rheumatism.

[13] Includes pyorrhoea.

NYASALAND PROTECTORATE

The Nyasaland Protectorate lies along the southern and western shores of Lake Nyasa and extends toward Zambezi. It has an area of 37,596 square miles and a population (in 1931) of 1,910 Europeans, 1,537 Asiatics and 1,498-836 natives. The chief settlements are Blantyre, Limbe, Zomba, Fort Johnston, Kota-Kota, Bandawe, Likoma, Karongo, etc. Education is under a department devoted to this purpose and, besides mission schools, there are elementary schools for Europeans. The schools receive grants from the Government. In 1931 there were 2,965 native schools with a total of 137-472 students.

The revenue for 1931 amounted to £370,515, the expenditures to £488,843, the imports £748,741 and the exports £586,404. Coffee is produced in the Shiré Highlands. Tobacco, tea and cotton are also exported.

Among the diseases present in Nyasaland, according to the health report for 1933, are malaria, blackwater fever, relapsing fever, trypanosomiasis, leprosy, syphilis, yaws, smallpox, amebiasis, bacillary dysentery, typhoid fever, sprue, ascariasis, hookworm disease, schistosomiasis, elephantiasis, Tinea imbricata, acarine dermatomycosis, beriberi, pellagra, scurvy and the respiratory infections, which include influenza, the common cold and tuberculosis. Further information regarding health conditions in Nyasaland is to be found in Table 25 and in the *Tropical Diseases Bulletin* (Supplements), Vols. 28 to 31 for 1931 to 1934.

No data concerning weather conditions in Nyasaland are available in "World Weather Records." Knox records in his studies on the climate of Africa a mean rainfall of 33.5 inches per year at Fort Johnston from data taken over a period of 6–8 years. The mean maximum temperature is given as 88.1°F. The mean relative humidity at 6 a.m. is recorded at 84 per cent.

TABLE 25

NYASALAND PROTECTORATE

Reported by: Annual Medical and Sanitary Report *Period:* 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General	9,787	+	+
Benign tertian	+		1,134	+	+
Quartan	+		71	+	
Subtertian	+		953	+	+
Blackwater Fever	+		8		
Relapsing Fever	+	Becoming widespread	191	+	+
Trypanosomiasis	+	Chiefly Kota Kota district	32	+	+
Leprosy	+	General	358		+
Syphilis	+		1,383		+

TABLE 25

NYASALAND PROTECTORATE—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Yaws	+	Lake shore areas at lower altitudes	1,966		+
Smallpox	+	Chiefly South. Epidemic past 4 yrs.	3,412		+
Amebiasis	+	Epidemic Zomba	240		+
Bacillary Dysentery	+		28[1]		
Typhoid Fever	+		5[2]		
Para-Typhoid Infection	+		4		
Sprue	+	Blantyre; Europeans	4		
Ascariasis	+		1,401		
Hookworm Disease	+		14,069		+
Giardia Enteritis	+		6[3]		
Trichomonas Infection	+	Europeans	2[3]		
Schistosomiasis	+	Low lying areas near lake shore	5,031	+	+
Urinary	+	Kota Kota district	?[4]	+	
Intestinal	+	Kota Kota district	?[4]	+	
Elephantiasis	+		33		
Cestodes	+	Zomba	33[3]	+	
Tænia saginata	+		2[5]	+	
Hymenolepis nana	+	Natives	2[3]		
Trichuris	+				
T. trichiura	+	Natives	6[3]		
Myiasis	+	Europeans	3	+	
Tinea Imbricata	+		688[5]		
Acarine Dermatomycosis	+		20,728[6]		+
Beriberi	+		2		
Pellagra	+	Chiefly at Central Prison, Zomba	11		+
Scurvy	+	Natives	132		+
II. Diseases Usually Considered as of Temperate Climates					
Diphtheria	+	Europeans	1		
Measles	+	Natives	42		
German Measles	+	Europeans	1		
Varicella	+	Natives	49		
Epidemic Meningitis	+	Outbreak at Ft. Johnston	34		
Epidemic Encephalitis	+	Natives	2		
Influenza	+		3,816		+
Common Cold	+		5,245		+
The Pneumonias	+		1,503		+
Urinary Calculus	+		7		
Nephritis	+		57		
Diabetes	+		4		
Pernicious Anemia	+		5		
Osteomyelitis	+		53[7]		
Tuberculosis	+		220		+
Pulmonary	+		137[8]		+
Bone	+	Natives	29		
Skin	+		14		
Malignancy (all forms)	+		41		
Trachoma	+		58		

TABLE 25

NYASALAND PROTECTORATE—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Rabies	+	Native	1	+	
Unusual Skin Disease	+		3		
Thyroid Disease (Goiter)	+		5		
Rheumatic Fever	+		R		
Arthritis (Nonspecific)	+		67		
Rickets	+		6		
Dental Caries	+		7,814		+
Toxemias of Pregnancy	+		2		
Cardio-Vascular Diseases	+				
Hypertension	+		7		
Valvular Lesions	+		128		
Aneurysm	+		5		
Myocarditis	+		11		

[1] 144 undefined cases of dysentery.
[2] 3 undefined cases.
[3] These figures taken from a survey of 279 Europeans and 844 Africans at Zomba.
[4] In the Kota Kota district examinations of urines and feces showed *S. haematobium* was present in 82.1% of urines and *S. mansoni* in 6.8% feces.
[5] Reported as taenia.
[6] Scabies.
[7] Osteitis and periostitis.
[8] Includes laryngeal.

ZANZIBAR PROTECTORATE

Zanzibar is the largest coralline island on the African coast, being 53 miles long and 24 miles wide, having an area of 640 square miles. In 1890 the island became a British protectorate, including the island of Pemba which lies about 25 miles north-east and has an area of 380 square miles. According to the census of 1931 the population of the two islands was 235,428, of which 137,741 were in Zanzibar. The birth-rate in 1930 for Zanzibar was 16.93 and for Pemba was 16.65, while the death-rates were 23.37 and 13.01, respectively. The Arabs are the chief land owners and employers of labor. In 1931 there were 48,962 non-native inhabitants. Most of the natives are Mohammedans. Education is free and in 1931 a total of about 4,867 attended the various government, mission, Indian and private schools. There is a Teachers' Training School and a Commercial School.

The total income of the Protectorate during 1931 was £536,389 and government expenditures amounted to £580,961. The clove industry is the chief interest in the Protectorate, the bulk of the world's supply coming from here. It is estimated that about 48,000 acres are under cultivation for cloves, there being about 3,000,000 trees. The average production of cloves is about 19,556,437 pounds. In addition to cloves the islands produce coconuts and manufacture pottery, coir fiber, rope, soap, coconut oil, jewelry and mats.

The total imports for 1931 amounted to £1,166,854 and the exports to £1,207-175. The total shipping entered and cleared for 1930 (latest figures) amounted to 2,787,831 tons.

According to Dr. B. Spearman the diseases of public health importance include malaria, dengue fever, leprosy, yaws, bacillary dysentery, schistosomiasis, filariasis, elphantiasis, tropical ulcer, acute respiratory diseases and tuberculosis. The mean pressure (corrected) over a period of ten years (1921–1930) was 0.916, the mean temperature during the same period was 80.4°F. and the average precipitation in inches was 57.47. For further interesting data concerning health activities in Zanzibar the reader is referred to *Tropical Diseases Bulletin* (Supplements), Vols. 28 to 30 for 1931 to 1933.

TABLE 26

ZANZIBAR

Reported by: Dr. B. Spearman *Period:* Questionnaire dated January 1934

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General	6,432	+	+
Benign tertian	+	General	1,174	+	+
Quartan	+	General	21	+	+
Subtertian	+	General	261	+	+
Blackwater Fever	+	General	6	+(?)	−
Piroplasmosis	−				−
Leishmaniasis	−				−
Kala-azar	−				−
Oriental Sore	−				−
Espundia	−				−
Relapsing Fever	−				−
S. recurrentis	−				−
S. duttoni	−				−
S. venezuelense	−				−
S. berberum	−				−
Rat-Bite Fever	−				−
Yellow Fever	−				−
Dengue Fever	+	Epidemic	3	+	+
Pappataci Fever	−				−
Plague	−				−
Typhus Fever	−				−
Trypanosomiasis	−				−
African Human	−				−
T. gambiense	−				−
T. rhodesiense	−				−
South American	−				−
T. cruzi	−				−
Oroya Fever	−				−
Undulant Fever	−				−
Leprosy	+	General	86		+
Syphilis	+	Urban	446		−
Yaws	+	General	4,432		+
Granuloma Inguinale	−				−

TABLE 26

ZANZIBAR—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Tularemia	−				−
Smallpox	+	Epidemic	0		+
Amebiasis	+	Imported cases			−
Bacillary Dysentery	+	General	62		+
Cholera	−				−
Typhoid Fever	+	Urban	4		+
Para-Typhoid Infection	+	Urban	R		+
Sprue	−				−
Hill Diarrhea	−				−
Ascariasis	+	Rural	447		−
Hookworm Disease	+	General	13,941		+
Tropical Liver	−				−
Infantile Biliary Cirrhosis	−				−
Schistosomiasis	+	Certain rural districts		+	+
Urinary	+	Certain rural districts	817	+	+
Intestinal	+	Certain rural districts	R	+	+
Filariasis	+			+	+
F. bancrofti	+	General	421	+	+
Loa Loa	−				−
O. volvulus	−				−
F. perstans	−				−
F. demarquayi	−				−
F. ozzardi	−				−
Juxta-Articular Nodules	−				−
Elephantiasis	+	General	233		+
Dracontiasis	−				−
D. medinensis	−				−
Paragonimiasis	−				−
P. ringeri	−				−
P. westermanii	−				−
P. compactus	−				−
Clonorchiasis	−				−
C. sinensis	−				−
O. felineus	−				−
Fasciolopsis	−				−
F. hepatica	−				−
F. buskii	−				−
Cestodes	+				
Tænia saginata	+	Scattered	1	+	−
Tænia solium	−				−
Dibothriocephalus latus	−				−
Hymenolepis nana	−				−
Sparganum mansoni	−				−
S. prolifer	−				−
Trichuris	+				
T. trichiura	+	Scattered	119		−
H. heptaticus	−				−
Trichinelliasis	−				−
T. spiralis	−				−
Climatic Bubo	−				−
Rhinosporidiosis	−				−
Goundou	−				−
Ainhum	−				−
Big Heel	−				−

TABLE 26

ZANZIBAR—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Myiasis	+			+	
Subcutaneous	+	Scattered	5	+	−
Blood sucking	−				−
Intestinal	−				−
Larva Migrans	−				−
Leech Infection	+		R		−
Leucodermia	+	Scattered			−
Cheloid	+				−
Ulcus Tropicum	+	General	40		+
Albinism	+	General			−
Septic Sore	+	General	14,821		−
Pemphigus Contagiosus	+	General	R		−
Ulcerating Dermatitis	−				−
Madura Foot	−				−
Other Mycetoma	−				−
Blastomycosis	−				−
Mossy Foot	−				−
Pityriasis Nigra	−				−
Pityriasis Versicolor	−				−
Dhobie's Itch	+	Urban	R		−
Seborrhoea	−				−
Pinta	−				−
Tinea Imbricata	−				−
Trichosporosis	−				−
Trichomycosis	−				−
Acarine Dermatomycosis	−				−
Epidemic Dropsy	+		R		?
Peripheral Neuritis	+		96		?
Beriberi	+		17		
Pellagra	−				−
Scurvy	−				−
General Malnutrition or Undernutrition	+		R		
Heat Stroke	+		12		
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	−				−
Diphtheria	−				−
Measles	+	Epidemic	2		−
German Measles	+	Epidemic	9		−
Varicella	+	Epidemic	46		−
Epidemic Meningitis	−				−
Infantile Paralysis	+		0		
Epidemic Encephalitis	−				−
Syphilis of Central Nervous System	+		R		
Influenza	+		559		+
Common Cold	+				−
The Pneumonias	+		186		+
Cholelithiasis	+		R		
Urinary Calculus	−				−
Nephritis	+		104		
Diabetes	+	Mostly Asiatics	40		−

TABLE 26

ZANZIBAR—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Pernicious Anemia	+		R		
Osteomyelitis	+		R		
Tuberculosis	+				
Pulmonary	+	General	215		+
Bone	−				−
Skin	−				−
Malignancy (all forms)	+		15		−
Trachoma	+		R		−
Weil's Disease	−				−
Tsutsugamushi Disease	−				−
Rabies	−				−
Thyroid Disease (Goiter)	−				−
Rheumatic Fever	−				−
Arthritis (Nonspecific)	+		785		−
Rickets	−				−
Dental Caries	+	General	6,248		+
Toxemias of Pregnancy	+		R		−
Cardio-Vascular Diseases	+				
Hypertension	+		R		−
Valvular Lesions	+		R		
Aneurysm	+		R		
Myocarditis	+		36		−

Reported by: Annual Report of the Med. and Sanitary Divisions *Period:* 1932

I. TROPICAL DISEASES

Malaria	+	General	8,369	+	+
Benign tertian	+		1,273	+	+
Quartan	+		22	+	
Subtertian	+		294	+	+
Blackwater Fever	+		10		
Leishmaniasis					
Kala-azar	+		0		
Relapsing Fever	+		64	+	
Yellow Fever	+		0		
Dengue Fever	+		3	+	
Pappataci Fever	+		0		
Plague	+		0		
Typhus Fever	+		0		
Trypanosomiasis	+				
Undulant Fever	+		0		
Leprosy	+	Funzi Is. Leper Colony	281		+
Syphilis	+		487		+
Yaws	+		4,453		+
Tularemia	−				
Smallpox	+		0		
Amebiasis	+		24		
Balantidium Dysentery	+				
Bacillary Dysentery	+	Endemic	116[1]		
Cholera	+		0		
Typhoid Fever	+		8		
Para-Typhoid Infection	+		0		
Sprue	+				

TABLE 26

ZANZIBAR—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Ascariasis	+	Heavier in South	604		
Hookworm Disease	+		14,193		+
Giardia Enteritis	+	European	3		
Schistosomiasis	+	General		+	+
Urinary	+	General	849	+	+
Filariasis	+		459	+	+
Elephantiasis	+		292		
Chyluria	+		0		
Cestodes	+		1	+	
Trichuris	+				
T. trichiura	+		284		
Myiasis	+		6	+	
Ulcus Tropicum	+		58		
Tinea Imbricata	+		985[2]		
Acarine Dermatomycosis	+		58[3]		
Epidemic Dropsy	+		0		
Beriberi	+		26		
Pellagra	+		0		
Scurvy	+		0		
Heat Stroke	+		12		
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+		1		
Diphtheria	+		0		
Measles	+		2		
German Measles	+		9		
Varicella	+		64		
Epidemic Meningitis	+		0		
Infantile Paralysis	+		0		
Epidemic Encephalitis	+		0		
Influenza	+		594		+
The Pneumonias	+		300		+
Cholelithiasis	+		1		
Urinary Calculus	+		12		
Nephritis	+		131		
Diabetes	+		53		
Pernicious Anemia	+		863[4]		+
Tuberculosis	+		420		+
Pulmonary	+		375[5]		+
Bone	+		23		
Skin	+		0		
Malignancy (all forms)	+		45		
Weil's Disease	+		0		
Rabies	+		0		
Thyroid Disease (Goiter)	+		4		
Arthritis (Nonspecific)	+		811		+
Rickets	+		12		
Dental Caries	+		6,262[6]		+
Toxemias of Pregnancy	+				
Cardio-Vascular Diseases	+				
Hypertension	+		2		
Valvular Lesions	+		66		
Aneurysm	+		0		
Myocarditis	+		55		

TABLE 26

ZANZIBAR—*Concluded*

[1] Undefined dysentery, 73.
[2] Reported as taenia.
[3] Scabies.
[4] All anemias.
[5] Pulmonary and laryngeal.
[6] Including diseases of teeth and gums.

SOMALILAND PROTECTORATE

An agreement concerning the Anglo-Italian relations was made in 1907. The area of British Somaliland is about 68,000 square miles. The population is about 344,700 Mohammedan and is almost entirely nomadic. The chief town is Berbera which varies in population from 15,000 (hot season) to 30,000 (cold season). The revenue in 1931 amounted to £101,893 and the expenditures amounted to £185,762. In 1931, the exports amounted to £205,561 and the imports amounted to £311,443. The imports include rice, dates, sugar and textiles. The country exports skins and hides, gum and resins, ghee, cattle, sheep, goats and specie. The tonnage of shipping entered and cleared, in 1931, exceeded 70,000 tons.

Among the diseases of public health importance in British Somaliland are malaria, relapsing fever, undulant fever, leprosy, syphilis, smallpox, tropical ulcer, septic sore, madura foot, beriberi, scurvy, general malnutrition and undernutrition, influenza, the pneumonias and tuberculosis. Further details may be found in Table 27. Additional information may also be found in the *Tropical Diseases Bulletin* (Supplements), Vols. 28 to 31 for 1931 to 1934.

No data are available to us concerning weather conditions in the Somaliland Protectorate except at Berbera. Knox reports a mean temperature here of 86.3°F and a rainfall (mean) of 3.98 inches. The mean relative humidity according to Knox is 59 per cent.

TABLE 27

SOMALILAND PROTECTORATE

Reported by: Dr. A. W. H. Donaldson *Period:* Questionnaire dated October 1933[1]

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+			+	+
Benign tertian	+	West chiefly	173[2]	+	+
Quartan	+	General	R	+	−
Subtertian	+	General	544[2]	+	+
Blackwater Fever	−				−
Piroplasmosis	+	Animals only			

TABLE 27

SOMALILAND PROTECTORATE—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Leishmaniasis	+				
Kala-azar	−				−
Oriental Sore	−				−
Espundia	+	Eastern	R	?	−
Relapsing Fever	+				
S. recurrentis	−				−
S. duttoni	+	West and central	157[2]	+	+
S. venezuelense	−				−
S. berberum	−				−
Rat-Bite Fever	−				−
Yellow Fever	−				−
Dengue Fever	+	Coast	5	+	−
Pappataci Fever	−				−
Plague	−				−
Typhus Fever	−				−
Trypanosomiasis	+	Only in animals			−
African Human	−				−
T. gambiense	−				−
T. rhodesiense	−				−
South American	−				−
T. cruzi	−				−
Oroya Fever	−				−
Undulant Fever	+	General	5	+	+
Leprosy	+	West	18		+
Syphilis	+	General	400		+
Yaws	+	General	11		−
Granuloma Inguinals	−				−
Tularemia	−				−
Smallpox	+	General	44[2]		+
Amebiasis	+		R		−
Balantidium Dysentery	−				−
Bacillary Dysentery	+	Coast	R		−
Cholera	−				−
Typhoid Fever	+		R		−
Para-Typhoid Infection	+		R		−
Sprue	−				−
Hill Diarrhea	−				−
Ascariasis	−				−
Hookworm Disease	−				−
Giardia Enteritis	−				−
Trichomonas Infection	+	Coast	R		−
Tropical Liver	−				−
Infantile Biliary Cirrhosis	−				−
Schistosomiasis	−				−
Urinary	−				−
Intestinal	−				−
Visceral	−				−
Far Eastern	−				−
Filariasis	+			+	
F. bancrofti	+	General	R	+	−
Loa Loa	−				−
O. volvulus	−				−
F. perstans	−				−
F. demarquayi	−				−
F. ozzardi	−				−

TABLE 27

SOMALILAND PROTECTORATE—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Juxta-Articular Nodules	−				−
Elephantiasis	+	General	R	+	−
Chyluria	−				−
Dracontiasis	−				−
D. medinensis	−				−
Paragonimiasis	−				−
P. ringeri	−				−
P. westermanii	−				−
P. compactus	−				−
Clonorchiasis	−				−
C. sinensis	−				−
O. felineus	−				−
Fasciolopsis	−				−
F. hepatica	−				−
F. buskii	−				−
Cestodes	+				
Tænia saginata	+		R		−
Tænia solium	−				−
Dibothriocephalus latus	−				−
Hymenolepis nana	−				−
Sparganum mansoni	−				−
S. prolifer	−				−
Trichuris	−				−
T. trichiura	−				−
H. heptaticus	−				−
Trichinelliasis	−				−
T. spiralis	−				−
Climatic Bubo	+	Coastal	R		−
Rhinosporidiosis	−				−
Goundou	−				−
Ainhum	−				−
Big Heel	−				−
Myiasis	+			+	
Subcutaneous	+	East	R	+	−
Blood sucking	+	East	R	+	−
Intestinal	−				−
Larva Migrans	−				−
Leech Infection	−				−
Leucodermia	+	General	R		−
Cheloid	+	General			−
Ulcus Tropicum	+	General	6,859		+
Albinism	−				−
Septic Sore	+	General			+
Pemphigus Contagiosus	−				−
Ulcerating Dermatitis	−				−
Madura Foot	+	Chiefly eastern	32		+
Other Mycetoma	+		R		−
Blastomycosis	−				−
Mossy Foot	−				−
Pityriasis Nigra	+	General	R		−
Pityriasis Versicolor	+	General	C		−
Dhobie's Itch	+	Coastal	R		−
Seborrhoea	+	General			−
Pinta	−				−
Tinea Imbricata	−				−

TABLE 27

SOMALILAND PROTECTORATE—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Trichosporosis	−				−
Trichomycosis	−				−
Acarine Dermatomycosis	+	General	1,179		−
Epidemic Dropsy	+	General	R		−
Peripheral Neuritis	−				−
Beriberi	+	General	184[3]		+
Pellagra	−				−
Scurvy	+	General	32[2]		+
General Malnutrition or Undernutrition	+	General	C		+
Heat Stroke	+	Coastal	R		−
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+		R		−
Diphtheria	−				−
Measles	+		R		−
German Measles	−				−
Varicella	+	General	75		−
Epidemic Meningitis	+	General	R		−
Infantile Paralysis	+	General	R		−
Epidemic Encephalitis	−				−
Syphilis of Central Nervous System	−				−
Influenza	+	General	218[4]		+
Common Cold	+	General	692		−
The Pneumonias	+	General	74		+
Cholelithiasis	−				−
Urinary Calculus	+	General	R		−
Nephritis	+	General	R		−
Diabetes	+	General	R		−
Pernicious Anemia	−				−
Osteomyelitis	+	General	4		+
Tuberculosis	+				
Pulmonary	+	General	170		+
Bone	+	General	39		+
Skin	+	General	5		−
Malignancy (all forms)	+	General	R		−
Trachoma	+	General	31		−
Weil's Disease	−				−
Tsutsugamushi Disease	−				−
Rabies	−				−
Unusual Skin Disease	−				−
Thyroid Disease (Goiter)	−				−
Rheumatic Fever	−				−
Arthritis (Nonspecific)	+	General	R		−
Rickets	+	Sporadic	R		−
Dental Caries	+	General	1,642		+
Toxemias of Pregnancy	+	General	R		−
Cardio-Vascular Diseases	+				
Hypertension	−				−
Valvular Lesions	+	General	R		−
Aneurysm	−				−
Myocarditis	+	General	R		−

TABLE 27

SOMALILAND PROTECTORATE—*Continued*

Reported by: Annual Medical and Sanitary Report *Period:* 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+		262	+	+
Benign tertian	+		55	+	
Quartan	+		13	+	
Subtertian	+		195	+	+
Leishmaniasis	+		0		
Relapsing Fever	+	Endemic at Burao	704	+	+
Dengue Fever	+		1	+	
Undulant Fever	+	Europeans at Burao	2	+	
Leprosy	+		29		+
Syphilis	+		340		+
Yaws	+		10		
Smallpox	+	Hargeisa district chiefly, scattered	33		
Amebiasis	+		0		
Bacillary Dysentery	+		1[5]		
Typhoid Fever	+	European	1		
Para-Typhoid Infection	+		1		
Elephantiasis	+		2		
Dracontiasis	+		0	+	
Cestodes	+		11[6]	+	
Ulcus Tropicum	+		6,134		+
Acarine Dermatomycosis	+		716[7]		
Epidemic Dropsy	+		4		
Beriberi	+		27		
Scurvy	+		8		
General Malnutrition or Undernutrition	+		8		

II. Diseases Usually Considered as of Temperate Climates

Scarlet Fever	+		1		
Diphtheria	+		1		
Measles	+		15		
Varicella	+		96		
Epidemic Meningitis	+	Hargeisa, Erigavo	3		
Infantile Paralysis	+		0		
Epidemic Encephalitis	+		1[8]		
Influenza	+		262		+
Common Cold	+		1,650		+
The Pneumonias	+		166		+
Urinary Calculus	+		4		
Nephritis	+		18		
Diabetes	+		1		
Osteomyelitis	+		16		
Tuberculosis	+		423		+
Pulmonary	+		210		+
Bone	+		43		
Skin	+		3		
Malignancy (all forms)	+		4		
Trachoma	+		48		
Rheumatic Fever	+		8[9]		

TABLE 27

SOMALILAND PROTECTORATE—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Arthritis (Nonspecific)	+		68[10]		
Rickets	+		4		
Dental Caries	+		1,618		+
Cardio-Vascular Diseases	+				
Hypertension	+		1		
Valvular Lesions	+		13		

[1] Figures are average for the last 5 years.
[2] In epidemic form in 1929 and 1930 and so a larger average for the last 5 years.
[3] In epidemic form in 1929 and so a larger average for the last 5 years.
[4] In epidemic form in 1928 and 1931 and so a larger average for the last 5 years.
[5] 95 cases undefined dysentery.
[6] "Tapeworm."
[7] Scabies.
[8] "Encephalitis."
[9] Acute rheumatism.
[10] 31 cases chronic arthritis.

COLONY AND PROTECTORATE OF NIGERIA

The Colony and Protectorate of Nigeria in West Africa, including the mandated territory of Cameroon, comprise an area of about 372,674 square miles. There are altogether 22 provinces, each under the immediate control of a Resident. The Protectorate is divided into Northern and Southern provinces, each with a Lieutenant Governor, subject to the authority of the Governor. In 1931 the population was estimated at 19,928,171. Registration of births and deaths is compulsory only in the Lagos Area and there are no figures available for the entire colony and protectorate. In the Northern Provinces the people are mostly of Sudanese origin and the religion and social system is Islam. There are approximately 35,452 Koran schools, 290 elementary and primary schools, 12 middle schools and 4 training institutions in this area. The vast majority of the population in the Southern Provinces is Pagan, though Christianity and Islam are both gaining ground rapidly. Elementary education is mostly conducted by the missions or by African church schools. There are approximately 2,741 elementary or primary schools, 21 secondary or middle schools and 15 training institutions in this area.

The total revenue of Nigeria for 1931–32 amounted to £4,857,612 and expenditures were £6,188,300. The imports for 1931 amounted to £6,744,199 and the exports to £10,644,519. A total of 3,306,452 tons of shipping entered and cleared during the year. The chief imports are cotton-piece goods, iron and steel manufactures, fish and salt. The main exports from Nigeria are palm oil, palm kernels, cotton lint, coco, ground-nuts, hides and skins.

Among the diseases considered of public health importance, according to Dr. M. B. Johnson, Director of the Medical and Sanitary Service, are malaria, yellow fever, dengue fever, plague, trypanosomiasis, leprosy, syphilis, yaws, granuloma inguinale, smallpox, amebiasis, bacillary dysentery, hookworm disease, tropical liver, schistosomiasis, filariasis, elephantiasis, dracontiasis, tapeworms, tropical ulcer, tuberculosis and general malnutrition.

In 1931 there were 12 European hospitals with 141 beds, and 54 African hospitals with 2,567 beds (not including maternity beds). During 1931, 61 dispensaries were in use in the Northern Provinces and 73 in the Southern Provinces. During an average working period of six months approximately 82,761 patients were treated in the dispensaries of the Southern Provinces and during an average of five months some 52,340 patients were treated in the dispensaries of the Northern Provinces. A new Hospital for Infectious Diseases was erected at Ibadan and opened in March, 1931. During this year there were 35,749 cases of malaria of which 3.5 per cent were benign, 96.4 per cent malignant tertian and 0.1 per cent quartan. Eighteen cases of blackwater fever were reported among Europeans and 4 were fatal. There were 12 cases of blackwater fever among non-Europeans with one death. During 1931 there were only five cases of plague (65 in 1930), 30 cases of yellow fever, 15 cases of beriberi, no pellagra, between 20 and 30 cases of nyctalopia and at least 67,440 cases of tropical ulcer were treated in hospitals and dispensaries during this same period. There are some 31 leprosaria in Nigeria. Between 2000 and 3000 lepers receive out-patient treatment at various institutions but treatment is intermittent and the results are disappointing according to the reports. In 1931, 56,346 cases of yaws and 13,716 cases of syphilis were treated. Of sleeping sickness the Medical and Sanitary Reports from British Colonies, Protectorates and Dependencies for the year 1931 states that some 5000 patients were treated and another 3000 cases were diagnosed and awaiting treatment; in addition 3,466 patients were treated at hospitals and dispensaries.

Further interesting data concerning health activities in the Colony of Nigeria may be found in the *Tropical Diseases Bulletin* (Supplements), Vols. 28 to 31 for 1931 to 1934.

The mean pressure at Lagos over a period of ten years from 1921 to 1930 was (700 mm. plus) 57.7. No data are available in "World Weather Records" for temperature and precipitation.

TABLE 28

NIGERIA

Reported by: M. B. Johnson, Director of Medical and Sanitary Service
Period: Questionnaire dated October 1933[1]

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+			+	+
Benign tertian	+	General	500	+	+
Quartan	+	General	500	+	+
Subtertian	+	General	35,000	+	+
Blackwater Fever	+	General	25	+(?)	+
Piroplasmosis	−				−
Leishmaniasis	−				−
Kala-azar	−				−
Oriental Sore	−				−
Espundia	−				−
Relapsing Fever	+			+	+
S. recurrentis	+	Epidemic	95	+	+
S. duttoni	[2]				
S. venezuelense	−				−
S. berberum	−				−
Rat-Bite Fever	+		1	+	
Yellow Fever	+	General	20[3]	+	+
Dengue Fever	+	General	20[4]	+	+
Pappataci Fever	[2]				
Plague	[5]	Lagos		+	+
Typhus Fever	−(?)				−
Trypanosomiasis	+			+	+
African Human					
T. gambiense	+	Mostly in north	16,775	+	+
T. rhodesiense	−[6]				−
South American	−				−
T. cruzi	−				−
Oroya Fever	−				−
Undulant Fever	+		1	+	−
Leprosy	+	General	2,750		+
Syphilis	+	North and south. General	18,500		+
Yaws	+	South and part of north	70,000		+
Granuloma Inguinale	+	General	51		+
Tularemia	−				
Smallpox	+	General	1,000		+
Amebiasis	+	General	3,500		+
Balantidium Dysentery	[2]				−
Bacillary Dysentery	+	General	160		+
Cholera	−				−
Typhoid Fever	+	General	21		−
Para-Typhoid Infection	+	General	13		−
Sprue	−				−
Hill Diarrhea	−				−
Ascariasis	+	General	17,000		+
Hookworm Disease	+	General	2,200		+
Giardia Enteritis	[2]				
Trichomonas Infection	+	General	?		−
Tropical Liver	+	General	150		+

TABLE 28

NIGERIA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Infantile Biliary Cirrhosis	[2]				−
Schistosomiasis	+			+	+
Urinary	+	General	520	+	+
Intestinal	+	General	?	+	+
Visceral	−				−
Far Eastern	−				−
Filariasis	+		?	+	+
F. bancrofti	+		?	+	+
Loa Loa	+		?	+	+
O. volvulus	+		?	+	+
F. perstans	+		C	+	?
F. demarquayi	−				−
F. ozzardi	−				−
Juxta-Articular Nodules	+		?		
Elephantiasis	+	General	850	+(?)	+
Chyluria	+	General	2	+(?)	−
Dracontiasis	+			+	+
D. medinensis	+	Scattered	3,300	+	+
Paragonimiasis	+			+	
P. westermanii	+	In the Cameroons	R	+	−
Clonorchiasis	−				−
C. sinensis	−				−
O. felineus	−				−
Fasciolopsis					
F. hepatica	[2]				
F. buskii	[2]				
Cestodes	+			+	+
Tænia saginata	+	Mostly north	8,000	+	+
Tænia solium	+	Mostly north		+	+
Dibothriocephalus latus	[2]				
Hymenolepis nana	[2]				
Sparganum mansoni	[2]				
S. prolifer	[2]				
Trichuris	+				
T. trichiura	+	General	C		−
Trichinelliasis	+			+	
T. spirilis	+	General	R	+	−
Climatic Bubo	+	General	3,200(?)		−
Rhinosporidiosis	[2]				
Goundou	+	Mostly south	C		
Ainhum	+	General	100		−
Big Heel	[2]				
Myiasis	[2]			+	
Subcutaneous	+	General		+	−
Blood sucking	+	General		+	−
Intestinal	[2]				
Larva Migrans	+	General	R		−
Leech Infection	+	Scattered			−
Leucodermia	+	General			−
Cheloid	+	General	C		−
Ulcus Tropicum	+	General	47,000		+
Albinism	+	General	?		−
Septic Sore	+	General	?		−
Pemphigus Contagiosus	+	General	R		−
Ulcerating Dermatitis	+	General	R		−

TABLE 28

NIGERIA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Madura Foot	+	General	R		−
Other Mycetoma	+		50[7]		−
Blastomycosis	[2]				−
Mossy Foot	[2]				−
Pityriasis Nigra	[2]				−
Pityriasis Versicolor	+	General	C		−
Dhobie's Itch	+	General	C		−
Seborrhoea	+	General	C		−
Pinta	[2]				
Tinea Imbricata	+		R		−
Trichosporosis	[2]				−
Trichomycosis	+	General	C		−
Acarine Dermatomycosis	[2]				−
Epidemic Dropsy	+	General	12		−
Peripheral Neuritis	+	General			−
Beriberi	+	General	13		−
Pellagra	+(?)	General			−
Scurvy	+	General	17(?)		−
General Malnutrition or Undernutrition	+	General			+
Heat Stroke	+	General	13		−
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+	General	8		−
Diphtheria	+	General	12		−
Measles	+	General	150		−
German Measles	+	General	90		−
Varicella	+	General	1,700		−
Epidemic Meningitis	+	General, north mostly	10		
Infantile Paralysis	+	General	14		−
Epidemic Encephalitis	?				
Syphilis of Central Nervous System	+		R		−
Influenza	+	General	1,400		+
Common Cold	+	General	4,800		−
The Pneumonias	+	General	2,000		+
Cholelithiasis	+	General	5		−
Urinary Calculus	+	General	20		−
Nephritis	+	General	500		−
Diabetes	+	General	60		−
Pernicious Anemia	+	General	50		−
Osteomyelitis	+	General	1,500		−
Tuberculosis	+				+
Pulmonary	+	General	700		+
Bone	+		20		−
Skin	+		20		−
Malignancy (all forms)	+	General	230		+
Trachoma	+	General, more in north	300		−
Weil's Disease	[2]				
Tsutsugamushi Disease	−				
Rabies	+	General	12	+	+
Unusual Skin Disease	+		R[8]		−

TABLE 28

NIGERIA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Thyroid Disease (Goiter)	+	Scattered	125		−
Rheumatic Fever	+		R[9]		−
Arthritis (Nonspecific)	+	General	3,500		+
Rickets	+	General	64		−
Dental Caries	+	General	6,000		−
Toxemias of Pregnancy	+	General	?		+
Cardio-Vascular Diseases	+				−
Valvular Lesions			650		
Aneurysm			80		
Myocarditis			400		

Reported by: Report of Medical and Health Services *Period:* 1932

I. TROPICAL DISEASES

Malaria	+		33,771	+	+
Benign tertian	+		70	+	−
Quartan	+		17	+	−
Subtertian	+		33,518	+	+
Blackwater Fever	+		25		
Leishmaniasis	+		6	+	
Kala-azar	+		0	+	
Espundia	+		6		
Relapsing Fever	+	Northern provinces	3	+	
Yellow Fever	+		1	+	
Dengue Fever	+		20	+	
Pappataci Fever	+		1	+	
Plague	+		0	+	
Typhus Fever	+		0		
Trypanosomiasis	+	Northern provinces	16,769	+	+
Undulant Fever	+		0		
Leprosy	+		9,410		+
Syphilis	+		33,635		+
Yaws	+		107,333		+
Smallpox	+	Northern provinces. Epidemic in rural areas	9,464		+
Amebiasis	+		3,806		+
Balantidium Dysentery					
Bacillary Dysentery	+		119[10]		
Cholera	+		0		
Typhoid Fever	+		29		
Para-Typhoid Infection	+		4		
Sprue	+		0		
Ascariasis	+		14,634[11]		+
Hookworm Disease	+		2,235		+
Schistosomiasis	+			+	+
Urinary	+		734	+	+
Filariasis	+			+	
Loa Loa	+			+	
Elephantiasis	+		925		+
Chyluria	+		0		
Dracontiasis	+		3,614	+	+
Cestodes	+			+	
Tænia saginata	+	Northern provinces	9,953[12]	+	+
Tænia solium	+			+	

TABLE 28

NIGERIA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Trichuris	+		2,986[13]		
T. trichiura	+		0		
Trichinelliasis	+		100		
Ainhum	+		35	+	
Myiasis	+		10,367[12]		+
Tinea Imbricata	+		17,114[14]		+
Acarine Dermatomycosis	+		4		
Epidemic Dropsy	+		12		
Beriberi	+		0		
Pellagra	+		12		
Scurvy	+		9		
Heat Stroke	+				
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+		3		
Diphtheria	+		10		
Measles	+		239		+
German Measles	+		139		+
Varicella	+		2,530		+
Epidemic Meningitis	+	Sporadic in northern provinces	159		+
Infantile Paralysis	+		18		
Epidemic Encephalitis	+		17		
Influenza	+		753		+
Common Cold	+		4,830		+
The Pneumonias	+		2,021		+
Cholelithiasis	+		0		
Urinary Calculus	+		20		
Nephritis	+		332		
Diabetes	+		72		
Pernicious Anemia	+		48		
Osteomyelitis	+		1,932[15]		+
Tuberculosis	+		1,208		+
Pulmonary	+		812[16]		+
Bone	+		204		
Skin	+		20		
Malignancy (all forms)	+		251		
Trachoma	+		130		+
Weil's Disease	+		0		
Rabies	+		1	+	
Thyroid Disease (Goiter)	+		95		
Arthritis (Nonspecific)	+		3,500		+
Rickets	+		57		
Dental Caries	+		7,333[17]		+
Cardio-Vascular Diseases	+				
Hypertension	+		30		
Valvular Lesions	+		793		+
Aneurysm	+		59		
Myocarditis	+		381		

[1] All figures taken from returns from 68 hospitals. Total population 20,000,000.
[2] No record.
[3] Large number of suspected cases.
[4] Probably common.

TABLE 28

NIGERIA—*Concluded*

[5] Not since 1931
[6] Forms intermediate host between typical *T. gambiense* and *T. rhodesiense*. Occur in North Provinces.
[7] Red grain type common.
[8] Hormodendrum dermatitis.
[9] Acute rheumatism common, 3,500 cases.
[10] 1,148 undefined.
[11] 2,334 at Lagos.
[12] Taenia.
[13] Laboratory reports.
[14] Scabies.
[15] Osteitis.
[16] Including laryngeal.
[17] Including diseases of teeth and gums.

GOLD COAST COLONY, TOGOLAND, ASHANTI AND THE NORTHERN TERRITORIES

The Colony of the Gold Coast extends for 334 miles along the Gulf of Guinea between the French Ivory Coast and Togoland. The latter is attached to the Gold Coast under British Mandate for administrative purposes. The area of the Colony, Ashanti and the Protectorate is 78,802 square miles. The population (census of 1931) is 3,121,214. There were, in 1931–32, 29 Government schools and 340 assisted schools under control of various missions, with 42,473 students and 511 teachers in the Colony, Ashanti, the Northern Territories and Togoland. Government expenditures for education, including the Prince of Wales' College at Achimota (opened in 1928), amounted, in 1931–32, to £189,868. The revenue during 1931–32 amounted to £3,181,964 and the expenditures amounted to £3,721,417. The imports, in 1930–31, amounted to £8,953,770 and the exports during the same period amounted to £11,287,388. Imported articles included, in 1931, cotton piece goods, machinery, iron and steel manufactures, motor spirits, illuminating oil, cigarettes, tobacco, flour, rice and motor cars. The exports include cacao, gold, manganese, diamonds, kola nuts, timber, palm kernels, rubber, copra and palm oil. Shipping entered and cleared in 1931 amounted to 4,475,430 tons, of which about half were British.

Ashanti was placed under British protection in 1896 and the Northern Territories in 1901. Ashanti has an area of 24,379 square miles and the Northern Territories have an area of 30,486. The population of Ashanti is 36,284 (1931) and that of the Northern Territories is 717,275.

The Report on the Medical Department lists the following diseases of interest to this survey as having been present in 1932–33: malaria (20,182 cases), blackwater fever, relapsing fever (27 cases), yellow fever, trypanosomiasis (698 cases), leprosy (5,000 cases), syphilis, yaws (62,553 cases), amebiasis, bacillary dysentery, ascariasis, hookworm disease, schistosomiasis (urinary type—520 cases), filariasis, elephantiasis, dracontiasis (1,337 cases), climatic bubo (934 cases), tropical ulcer (10,756 cases), various skin diseases,

trachoma (139 cases), various diseases usually considered as of temperate climates, including the respiratory diseases such as the pneumonias, influenza, the common cold and tuberculosis. Further details may be found in Table 29. Additional information concerning health conditions in the Gold Coast Colony, etc., may be found in the *Tropical Diseases Bulletin* (Supplements), Vols. 28 to 31 for 1931 to 1934.

"World Weather Records" report a mean temperature for the ten year period, 1921–30, at Accra of 79.9°F. and a mean precipitation of 27.72 inches.

TABLE 29

GOLD COAST COLONY (INCLUDING TOGOLAND, ASHANTI AND THE NORTHERN TERRITORIES)

Reported by: Report on the Medical Department *Period:* 1932–33 (March to March)

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+		20,182	+	+
Benign tertian	+		693	+	+
Quartan	+		47	+	+
Subtertian	+		9,196	+	+
Blackwater Fever	+		13		
Leishmaniasis	+			+	
Kala-azar	+		0		
Espundia	+		0		
Relapsing Fever	+		27	+	
Yellow Fever	+		4	+	+
Dengue Fever	+	Sporadic	1	+	
Pappataci Fever	+		0	+	
Plague	+		0	+	
Typhus Fever	+		0	+	
Trypanosomiasis	+	Chiefly Nakpanduri-Bende, Northern Togoland[1]	698	+	+
Undulant Fever	+		0		
Leprosy	+	General	5,000		+
Syphilis	+		804		+
Yaws	+		62,553		+
Smallpox	+		5[2]		
Amebiasis	+		761		+
Bacillary Dysentery	+		152[3]		+
Cholera	−				−
Typhoid Fever	+		65[4]		+
Para-Typhoid Infection	+		9		
Sprue	+		0		
Ascariasis	+		1,794		+
Hookworm Disease	+	Mining areas	312		+
Schistosomiasis	+			+	+
Urinary	+	Localized; Oda and Akuse especially	520	+	+
Filariasis	+	General	R	+	
Elephantiasis	+		188		
Chyluria	+		3		

TABLE 29

GOLD COAST COLONY (INCLUDING TOGOLAND, ASHANTI AND THE NORTHERN TERRITORIES)—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Dracontiasis	+	Northern territory and Ashanti	1,337[5]	+	+
Cestodes	+		1,138[6]	+	+
Trichinelliasis	+		14	+	
Climatic Bubo	+		934[7]		
Ulcus Tropicum	+		10,756[8]		+
Tinea Imbricata	+		1,775[9]		
Acarine Dermatomycosis	+		3,284[10]		
Epidemic Dropsy	+		0		
Peripheral Neuritis			509[11]		
Beriberi	+		18		
Pellagra	+		0		
Scurvy	+		18		
General Malnutrition or Undernutrition	+		36[12]		
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+		1		
Diphtheria	+		1		
Measles	+		265		+
German Measles	+		12		
Varicella	+		904		+
Epidemic Meningitis	+	Ashanti and Northern territory	4		
Infantile Paralysis	+		20		
Epidemic Encephalitis	+		1		
Influenza	+		563		+
Common Cold	+		1,777		+
The Pneumonias	+		1,206		+
Cholelithiasis	+		0		
Urinary Calculus	+		21		
Nephritis	+		442		
Diabetes	+		47		
Pernicious Anemia	+		9		
Osteomyelitis	+		551[13]		
Tuberculosis	+	Mining areas	1,218		+
Pulmonary	+		1,029[14]		+
Bone	+		107		
Skin	+		1		
Malignancy (all forms)	+		136		
Trachoma	+		139		
Weil's Disease	+		0		
Tsutsugamushi Disease	−				
Rabies	+		0		
Thyroid Disease (Goiter)	+		16		
Rheumatic Fever	+		6[15]		
Rickets	+		24		
Dental Caries	+		3,175[16]		+
Toxemias of Pregnancy	+		4[17]		
Cardio-Vascular Diseases	+				
Hypertension	+		61		
Valvular Lesions	+		239		
Aneurysm	+		31		
Myocarditis	+		183		

TABLE 29

GOLD COAST COLONY (INCLUDING TOGOLAND, ASHANTI AND THE NORTHERN TERRITORIES)—*Continued*

TOGOLAND

Reported by: Annales de Medecine et de Pharmacie Coloniales (1934) *Period:* 1932

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Togo, Lama Kara, Lomé, general	86,121	+[18]	+
Benign tertian	+		R	+	
Quartan	+		C	+	+
Subtertian	+		C	+	+
Blackwater Fever	+		7		
Yellow Fever	+		?[19]	+	
Trypanosomiasis	+	Sokodé and Mango circles, endemic	8,319	+	+
Leprosy	+	General	6,216		+
Syphilis	+	Chiefly along coast	33,636[20]		+
Yaws	+	Endemic	82,619[20]		+
Smallpox	+	Isolated	7[21]		
Amebiasis	+	Coast regions	C		
Bacillary Dysentery	+		C		
Typhoid Fever	+		18		
Hookworm Disease	+		C[22]		
Giardia Enteritis	−				
Schistosomiasis	+	Throughout north, especially Sokodé	C	+	
Urinary	+	New outbreak Anécho circle	C[23]	+	
Filariasis	+	Predominates in north	C[24]	+	
F. bancrofti	−				
Elephantiasis	+		C[25]		
Dracontiasis	+	Plateaus of "terre de *barre*"	C[26]	+	+
Cestodes	+		R	+	
Trichuris	+		R		
Ulcus Tropicum	+		3,072[27]		+

II. Diseases Usually Considered as of Temperate Climates

Scarlet Fever	+		1		
Measles	+	Epidemics, benign	4[28]		
Varicella	+		C		
Infantile Paralysis	+		R		
Influenza	+				
The Pneumonias	+		C		
Tuberculosis	+	Scattered throughout	72		
Pulmonary	+		62		
Bone	+		4		
Malignancy (all forms)	+		15		
Trachoma	+	North only in Sokodé	78		
Rabies	+		0		
Thyroid Disease (Goiter)	+	In the Cabré country	6,752[29]		+
Hydatid of liver	+		1		
Coccidia	+		2		
P. U. O.	+		385		

TABLE 29

GOLD COAST COLONY (INCLUDING TOGOLAND, ASHANTI AND THE NORTHERN TERRITORIES)—*Concluded*

[1] East of Gambaga, Sunyani, few areas.
[2] 1 case alastrim.
[3] 511 cases "undefined or due to other causes."
[4] 4 cases undefined.
[5] Figure does not indicate the prevalence.
[6] Taenia.
[7] "Non-specific."
[8] "Ulcers."
[9] Taenia.
[10] Scabies.
[11] "Neuritis."
[12] Hunger or thirst; 23 cases of avitaminosis.
[13] Osteitis.
[14] Pulmonary and laryngeal.
[15] "Acute rheumatism."
[16] Diseases of teeth or gums.
[17] See—"Toxemias of Pregnancy."
[18] *A. costalis, A. pharoensis, A. funestus, A. nili.*
[19] Under investigation; 1 case, a European in 1931.
[20] "Consultations."
[21] 40 cases of alastrim.
[22] 20.75 to 32 per 100.
[23] In Lake Elia are found shell fish resembling "bullins" but they roll or twist to the right. Nine-tenths of the inhabitants of 8 villages are infected.
[24] 3.2 per 100 to 32 per 100.
[25] Onchocerciasis exists throughout.
[26] "F. Medine."
[27] "Ulcère phagédénique"; 168,194 "consultations."
[28] Deaths.
[29] Women.

COLONY OF GAMBIA

Since 1901 both banks of the Gambia up to the French-Anglo boundary have been under British control. In 1843 Gambia was made an independent crown colony. The area of the Colony proper is 4 square miles and the population is about 10,000. In 1931 there were nine elementary Government-aided schools and three Government Mohammedan schools with a total of 2,084 students. The Wesleyans and Roman Catholics each have two secondary schools. There is also a Government Manual Training center and a Teacher's Training School, the latter being opened in 1930.

The revenue of Gambia for 1931 amounted to £184,825, the expenditures £227,487, the imports £252,613 and the exports £529,872. The chief imports are specie, clothing, bags and sacks, foodstuffs, lumber, drugs, metals, motor cars and parts, spirits, tobacco, sugar, etc. The chief exports are ground-nuts, hides and skins and palm kernels. In 1931 a total shipping of 1,065,700 tons entered and cleared. This represented some 481 vessels and about half of the total tonnage was British.

According to the health report from Gambia for 1932 the following diseases were among those present: malaria, blackwater fever, trypanosomiasis, leprosy, syphilis, yaws, amebiasis, bacillary dysentery, ascariasis, hookworm disease, schistosomiasis, elephantiasis, dracontiasis, climatic bubo and various

diseases of the respiratory system, including the pneumonias and tuberculosis. See Table 30 for detailed information. Further information may also be found in the *Tropical Diseases Bulletin* (Supplements), Vols. 28 to 31 for 1931 to 1934.

At Bathurst, Gambia, "World Weather Records" report that the mean precipitation, over a period of five years from 1921 to 1925, was 1137 millimeters. No data are given for pressure or temperature. Knox in his studies on the climate of Africa states that there is an absolute maximum temperature (during six years at 7 a.m.) of 79°F. and a mean rainfall of 46.4 inches (both records for Bathurst).

TABLE 30

COLONY OF GAMBIA

Reported by: Annual Medical and Sanitary Report *Period:* 1932

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+		818	+	+
Subtertian	+	Bathurst	91	+	+
Blackwater Fever	+		4		
Leishmaniasis	+			+	
Kala-azar	+		0		
Espundia	+		0		
Relapsing Fever	+		0	+	
Yellow Fever	+		0	+	
Dengue Fever	+		0	+	
Pappataci Fever	+		0	+	
Plague	+		0	+	
Typhus Fever	+		0	+	
Trypanosomiasis	+	Bathurst and Georgetown	580	+	+
Undulant Fever	+		0		
Leprosy	+		192		+
Syphilis	+		33		
Yaws	+	Greater in Protectorate	424		+
Smallpox	+		1		
Amebiasis	+		59		
Bacillary Dysentery	+	Bathurst, Victoria Hosp.	60		
Cholera	+		0		
Typhoid Fever	+		0		
Para-Typhoid Infection	+		0		
Sprue	+		0		
Ascariasis	+		443		
Hookworm Disease	+		9		
Schistosomiasis	+			+	
Urinary	+		5	+	
Elephantiasis	+		49		
Chyluria	+		0		
Dracontiasis	+		3	+	
Cestodes	+		32[1]	+	
Trichuris	+		0		

TABLE 30

COLONY OF GAMBIA—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Trichinelliasis	+		0		
Climatic Bubo	+		68[2]		
Ainhum	+		1		
Myiasis	+		0		
Tinea Imbricata	+		33[3]		
Acarine Dermatomycosis	+		215[4]		
Epidemic Dropsy	+		0		
Beriberi	+		3		
Pellagra	+		0		
Scurvy	+		0		
Heat Stroke	+		0		
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+		0		
Diphtheria	+		0		
Measles	+		6		
German Measles	+		0		
Varicella	+		4		
Epidemic Meningitis	+		0		
Infantile Paralysis	+		0		
Epidemic Encephalitis	+		0		
Influenza	+		134		
Common Cold	+		227		
The Pneumonias	+		81		
Cholelithiasis	+		0		
Urinary Calculus	+		12		
Nephritis	+		56		
Diabetes	+		0		
Pernicious Anemia	+		0		
Osteomyelitis	+		6[5]		
Tuberculosis	+		54		
Pulmonary	+		33		
Bone	+		21		
Skin	+		0		
Malignancy (all forms)	+		0		
Trachoma	+	Georgetown	5		
Weil's Disease	+		0		
Rabies	+		0		
Thyroid Disease (Goiter)	+	Georgetown	138		
Rheumatic Fever	+		6[6]		
Rickets	+		0		
Dental Caries	+		183[7]		
Toxemias of Pregnancy	+		0		
Cardio-Vascular Diseases	+		114		
Hypertension	+		2		
Valvular Lesions	+		38		
Aneurysm	+		0		
Myocarditis	+		73		

[1] Referred to as "Taeniasis."
[2] Referred to as "Non-specific" bubo.
[3] Referred to as "Tinea."
[4] Scabies.
[5] Osteitis.
[6] Acute rheumatism.
[7] Includes diseases of the teeth and gums.

COLONY OF SIERRA LEONE

Sierra Leone lies between French Guinea on the north and the Republic of Liberia on the east and south-east. The Colony extends 180 miles from the Scarcies River on the north to the border of Liberia on the south. Inland it extends from 8 to 20 miles. In 1788 this territory was sold and ceded by the native King to English settlers to provide a home for African natives who were waifs in London and later it was used for Africans rescued from slave ships. In 1896 a Protectorate was proclaimed over territories which were not portions of the Colony of Sierra Leone (viz., Sierra Leone Peninsula, Tasso Island, Banana Islands and the township of Bonthe on Sherbro Island). The Protectorate lies between the sixth and tenth degrees of north latitude and the tenth to fourteenth degrees of west longitude, and is bounded on the south by the Anglo-Liberian boundary. The Colony has an area of about 4,000 square miles and the Protectorate has an area of 27,670 square miles. The population of the Colony (census of 1921) was 85,163 and the population of the Protectorate was (1921) 1,456,148. Both the Colony and the Protectorate have numerous schools supported by the Government and by missions.

The revenue of the Colony, in 1931, amounted to £884,153 and the expenditures amounted to £884,008. The imports amounted to £1,141,611 and the exports amounted to £923,613. The imports include cotton manufactures, coal, spirits, tobacco, kerosene and oil. The exports include ginger, kola nuts, palm kernels, palm oil and piassava. Other valuable materials found in the Protectorate include platinum, gold, hematite and chromite.

According to the Annual Report of the Medical and Sanitary Department for 1932, the following diseases of interest to our survey are present: malaria (4,859 cases), leishmaniasis, trypanosomiasis, leprosy, syphilis, yaws (5,891 cases), ascariasis, hookworm disease, schistosomiasis, elephantiasis, climatic bubo, tropical ulcer (9,042 cases), various skin diseases and respiratory diseases, including tuberculosis. Further details may be found in Table 31. Additional information is also available regarding health conditions in Sierra Leone in the *Tropical Diseases Bulletin* (Supplements), Vols. 28 to 31 for 1931 to 1934.

"World Weather Records" report a mean pressure (29 inches plus) for the ten year period, 1921–1930, of 0.665. The mean temperature for this period was 79.8°F. and the mean precipitation for the same period was 138.58 inches. All figures are based on data collected at Freetown.

TABLE 31
SIERRA LEONE

Reported by: Annual Report of the Medical and Sanitary Department *Period:* 1932

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General	4,859	+	+
Benign tertian	+		66	+	+
Quartan	+		34	+	+
Subtertian	+		1,036	+	+
Blackwater Fever	+		2		
Piroplasmosis					
Leishmaniasis	+			+	
Espundia	+	Africans	2		
Yellow Fever	[1]	Endemic[2]		+	
Plague	+		0		
Trypanosomiasis	+	Africans	1[3]	+	
Leprosy	+	Africans	244[4]		+
Syphilis	+	Africans	388		+
Yaws	+	Africans	5,891		+
Smallpox	+	Widespread. Epidemic in Protectorate chiefly	998		+
Amebiasis	+		173		+
Balantidium Dysentery	+	Africans	1[5]		
Bacillary Dysentery	+	Africans	4[6]		
Typhoid Fever	+	Africans	9[7]		
Para-Typhoid Infection	+	Africans	4		
Ascariasis	+		3,847		+
Hookworm Disease	+		186		+
Schistosomiasis	+			+	
Urinary	+	Africans	59	+	
Elephantiasis	+	Africans	296		+
Cestodes	+		264[8]	+	
Tænia saginata	+	Africans	15	+	
Trichuris	+		83		
Trichinelliasis	+	Africans	8	+	
Climatic Bubo	+		536[9]		+
Ulcus Tropicum	+		9,042[10]		+
Tinea Imbricata	+		356[8]		
Acarine Dermatomycosis	+		1,091[11]		
Epidemic Dropsy	+	Freetown and Colony	10[3]		
Beriberi	+	Africans	8		
General Malnutrition or Undernutrition	+	Freetown and Colony	221[12]		

II. Diseases Usually Considered as of Temperate Climates

Diphtheria	+	Europeans	1		
Measles	+	Africans	1		
Varicella	+	Africans	111		
Infantile Paralysis	+	Africans	7		
Epidemic Encephalitis	+	Africans	2		
Influenza	+		36		
Common Cold	+		552		+
The Pneumonias	+		201		
Urinary Calculus	+	Africans	1		

TABLE 31

SIERRA LEONE—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Nephritis	+	Africans	163		
Diabetes	+	Africans	8		
Osteomyelitis	+	Africans	291[13]		
Tuberculosis	+		237[14]		+
Pulmonary	+		202[15]		+
Bone	+	Africans	8		
Malignancy (all forms)	+		54		
Trachoma	+	Africans	5		
Rabies	+		6[16]	+	
Thyroid Disease (Goiter)	+	Africans	35		
Rheumatic Fever	+		733[17]		+
Arthritis (Nonspecific)	+		1,616		+
Rickets	+	Africans	20		
Dental Caries	+		4,000[18]		+
Toxemias of Pregnancy	+		4[3]		
Cardio-Vascular Diseases	+				
Hypertension	+	Africans	4		
Valvular Lesions	+		191		
Aneurysm	+	Africans	15		
Myocarditis	+		44		

[1] Not since 1910.

[2] From sera tests made by Yellow Fever Commission of Rockefeller Foundation they feel that some yellow fever has been present more or less recently in the interior of Sierra Leone.

[3] Deaths.

[4] Figures do not indicate the prevalence of the disease and it is impossible to estimate the extent of leprosy in the Protectorate but believe it safe to estimate that the percentage would not fall much below that of North Nigeria.

[5] Connaught hospital laboratory reports, Balantidium coli in feces. No case listed.

[6] 153 cases undefined dysentery in Africans.

[7] 2 cases undefined.

[8] Taenia.

[9] Non-specific bubo.

[10] Listed as "ulcers."

[11] Scabies.

[12] "Avitaminosis."

[13] Osteitis.

[14] Figures in no way indicate the prevalence of this disease.

[15] Pulmonary and laryngeal.

[16] One rabid cat and dog bit more than 6 persons. No cases of human rabies listed.

[17] Acute rheumatism.

[18] Disease of the teeth or gums.

BASUTOLAND

Basutoland is bounded by the provinces of the Orange Free State, Natal and the Cape of Good Hope. It has an area of 11,716 square miles and is regarded as the best grain producing country in South Africa. Basutoland has been under the British Government since 1884 and is divided into seven districts. The census of 1921 gives a population of 495,937 natives, 1,603 Europeans, 172 Asiatics and 1,069 colored. Maseru, with a population of 1,890 natives and 399 Europeans, is the capital. In 1931 there were 590

schools either supported or aided by the Government. Ten of these schools were normal, industrial or agricultural institutions and 39 were intermediate schools. There were 56,451 students.

The revenue of Basutoland for 1931–32 was £266,743, the expenditures amounted to £280,407, the imports £462,733 and the exports £251,427. The chief imports included blankets, ploughs, clothing, iron and tin ware and provisions. The principal exports are wool and mohair, wheat and wheatmeal.

Among the diseases present, according to the health report for 1932, one finds malaria, typhus fever, leprosy, syphilis, amebiasis, bacillary dysentery, typhoid fever, ascariasis, elephantiasis, scarlet fever, measles, German measles, epidemic meningitis, influenza, common colds, the pneumonias and tuberculosis. Further detailed information regarding health conditions in Basutoland may be found in Table 32 and in the *Tropical Diseases Bulletin* (Supplements), Vols. 30 and 31, for 1933 and 1934.

No data concerning weather conditions in Basutoland are included in "World Weather Records." Knox records a mean annual rainfall in several localities in Basutoland ranging from 25.7 to 37.73 inches.

TABLE 32

BASUTOLAND

Reported by: Annual Medical and Sanitary Report *Period:* 1932

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+		7[1]	+	
Plague	+		0		
Typhus Fever	+		238	+	+
Leprosy	+	General, Batsabelo leper settlement	774[2]		
Syphilis	+		5,208		+
Smallpox	+		1		
Amebiasis	+		16		
Bacillary Dysentery	+		64[3]		
Typhoid Fever	+		258[4]		+
Ascariasis	+		10		
Elephantiasis	+		4		
Cestodes	+		101[5]	+	
Myiasis	+		3	+	
Tinea Imbricata	+		44[5]		
Trichomycosis	+		560[6]		
Pellagra	+		3		
Scurvy	+		39		
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+		3		
Diphtheria	+		5		
Measles	+		142		+

TABLE 32

BASUTOLAND—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
German Measles	+		4		
Varicella	+		114		+
Epidemic Meningitis					
Infantile Paralysis	+		1		
Influenza	+		1,485		+
Common Cold	+		1,111		+
The Pneumonias	+		252		+
Cholelithiasis	+		1		
Urinary Calculus	+		3		
Nephritis	+		66		
Diabetes	+		8		
Pernicious Anemia	+		5		
Osteomyelitis	+		116[7]		
Tuberculosis	+		559		+
Pulmonary	+		390		+
Bone	+		79		
Skin	+		5		
Malignancy (all forms)	+		34		
Thyroid Disease (Goiter)	+		6		
Rheumatic Fever	+		107[8]		
Arthritis (Nonspecific)	+		341		
Rickets	+		9		
Dental Caries	+		1,720[9]		+
Toxemias of Pregnancy	+		6		
Cardio-Vascular Diseases	+				
Hypertension	+		5		
Valvular Lesions	+		243		
Aneurysm	+		4		
Myocarditis	+		98		

[1] Reported as tertian malaria.
[2] See paper by P. D. Strachan on "Leprosy and leprosy treatment in Basutoland," *Intern. J. Leprosy* 2: 431–439 (1934).
[3] 55 cases of undefined dysentery.
[4] 30 cases—type not defined.
[5] Reported as taenia.
[6] Scabies.
[7] Osteitis.
[8] Acute rheumatism.
[9] Includes diseases of the teeth or gums.

BECHUANALAND PROTECTORATE

The Protectorate of Bechuanaland has an area of 275,000 square miles lying between the Molopo River on the south and the Zambezi on the north, and extending from Transvaal Province and Matabeleland on the east to South-West Africa. The territory is divided into eleven districts for administrative purposes. In 1931 there were 10 European schools, 2 colored and 107 native schools. The total population, according to the last census (1921), was 152,983, of whom 1743 were Europeans. The natives are divided into several tribes. The total revenue for 1931–32 was £106,-

636 and the expenditures amounted to £162,495. Cattle-rearing and agriculture (maize and Kaffir corn) are the two main industries.

Dr. D. Drew has furnished us information concerning health conditions in the territory and among the important public health problems he lists syphilis and general malnutrition. Malaria is present to a limited extent. Yaws is also present to a considerable extent. Septic sore seems to be quite commonly present everywhere. According to the Medical and Sanitary Report for 1932 there seems to be every evidence that tuberculosis is on the increase.

For further interesting data concerning health activities in Bechuanaland Protectorate consult *Tropical Diseases Bulletin* (Supplement), Vol. 30, 1933.

Weather data for the area south of the Zambezi, spoken of as Bulawayo, Southern Rhodesia, is available. The mean pressure (corrected) over a period of years (1921–30) was 0.686, the mean temperature during the same period was 66.4°F. and the average precipitation was 25.45 inches.

TABLE 33

BECHUANALAND PROTECTORATE

Reported by: Dr. D. Drew, Acting Principal Officer

Period: Questionnaire dated September, 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General	200	+	−
Benign tertian	+			+	−
Quartan	−				
Subtertian	+	Localized epidemics	25	+	−
Blackwater Fever	+	North	3		−
Piroplasmosis	−				
Leishmaniasis	−				
Kala-azar	−				
Oriental Sore	−				
Espundia	−				
Relapsing Fever	+		6	+	−
S. recurrentis	−				
S. duttoni	−				
S. venezuelense	−				
S. berberum	−				
Rat-Bite Fever	−				
Yellow Fever	−			+	
Dengue Fever	−			+	
Pappataci Fever	−				
Plague	−			+	
Typhus Fever	−			+	
Trypanosomiasis	−			+	
African Human	−			+	
T. gambiense	−			+	
T. rhodesiense	−			+	

TABLE 33

BECHUANALAND PROTECTORATE—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
South American	−			−	
T. cruzi	−				
Oroya Fever	−				
Undulant Fever	+		2	+	−
Leprosy	+		8[1]		−
Syphilis	+	General	1,500		+
Yaws	+	General	1,000		−
Granuloma Inguinale	−				
Tularemia	−				
Smallpox	+	North	10		−
Amebiasis	+	General	25		−
Balantidium Dysentery	−				
Bacillary Dysentery	+	General	12		−
Cholera	−				
Typhoid Fever	−				
Para-Typhoid Infection	−				
Sprue	−				
Hill Diarrhea	−				
Ascariasis	+	General			
Hookworm Disease	+	Localized	25		−
Giardia Enteritis	+		16(?)		−
Trichomonas Infection	−				
Tropical Liver	−				
Infantile Biliary Cirrhosis	−				
Schistosomiasis	−				
Urinary	−				
Intestinal	−				
Visceral	−				
Far Eastern	−				
Filariasis	+		2	+	−
F. bancrofti	−				
Loa Loa	−				
O. volvulus	−				
F. perstans	−				
F. demarquayi	−				
F. ozzardi	−				
Juxta-Articular Nodules	−				
Elephantiasis	−				
Chyluria	−				
Dracontiasis	−				
D. medinensis	−				
Paragonimiasis	−				
P. ringeri	−				
P. westermanii	−				
P. compactus	−				
Clonorchiasis	−				
C. sinensis	−				
O. felineus	−				
Fasciolopsis	−				
F. hepatica	−				
F. buskii	−				
Cestodes					
Tænia saginata	+	North	6	+	−
Tænia solium	+		8	+	−
Dibothriocephalus latus	−				

TABLE 33

BECHUANALAND PROTECTORATE—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Hymenolepis nana	−				
Sparganum mansoni	−				
S. prolifer	−				
Trichuris	−				
T. trichiura	−				
H. heptaticus	−				
Trichinelliasis	−				
T. spiralis	−				
Climatic Bubo	−				
Rhinospordiosis	−				
Goundou	+	Bakwena	2		−
Ainhum	−				
Big Heel	−				
Myiasis	−				
Subcutaneous	−				
Blood sucking	−				
Intestinal	−				
Larva Migrans	−				
Leech Infection	−				
Leucodermia	+	General	25		−
Cheloid	+	General	200		−
Ulcus Tropicum	+	General	150		−
Albinism	+	General	12		−
Septic Sore	+	General	2,000		−
Pemphigus Contagiosus	−				
Ulcerating Dermatitis	+				−
Madura Foot	−				
Other Mycetoma	−				
Blastomycosis	−				
Mossy Foot	−				
Pityriasis Nigra	−				
Pityriasis Versicolor	+	General	25		−
Dhobie's Itch	−				
Seborrhoea	+	General	40		−
Pinta	−				
Tinea Imbricata	−				
Trichosporosis	−				
Trichomycosis	−				
Acarine Dermatomycosis	−				
Epidemic Dropsy	−				
Peripheral Neuritis	+		3		−
Beriberi	−				
Pellagra	+	North	5		−
Scurvy	+	General	20		−
General Malnutrition or Undernutrition	+	General	200+		+
Heat Stroke	−				
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+		2		−
Diphtheria	+	General	8		−
Measles	+	General	250		−
German Measles	+		25		−

TABLE 33

BECHUANALAND PROTECTORATE—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Varicella	+	General	300		−
Epidemic Meningitis	+	Bamangwato	8		−
Infantile Paralysis	+		3		−
Epidemic Encephalitis	−				−
Syphilis of Central Nervous System	+	General	12		−
Influenza	+	General	?		+
Common Cold	+	General	?		−
The Pneumonias	+	General	50		−
Cholelithiasis	+	General	20		−
Urinary Calculus	+	General	121		−
Nephritis	+	General	18		−
Diabetes	+	General	3		−
Pernicious Anemia	−				−
Osteomyelitis	+	General	5		−
Tuberculosis	+	General	200		−
Pulmonary	+		150		−
Bone	+		40		−
Skin	+		10		−
Malignancy (all forms)	+	General	20		−
Trachoma	+	North	30		−
Weil's Disease	−				−
Tsutsugamushi Disease	−				−
Rabies	−				−
Unusual Skin Disease	−				−
Thyroid Disease (Goiter)	−				−
Rheumatic Fever	+	General	12		−
Arthritis (Nonspecific)	+	General	200		−
Rickets	−				−
Dental Caries	+	General	2,000		−
Toxemias of Pregnancy	+	General	12		−
Cardio-Vascular Diseases	+	General			−
Hypertension	+	General	200		−
Valvular Lesions	+	General	170		−
Aneurysm	+	General	3		−
Myocarditis	+	General	45		−

Reported by: Annual Medical and Sanitary Report *Period:* 1932

I. Tropical Diseases

Malaria	+		617	+[2]	+
Benign tertian	+		304	+	+
Quartan	+		15	+	+
Subtertian					
Blackwater Fever	+	Maun	3		
Plague	−				
Leprosy	+		12		
Syphilis	+		9,412		+
Yaws	+		118		+
Smallpox	+	Okavango marshes	12		
Amebiasis	+		35		
Bacillary Dysentery	+		8[3]		
Typhoid Fever	+		1		
Ascariasis	+		19		

TABLE 33

BECHUANALAND PROTECTORATE—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Giardia Enteritis	+		280[4]		
Schistosomiasis	+			+	
Urinary	+		7	+	
Cestodes	+		56[5]	+	
Climatic Bubo	+		6		
Tinea Imbricata	+		24[5]		
Acarine Dermatomycosis	+		23[6]		
Scurvy	+	Native villages	108		+
General Malnutrition or Undernutrition	+	General			
Heat Stroke	+		1		
II. Diseases Usually Considered as of Temperate Climates					
Measles	+		4		
Varicella	+		11		
Epidemic Meningitis	+	Lobatsi	8		
Influenza	+	Epidemic	2,464		+
Common Cold	+		97		
The Pneumonias	+		226[7]		+
Cholelithiasis	+		3		
Urinary Calculus	+		1		
Nephritis	+		20		
Diabetes	+		4		
Pernicious Anemia	+		104[8]		
Osteomyelitis	+		2[9]		
Tuberculosis	+	Mine workers	340		+
Pulmonary	+		300[10]		+
Bone	+		28		
Malignancy (all forms)	+		13		
Trachoma	+		40		
Thyroid Disease (Goiter)	+		1		
Arthritis (Nonspecific)	+		62		
Rickets	+		1		
Dental Caries	+		2,809[11]		+
Toxemias of Pregnancy	+		3		
Cardio-Vascular Diseases	+				
Hypertension	+		27		
Valvular Lesions	+		648		+
Aneurysm	+		2		
Myocarditis	+		25		

[1] See paper by H. W. Dyke on "Leprosy in Bechuanaland" in *Intern. J. Leprosy* 2: 441–442 (1934). It is estimated that there are from forty to fifty lepers in entire territory, one to four or five thousand of the population. Dyke believes low incidence is probably due to the sparsely scattered population which reduces opportunity for infection.

[2] *Anopheles costalis*; culicine larvae.

[3] Undefined 6 cases.

[4] Diarrhoea and enteritis.

[5] Taenia.

[6] Scabies.

[7] Only cases seen by European Medical Officers.

[8] Other anemias and chlorosis.

[9] Osteitis.

[10] Including laryngeal.

[11] Including teeth or gums.

SOUTHERN RHODESIA

Prior to 1923 Southern Rhodesia was under the administration of the British South Africa Company but in 1923 the country was annexed to Great Britain as one of the dominions and a new government was established. The area of Southern Rhodesia is 150,344 square miles. The population, in 1931, was 1,109,012, which was nearly double that of 1904. The chief town is Salisbury, the capital, with a population of approximately 28,800, including 9,637 Europeans.

In 1931 there were 74 primary, 12 secondary and 1 vocational schools for Europeans and 1,422 schools for native children. In addition there were 77 aided farm schools and 7 schools for colored children. A total expenditure of £328,471 was made in 1931 for education from public funds.

The revenue for 1931–32 amounted to £2,110,167 and the expenditures amounted to £2,777,700. The imports into Southern Rhodesia in 1931 amounted to £5,685,529 and the exports amounted to £5,894,099. Among the imports were textile goods, clothing, machinery, railroad supplies and locomotives, automobiles and other metals and manufactures. The chief exports were gold, asbestos, maize, chrome ore, cattle and tobacco.

According to Dr. Richard M. Morris, Assistant Health Director, the diseases of public health importance include malaria, blackwater fever, piroplasmosis, trypanosomiasis, leprosy, syphilis, yaws, smallpox, bacillary dysentery, typhoid fever, schistosomiasis, pellagra, scurvy, general malnutrition and undernutrition, the pneumonias and tuberculosis. Further details may be found in Table 34.

The only data on climate available to us for either Southern Rhodesia or Northern Rhodesia are those collected at Bulawayo and these data are given in the section dealing with Northern Rhodesia.

TABLE 34

COLONY OF SOUTHERN RHODESIA

Reported by: Dr. Richard M. Morris *Period:* Questionnaire dated January, 1934

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+			+	+
Benign tertian	+	Small scattered islands throughout	1–3	+	−
Quartan	+	Sporadic	3	+	−
Subtertian	+	General. Rare in urban areas	700	+	+
Blackwater Fever	+	Everywhere below the 3000 ft. sea level	30		+

TABLE 34

COLONY OF SOUTHERN RHODESIA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Piroplasmosis	+	Cattle everywhere		+	+
Leishmaniasis	−			?	
Kala-azar	−			?	
Oriental Sore	−			?	
Espundia	−			?	
Relapsing Fever	+	North eastern and low-lying southern		+	
S. recurrentis	−				
S. duttoni	+	Natives only	7	+	−
S. venezuelense	−			−	
S. berberum	−			−	
Rat-Bite Fever	+	Salisbury	2		−
Yellow Fever	−			+	
Dengue Fever	−			+	
Pappataci Fever	−			+	
Plague	−			+	
Typhus Fever	ı			+	−
Trypanosomiasis	+			+	+
African Human	+			+	
T. gambiense	−				
T. rhodesiense	+	Native areas only, Sebungroe and western part	1–3	+	+
South American	−			−	
T. cruzi	−			−	
Oroya Fever	−			?	
Undulant Fever	+	Mashanaland and Manicaland, rarely Mababelelend	10	+	−
Leprosy	+	General. Mostly low-lying areas	3,500		+
Syphilis	+	General	5,040		+
Yaws	+	Low-lying areas to south Ndanga and Bikita	300		+
Granuloma Inguinale	−				
Tularemia	−				
Smallpox	+	Sporadic everywhere but mostly eastern half	43–700		+
Amebiasis	+	Especially western half	6–8		−
Balantidium Dysentery	+	Sporadic	1–2		−
Bacillary Dystentery	+	Frequent in hot spring months	300		+
Cholera	−				
Typhoid Fever	+	Scattered outbreaks	38–80		+
Para-Typhoid Infection	+	Scattered outbreaks	10–25		+
Sprue	−				
Hill Diarrhea	−				
Ascariasis	+	Scattered areas in eastern half	20–30		−
Hookworm Disease	+	Imported mainly in eastern half. Occasional west	200		+

TABLE 34

COLONY OF SOUTHERN RHODESIA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Giardia Enteritis	+	Eastern half	10–20		−
Trichomonas Infection	+	Eastern half	5–10		−
Tropical Liver	−				
Infantile Biliary Cirrhosis	−				
Schistosomiasis	+			+	+
Urinary	+	General	[2]	+	+
Intestinal	+	Scattered everywhere	R	+	+
Visceral	+	Eastern half	4–5	+	−
Far Eastern	−				
Filariasis	+			+	−
F. bancrofti	+	In imported native labor	1	+	−
Loa Loa	−				
O. volvulus	−				
F. perstans	+	North and northeast	7–8	+	−
F. demarquayi	−				
F. ozzardi	−				
Juxta-Articular Nodules	+	South and northeast	20	?	
Elephantiasis	+	Eastern half	25	?	
Chyluria	−				
Dracontiasis	−				
D. medinensis	−			−	
Paragonimiasis	−				
P. ringeri	−			−	
P. westermanii	−			−	
P. compactus	−			−	
Clonorchiasis	−				
C. sinensis	−			−	
O. felineus	−			−	
Fasciolopsis	−				
Cestodes	+			+	−
Tænia saginata	+	General	10–20	+	−
Tænia solium	+	General	50	+	−
Dibothriocephalus latus	−			−	
Hymenolepis nana	+	Everywhere, mostly northwest	C	+(?)	−
Sparganum mansoni	−				−
S. prolifer	−				−
Trichuris	+				
T. trichiura	+	Mostly Salisbury	C		−
H. heptaticus	−				
Trichinelliasis	−				
T. spiralis	−			+	
Climatic Bubo	+	Scattered throughout	3–4	+	−
Rhinosporidiosis	+	Spotted	1	?	−
Goundou	+	Spotted	1		−
Ainhum	+	Mostly eastern part. Occasionally in west part.	20–30	?	−
Big Heel	−				
Myiasis	+				
Subcutaneous	+	General	130	+	−
Blood sucking	+	General	?	+	−
Intestinal	−				
Larva Migrans	+	Eastern half only	14–25[3]	?	−

TABLE 34

COLONY OF SOUTHERN RHODESIA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Leech Infection	+	Eastern half only	5–6(?)	+	–
Leucodermia	+	General	40–50		–
Cheloid	+	General	100–150		–
Ulcus Tropicum	+	General	100–200		+
Albinism	+	General	10		–
Septic Sore	+	General	500+		–
Pemphigus Contagiosus	+	Occasional outbreaks	0		–
Ulcerating Dermatitis	–				
Madura Foot	–				
Other Mycetoma	+	Eastern half	3–4		–
Blastomycosis	–				
Mossy Foot	–				
Pityriasis Nigra	–				
Pityriasis Versicolor	+	General	C		–
Dhobie's Itch	+	General	140		–
Seborrhoea	+	General	?		–
Pinta	–				
Tinea Imbricata	–				
Trichosporosis	–				
Trichomycosis	–				
Acarine Dermatomycosis	+	General	50–60[4]		–
Epidemic Dropsy	–				
Peripheral Neuritis	+	Western half	1–3		–
Beriberi	+	General	R		–
Pellagra	+	General	20		+
Scurvy	+	General. Periodic outbreaks	10–15		+
General Malnutrition or Undernutrition	+	General. Especially west	R[5]		+
Heat Stroke	+	Low-lying areas, below 3,000 feet	3–4		–

II. DISEASES USUALLY CONSIDERED AS OF TEMPERATE CLIMATES

Scarlet Fever	+	Mild epidemics in European settlements	30–40		–
Diphtheria	+	Epidemics in European settlements	50		+
Measles	[6]	Epidemics in European settlements	495		+
German Measles	+	European settlements	20		–
Varicella	+	General	500		–
Epidemic Meningitis	+	More settled areas	22–33		–
Infantile Paralysis	+	Settled European areas	4		–
Epidemic Encephalitis	+	Bulawayo	3		–
Syphilis of Central Nervous System	+	European settlements	1–2		–
Influenza	+	General	450		–
Common Cold	+	General	C		–

TABLE 34

COLONY OF SOUTHERN RHODESIA—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
The Pneumonias	+	General	3,100		+
Cholelithiasis	+	General	R		−
Urinary Calculus	+	General	20		−
Nephritis	+	General	R[7]		−
Diabetes	+	General	20		−
Pernicious Anemia	+	General	10		−
Osteomyelitis	+	General	4–5		−
Tuberculosis	+				+
Pulmonary	+	General	170		+
Bone	+	General	2–3		−
Skin	−				−
Malignancy (all forms)	+		75[8]		+
Trachoma	+	General	5–6		−
Weil's Disease	−				−
Tsutsugamushi Disease	−				−
Rabies	[9]				−
Unusual Skin Disease	−				−
Thyroid Disease (Goiter)	+	General	4–6		−
Rheumatic Fever	+	Only European settlement	[10]		−
Arthritis (Nonspecific)	+	Only European settlement	[11]		−
Rickets	+	Only European settlement	R		−
Dental Caries	+	General. More in settlements	C		+
Toxemias of pregnancy	+	General	13–16		+
Cardio-Vascular Diseases	+				
Hypertension	+	Mainly European settlement	10–20		−
Valvular Lesions	+	Only European settlement	4–5		−
Aneurysm	+	General	2–3		−
Myocarditis	+	General, especially 4,500 ft. above	20–30		−

[1] No Typhus fever but 10 to 12 European cases of tick typhus (pseudo-typhus or 10 day fever) in Salisbury district and eastern half of territory generally.

[2] Some 30 per cent of native population and about 6 per cent of young European (male) of school age, rarely in females.

[3] Especially or mostly in children.

[4] Almost universal in young natives.

[5] Varies with rainfall and crops, in natives.

[6] Not since 1932.

[7] 5–10 acute in Europeans, 20 chronic.

[8] Primary carcinoma of liver, about 25 cases in natives per year. Question of relationship to Schistosomiasis?

[9] Not since 1913.

[10] Articular form very rare. Chorea, 8–12 in Europeans, very rare in natives.

[11] Septic arthritis, about 10 cases in natives per year.

NORTHERN RHODESIA

Northern Rhodesia is that part of Africa bounded by Southern Rhodesia, South-West Africa, Portuguese West Africa, the Belgian Congo, Tanganyika Territory, Nyasaland and Portuguese East Africa. The country

has an area of 287,950 square miles, consisting mostly of high plateaus covered with timber. The country is adaptable to farming and to grazing. In 1931 the native population was estimated at 1,372,235 and the Europeans numbered 13,846. There are nine provinces and the seat of government is Livingston, though Lusaka has been selected as the location for the future capital. In 1931 there were 19 schools controlled by Europeans with 1,098 students. There are also native schools supported by the Government and mission schools which receive aid from the Government. In 1931 there were 17,000 students in these schools. The imports in 1931 amounted to £5,332,314 and the exports amounted to £1,213,831, which included animals, minerals, wheat, maize, tobacco, hides, skins, horns, ivory and timber. Many valuable metals and minerals are found in Northern Rhodesia including gold, silver, copper, zinc, vanadium, mica, manganese ore and iron ore.

According to the health report for 1933 malaria is widespread and blackwater fever also occurs. Among other diseases we find that relapsing fever, trypanosomiasis, leprosy, syphilis, yaws, amebiasis, bacillary dysentery, typhoid fever, schistosomiasis, hookworm disease, tropical ulcer and various diseases of temperate climates are present. Detailed information regarding the distribution and incidence of these diseases is given in Table 35.

Data on climate collected at Bulawayo and at Salisbury indicate a mean pressure (25 inches plus) over a ten year period, 1921–30, of 0.686 and 0.284, respectively. Means for temperatures for the same two localities over the same period are, 66.4°F. and 65.6°F., respectively, and the average total precipitation for the two localities was 25.45 inches and 29.58 inches.

TABLE 35
NORTHERN RHODESIA

Reported by: Medical Report on Health and Sanitary Conditions *Period:* 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General	1,286	+[1]	+
Subtertian	+		345	+	+
Blackwater Fever	+	Widespread, especially Luangwa and Kafue Provinces	43		+
Relapsing Fever	+	Widespread, especially Ft. Jameson	71	+	+
Yellow Fever	?				[2]
Trypanosomiasis	+		11	+	
Undulant Fever	+	European	1	+	
Leprosy	+	Especially Balovale district	184		+
Syphilis	+	Widespread, especially along R. R. strip	4,968		+

TABLE 35

NORTHERN RHODESIA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Yaws	+		427		+
Smallpox	+	Epidemic Lusaka district	165		+
Amebiasis	+	Chiefly Lusaka	65		+
Bacillary Dysentery	+	Chiefly Lusaka	43[3]		
Typhoid Fever	+		47		
Para-Typhoid Infection	+		3		
Hookworm Disease	+	General	315		+
Schistosomiasis	+	General. Livingston especially	83[4]	+	+
Urinary	+		68	+	+
Filariasis	+		1	+	
Elephantiasis	+		23		
Cestodes	+		10	+	
Tænia solium	+		1	+	
Ainhum	+		1		
Ulcus Tropicum	+		322		
Acarine Dermatomycosis	+		55[5]		
Beriberi	+	Sandakan. Outbreak at Jesselton	151		
Pellagra	+		6		
Scurvy	+		72		
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+		4		
Diphtheria	+	Luska and Broken Hill	4		
Measles	+	Chiefly near Balovale	89		
German Measles	+		2		
Varicella	+	Widespread, mining areas	372		
Epidemic Meningitis	+		11		
Infantile Paralysis	+		5		
Influenza	+	Chinsali, Mankoya and Sesheke Districts	706		+
The Pneumonias	+	Especially mines	592		+
Cholelithiasis	+		7		
Urinary Calculus	+		2		
Nephritis	+		30		
Diabetes	+		3		
Osteomyelitis	+		20[6]		
Tuberculosis	+	Chiefly mining area	77		+
Pulmonary	+		66		+
Bone	+		2		
Malignancy (all forms)	+		13		
Rabies	+	Chiefly along R. R. line	7[7]	+	
Rheumatic Fever	+		5[8]		
Rickets	+		1		
Dental Caries	+	General	3[9]		
Cardio-Vascular Diseases	+				
Valvular Lesions	+		10		
Aneurysm	+		1		
Myocarditis	+		16		

TABLE 35

NORTHERN RHODESIA—*Concluded*

[1] Vectors include *A. gambiae*, *A. funestus* and *A. mauritianus*.
[2] Investigating methods of prevention of importation.
[3] 82 unclassified cases.
[4] 13 cases reported Bilharzia. Routine examinations of patients at the Roan Mine Native Hospital gave an infection rate of 15 per cent.
[5] Scabies.
[6] 6 were cases of osteitis.
[7] 55 treatments were given.
[8] 4 were reported as acute rheumatism.
[9] Estimated that 50–75 per cent of children need treatment.
"Two little-known diseases of Northern Rhodesia: Onyalai and Chiufa" by Dr. Humphrey A. Gilkes, 1933.

UNION OF SOUTH AFRICA

The Union of South Africa, which includes the Cape of Good Hope, Natal, Transvaal and the Orange Free State, has a total area of 472,347 square miles and a population of about 8,000,000. In 1932 the European population was estimated at 1,859,400. Owing to variation in the laws regarding registration of births and deaths no reliable figures exist. However, in 1930, there were 47,534 births and 17,415 deaths among the Europeans and 56,277 births and 45,211 deaths among the Non-Europeans. Education is under the four Provincial Administrations. There are three universities, established by legislation in 1916. In addition there are seven other institutions of higher learning. The total revenue for 1931–32 amounted to £29,673,000 and ordinary expenditures amounted to £23,575,758. Wheat and maize are grown in large quantities. Besides agriculture, manufacturing and mining are the chief industries. The total imports for 1932 amounted to £32,812,724 and the exports amounted to £69,043,481. Among the chief imports are apparel, bags, cotton manufactures, drugs and chemicals, food and drink, hardware, machinery, oils, vehicles, timber and woolen manufactures. Over 10,000,000 tons of shipping were entered and cleared in 1931.

Among the important diseases listed by Dr. E. N. Thornton are malaria, typhus fever, leprosy, tape-worm infestation, scûrvy, general malnutrition and tuberculosis. It is estimated by Dr. Thornton that there are about 5000 cases of leprosy scattered throughout the Union. About 100 of these cases are Europeans. Dr. Thornton also estimates that there are 2000 cases of typhus fever in the Union. Plague exists but not to a great extent and at present is not a serious health problem.

Weather data for Cape Town is available. The mean pressure over a period of ten years (1921–1930) was 1.038. The mean temperature over the same period was 63.0°F. and the average total precipitation for each year was 20.75 inches.

TABLE 36

UNION OF SOUTH AFRICA

Reported by: Dr. E. N. Thornton *Period:* Questionnaire dated January, 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Natal, northern and eastern	10,000	+	+
Benign tertian	+	Natal, northern and eastern	3,000	+	−
Quartan	+	Natal, northern and eastern	R	+	−
Subtertian	+	Natal, northern and eastern	7,000	+	+
Blackwater Fever	+	Natal, northern and eastern	50	+	−
Piroplasmosis	−				−
Leishmaniasis	−				−
Kala-azar	−				−
Oriental Sore	−				−
Espundia	−				−
Relapsing Fever	+	Northern Zululand and Northern Transvaal		+	−
S. recurrentis	−				
S. duttoni	+	Northern Zululand and Transvaal	R	+	−
S. venezuelense	−				−
S. berberum	−				−
Rat-Bite Fever	−				−
Yellow Fever	−				−
Dengue Fever	+	Natal coast	500	+	−
Pappataci Fever	−				
Plague	+	Enzootic 3/4 of Union	20	+	+
Typhus Fever	+	Native territories of Capt, Natal and Transvaal	2,000	+	+
Trypanosomiasis	−				−
African Human	−				−
T. gambiense	−				−
T. rhodesiense	−				−
South American	−				−
T. cruzi	−				−
Oroya Fever	−				−
Undulant Fever	+	Occasionally in Transvaal, Capt Province, Orange F. S.	100	+	−
Leprosy	+	General	5,000[1]		+
Syphilis	+	General	50,000		+
Yaws	+	Gold mines	20		−
Granuloma Inguinale	−				−
Tularemia	−				−
Smallpox	+	Natives. Mild form sporadic	40		−
Amebiasis	+	Natal and North Transvaal	50		

TABLE 36

UNION OF SOUTH AFRICA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Balantidium Dysentery	+		R		
Bacillary Dysentery	+	Natal and Transvaal	1,000		+
Cholera	−				
Typhoid Fever	+	General. Rural	5,000[2]		+
Para-Typhoid Infection	+	General. Rural	?[2]		+
Sprue	−				−
Hill Diarrhea	−				−
Ascariasis	+	General	1,000	+	−
Hookworm Disease	+	Mines and Natal Coast	50,000		+
Giardia Enteritis	+	Transvaal and Natal	20		−
Trichomonas Infection	+	Transvaal and Natal	20		−
Tropical Liver	+	Natal	10		−
Infantile Biliary Cirrhosis	+		R		
Schistosomiasis	+	Rivers, Natal and Cape	2,000	+	+
Urinary	+	Rivers, Natal and Cape	2,000	+	+
Intestinal	+		R	+	
Visceral	+		R	+	
Far Eastern	−				−
Filariasis	+		R	+	
F. bancrofti	+		R	+	
Loa Loa	−				−
O. volvulus	−				−
F. perstans	−				−
F. demarquayi	−				−
F. ozzardi	−				−
Juxta-Articular Nodules	−				−
Elephantiasis	−				−
Chyluria	+		R		−
Dracontiasis	+		R	+	−
D. medinensis	−				−
Paragonimiasis	−				−
P. ringeri	−				−
P. westermanii	−				−
P. compactus	−				−
Clonorchiasis	−				−
C. sinensis	−				−
O. felineus	−				−
Fasciolopsis	+		R	+	
F. hepatica	+		R	+	
F. buskii	−				−
Cestodes	+	General	5,000	+	+
Tænia saginata	+	General	1,000	+	+
Tænia solium	+	General	4,000	+	+
Dibothriocephalus latus	+		R		
Hymenolepis nana	−				−
Sparganum mansoni	−				−
S. prolifer	−				−
Trichuris	+		R		
T. trichiura	+		R		
H. heptaticus	−				−
Trichinelliasis	+		R	+	
T. spiralis	+		R	+	

TABLE 36
UNION OF SOUTH AFRICA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Climatic Bubo	−				−
Rhinosporidiosis	−				−
Goundou	−				−
Ainhum	−				−
Big Heel	−				−
Myiasis	+		R	+	
Subcutaneous	−				−
Blood sucking	−				−
Intestinal	+		R	+	−
Larva Migrans	−				−
Leech Infection	−				−
Leucodermia	−				−
Cheloid	+	Native territories	R		−
Ulcus Tropicum	+	Zululand and North Transvaal	R		
Albinism	+		R		
Septic Sore	+	Zululand	R		
Pemphigus Contagiosus	+	General	1,000		−
Ulcerating Dermatitis	−				−
Madura Foot	+		R		−
Other Mycetoma	−				−
Blastomycosis	+		R		−
Mossy Foot	−				−
Pityriasis Nigra	+		R		−
Pityriasis Versicolor	+		R		−
Dhobie's Itch	+	Natal	R		−
Seborrhoea	+	General	C		−
Pinta	−				−
Tinea Imbricata	+		R		−
Trichosporosis	+	General	C		−
Trichomycosis	+	General	C		−
Acarine Dermatomycosis	+	General	C		−
Epidemic Dropsy	−				−
Peripheral Neuritis	+	General	R		−
Beriberi	−				−
Pellagra	+	Native territories	50		−
Scurvy	+	Native territories	1,000		+
General Malnutrition or Undernutrition	+	Natives and European	10,000		+
Heat Stroke	+	Deep mines of Witwatersrand	50		−
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+	General	C		−
Diphtheria	+	General	C		−
Measles	+	General	C		−
German Measles	+	General			−
Varicella	+	General			−
Epidemic Meningitis	+	General	1,000		−
Infantile Paralysis	+	General	100		−
Epidemic Encephalitis	+	General	10		−
Syphilis of Central Nervous System	+	General. Europeans	150		−

TABLE 36
UNION OF SOUTH AFRICA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Influenza	+	General	C		−
Common Cold	+	General	C		−
The Pneumonias	+	General	C[3]		−
Cholelithiasis	+	General	C		−
Urinary Calculus	+	General	C		−
Nephritis	+	General	C		−
Diabetes	+	General	C		−
Pernicious Anemia	+	General	R		−
Osteomyelitis	+	General	R		−
Tuberculosis	+	Mostly on coast	10,000		+
Pulmonary	+	Mostly on coast	10,000		+
Bone	+		R		−
Skin	+		R		−
Malignancy (all forms)	+	General	2,000		−
Trachoma	+	General	R		
Weil's Disease	+	General	R		
Tsutsugamushi Disease	−				
Rabies	+	Enzootic, Transvaal and O. F. S	5		−
Unusual Skin Disease	−				
Thyroid Disease (Goiter)	+	Mountain valleys of Cape and Transvaal	100		−
Rheumatic Fever	+	General	C		−
Arthritis (Nonspecific)	+	General	C		−
Rickets	+	General	R		−
Dental Caries	+	General	C		+
Toxemias of Pregnancy	+	General	100		−
Cardio-Vascular Diseases	+	General	C		−
Hypertension	+	General	C		−
Valvular Lesions	+	General	C		−
Aneurysm	+	General	C		−
Myocarditis	+	General	C		−

Reported by: Annual Report of the Department of Public Health *Period:* 1932

I. TROPICAL DISEASES

Malaria	+	Everywhere. Epidemic in Natal	30,508	+	+
Plague	+	Orange Free State	92[4]	+	+
Typhus Fever	+	Chiefly natives. Cape	1,866	+	+
Undulant Fever	+		10	+	
Leprosy	+	Bantus	4,254		+
Syphilis	+		96,529		+
Yaws	+	Johannesburg mines	C		+
Smallpox	+	Transvaal, Cape and Orange Free State	26		
Typhoid Fever	+	Cape and Orange Free State. Epidemic in Natal	9,010		+
Schistosomiasis	+			+	
Urinary	+	Sandrift and Alma	127	+	
Scurvy	+	Gold Mines	3,380[5]		+
Heat Stroke	+	Deep mines. Natives	18[6]		
Anthrax			68		

TABLE 36

UNION OF SOUTH AFRICA—*Concluded*

II. Diseases Usually Considered as of Temperate Climates

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Scarlet Fever	+		1,822		+
Diphtheria	+		2,722		+
Epidemic Meningitis	+		740		+
Infantile Paralysis	+		44		
Epidemic Encephalitis	+		62		
Tuberculosis	+		12,898[7]		+
Trachoma	+		62		
Rabies	+	Scattered	0	+	

[1] Native except 100 Europeans.
[2] All typhoids.
[3] Among natives.
[4] Outbreak in Ovamboland, S. W. Africa.
[5] Number represents hospital patients. Many more with milder manifestations.
[6] Deaths.
[7] Number greatly underestimates prevalence of disease.

ANGLO-EGYPTIAN SUDAN

Since 1899 the British Government and the Egyptian Government have administered under joint agreement the territory south of the 22nd parallel of latitude in the area known as the Anglo-Egyptian Sudan. The Sudan is divided into thirteen Provinces for purposes of administration. The Sudan comprises an area of about 1,008,100 square miles and extends southwards from the frontier of Egypt to Uganda and the Belgian Congo and from the Red Sea to Wadai in Central Africa. The population is estimated at around 5,545,940, of which only some 60,000 are non-native. A school system under a Central Authority exists and provides primary and secondary education. There are training schools as well and Gordon College is utilized to train teachers. The Wellcome Tropical Research Laboratories are affiliated with Gordon College in Khartoum. The Central Authority also aids some 768 native schools. In 1931, the revenue amounted to 4,398,618 Egyptian pounds and the expenditures amounted to the same figure. From the Sudan comes the world's chief supply of gum arabic. Other products are cotton, sesame, senna leaves and pods, ground-nuts, dates, hides and skins, salt, ivory and gold. Livestock raising is an important industry. The forests contain mahogany and shea butter trees and the finest gum forests are found in Kordofan, Fung and Kassala. The imports into the Sudan, in 1931, amounted to 3,761,013 Egyptian pounds and the exports amounted to 1,783,795 Egyptian pounds.

According to the Report on Medical and Health Work in the Sudan for 1933, the following diseases, of importance to this survey, were present:

malaria (161,896 cases), blackwater fever, leishmaniasis (202 cases), leprosy (7,500 cases), syphilis, yaws (796 cases), amebiasis (2,289 cases), bacillary dysentery, the typhoid fevers, schistosomiasis (8,536 cases), filariasis (113 cases), dracontiasis (447 cases), tropical ulcer, madura foot (341 cases), pellagra, scurvy, trachoma (195,897 cases), rheumatic fever (351 cases) and the respiratory diseases, including the pneumonias, influenza and tuberculosis. Further information is to be found in Table 37. Additional information may also be found in the *Tropical Diseases Bulletin* (Supplements), Vols. 30 and 31 for 1933 and 1934.

"World Weather Records" report a mean pressure (700 mm. plus) for the ten year period, 1921–30, in Khartoum of 24.0. The mean temperature at this station for the same period was 29.3°C. and the mean precipitation was 212 millimeters.

TABLE 37

ANGLO-EGYPTIAN SUDAN

Reported by: Report on Medical and Health Work *Period:* 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Widespread. Outbreak Berber province	161,896	+	+
Benign tertian	+		3,213	+	+
Quartan	+		141	+	+
Subtertian	+		4,549[1]	+	+
Blackwater Fever	+		38		+
Leishmaniasis	+			+	+
Kala-azar	+	Endemic Abyssinian border; sporadic	202	+	+
Relapsing Fever	+		0	+	−
Yellow Fever	+		0	+	−
Dengue Fever	+		2	+	−
Pappataci Fever	+	Khartoum province	64	+	−
Plague	+		0	+	−
Typhus Fever	+		0		−
Trypanosomiasis	+	Bahr el Ghazal; Yei (imported)	85	+	−
Undulant Fever	+	Endemic Darfur province; Kassala; Blue Nile	25	+	+
Leprosy	+	Widespread; decreases from South to North	7,500[2]		+
Syphilis	+	Darfur province	9,501[3]		+
Yaws	+	General	796		+
Smallpox	+	Epidemic Omdurman; White Nile; Dinka tribes	70		
Amebiasis	+	Khartoum province	2,289		+

TABLE 37

ANGLO-EGYPTIAN SUDAN—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Bacillary Dysentery	+	Khartoum; Kordofan; Kassala; Port Sudan	264		+
Cholera	+		0		
Typhoid Fever	+	Epidemic Dongola; sporadic Omdurman	181[4]		+
Para-Typhoid Infection	+		13		
Hookworm Disease	+	Endemic Halfaya; Dongola, Mongalla; Bahr el Ghazal	1,038		
Schistosomiasis	+	General	8,536	+	+
Urinary	+	Epidemic northern and western provinces	628	+	+
Intestinal	+	White Nile; Berber province	11	+	
Filariasis	+		113	+	+
Dracontiasis	+	Endemic Mongalla; Blue Nile; Bahr el Ghazal	447	+	+
Cestodes	+			+	−
Tænia saginata	+	School children	2	+	−
Ulcus Tropicum	+		827		+
Madura Foot	+		341[5]		+
Beriberi	+		0		−
Pellagra	+	Butana, Kassala and Bega tribes	12		−
Scurvy	+	Outbreak Malakal prison	76		−
Heat Stroke	+		46[6]		−

II. Diseases Usually Considered as of Temperate Climates

Diphtheria	+	Endemic Khartoum, Halfaya province; sporadic	51		+
Measles	+		123		+
Varicella	+		438		+
Epidemic Meningitis	+	Epidemic Kordofan province; sporadic	221		+
Influenza	+		929		+
The Pneumonias	+		958		+
Diabetes	+		91		−
Osteomyelitis	+		1[7]		−
Tuberculosis	+	General	915		+
Pulmonary	+		521		+
Malignancy (all forms)	+		183		+
Trachoma	+		195,897		+
Rabies	+	Endemic Kassala; Dafur province; Kordofan	12[8]		
Rheumatic Fever	+	General	351		
Dental Caries	+	School children	202		
Toxemias of Pregnancy	+		4		−

TABLE 37

ANGLO-EGYPTIAN SUDAN—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Cardio-Vascular Diseases.	+				
Myocarditis	+		1		—
Hydatid	+	Kapoeta District of Mongolla	14		
Onchoceravolvulus	+	Tembura District	[9]		

[1] Malignant tertian.
[2] See papers by O. F. H. Atkey on leprosy in the Sudan which have appeared in *Intern. J. Leprosy* 2: 193 (1934) and 3: 73 (1935).
[3] 91,248 cases of yaws and syphilis.
[4] 10 cases undefined.
[5] "Madura Disease."
[6] 5 cases sunstroke.
[7] Osteitis.
[8] 75 people treated.
[9] 9% of adults.

MAURITIUS

The island of Mauritius, within the tropical belt just north of the Tropic of Capricorn, has been under the administration of Great Britain since 1810, although it was formerly occupied by the French and was known as the Isle de France. Mauritius lies in the Indian Ocean about 500 miles from Madagascar and has an area of some 720 square miles. The islands of Rodriguez, Diego Garcia, etc., are included in the colony as dependencies. The population of the island at the end of 1931 was 400,904, including 9,860 in the Dependencies. The birth-rate (exclusive of Indians) was 36.9, while the Indian birth-rate was 27.1. The death-rate (exclusive of Indians) was 33.3, while the Indian death-rate was 41.8. Education is not compulsory. There are 51 government schools, 77 aided and three technical schools.

The revenue of the island for 1930–31 amounted to Rs. 11,552,210 and expenditures were Rs. 16,092,074. Exports for 1931 amounted to £1,787,688 and imports amounted to £2,405,407. The chief imports were cotton goods, machinery, iron and steel, manufactures, ammonium sulphate, soap, motor cars, tires and tobacco. Exports consisted of sugar, copra and poonac, aloe fiber and rum. In 1931 there were 544,900 tons of shipping entered and cleared.

Information concerning health conditions in Mauritius and its Dependencies has been furnished by Dr. J. Balfour Kirk. According to Dr. Kirk, among the most important diseases are malaria, hookworm, diphtheria and tuberculosis. Bacillary dysentery and typhoid fever are also present. From the number of cases reported of amoebic dysentery in the

Annual Report on the Medical and Health Department for 1931 this disease would also seem to be of public health importance in such a population. The respiratory infections and metabolic diseases are also regarded as common. In 1931 there were 44 cases of leprosy in the leper hospital. Ninety-two cases of schistosomiasis were treated in hospitals and 103 in dispensaries. The intermediate molluscum host remains undetermined.

Data on weather conditions for the ten year period, 1921–1930, indicate that there was a mean pressure (corrected) of 09.5. The mean temperature for this period was 22.8°C. and the total precipitation (average) for the same period was 1360.3 millimeters.

For further interesting data concerning health activities in Mauritius consult the *Tropical Diseases Bulletin*, (Supplements), Vols, 28, 29 and 30 for 1931, 1932 and 1933.

TABLE 38

MAURITIUS

Reported by: J. Balfour Kirk, Director *Period:* Questionnaire dated March, 1934

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General		+	+
Benign tertian	+			+	
Quartan	+			+	
Subtertian	+			+	
Blackwater Fever	+	General	30–100		+
Piroplasmosis	−				−
Leishmaniasis	−				−
Kala-azar	−				−
Oriental Sore	−				−
Espundia	−				−
Relapsing Fever	−				−
S. recurrentis	−				−
S. duttoni	−				−
S. venezuelense	−				−
S. berberum	−				−
Rat-Bite Fever	−				−
Yellow Fever	−			+[1]	−
Dengue Fever	+			+	
Pappataci Fever	?			+	−
Plague	[2]			+	−
Typhus Fever	−				−
Trypanosomiasis	−	Surra in cattle regions		+	−
African Human	−				−
T. gambiense	−				−
T. rhodesiense	−				−
South American	−				−
T. cruzi	−				−
Oroya Fever	−				−
Undulant Fever	−(?)				−
Leprosy	+				−

TABLE 38

MAURITIUS—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Syphilis	+				
Yaws	−				−
Granuloma Inguinale	+				
Tularemia	−				−
Smallpox	+		0		−
Amebiasis	+	General			−
Balantidium Dysentery	+		R		−
Bacillary Dysentery	+				
Cholera	+	Epidemic	0		−
Typhoid Fever	+	General except Port Louis			
Para-Typhoid Infection	+				
Sprue	+	Sporadic	R		−
Hill Diarrhea	−				−
Ascariasis	+	General			−
Hookworm Disease	+	General			+
Giardia Enteritis	+				
Trichomonas Infection	+				
Tropical Liver	+				
Infantile Biliary Cirrhosis	−				−
Schistosomiasis	+	General		+	−
Urinary	+				
Intestinal	?				
Visceral	?				
Far Eastern	−				−
Filariasis	+			+	−
F. bancrofti	+				
Loa Loa	[3]				−
O. volvulus	[3]				−
F. perstans	[3]				−
F. demarquayi	[3]				−
F. ozzardi	[3]				−
Elephantiasis	+				
Chyluria	+				
Dracontiasis	+	One imported case years ago. Contracted Madagascar	1	+	
D. medinensis	−				−
Paragonimiasis	?				
P. ringeri	−				−
P. westermanii	−				−
P. compactus	−				−
Clonorchiasis	+	Only in Chinese immigrants		−	
C. sinensis	+				
O. felineus	−				−
Fasciolopsis					
F. hepatica	?			+	
F. buskii	−				−
Cestodes	+				
Tænia saginata	+				
Tænia solium	−				−
Dibothriocephalus latus	−				−
Hymenolepis nana	+		R		
Sparganum mansoni	−				−
S. prolifer	−				−

TABLE 38

MAURITIUS—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Trichuris	+				
T. trichiura	+	Widespread	C		
H. heptaticus	−				−
Trichinelliasis	−				−
T. spiralis	−				−
Climatic Bubo	+		R		
Goundou	−				−
Ainhum	+		R		
Big Heel	−				−
Myiasis	−				−
Subcutaneous	+			+	
Blood sucking	−				−
Intestinal	−				−
Larva Migrans	−				−
Leech Infection	−				−
Leucodermia	+	General			
Cheloid	+	In Negroes	R		
Ulcus Tropicum	+				
Albinism	+		R		
Septic Sore	+		C		
Pemphigus Contagiosus	+		R		
Ulcerating Dermatitis	−				−
Madura Foot	−				−
Other Mycetoma	−				−
Blastomycosis	+				
Mossy Foot	−				−
Pityriasis Nigra	−				−
Pityriasis Versicolor	−				−
Dhobie's Itch	+	General			
Seborrhoea	+				
Pinta	−				−
Tinea Imbricata	+		R		
Trichosporosis	−				−
Trichomycosis	−				−
Acarine Dermatomycosis	+				
Epidemic Dropsy	+	Very common in Indian immigrants at one time	?		−
Peripheral Neuritis	+		R		
Beriberi	[4]	None in 12 years. Sporadic in Chinese at one time			−
Pellagra	−				−
Scurvy	−				−
General Malnutrition or Undernutrition	+	Laboring classes			
Heat Stroke	+		R		
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+		R		
Diphtheria	+		C		+
Measles	+	Epidemic			
German Measles	+				
Varicella	+				

TABLE 38

MAURITIUS—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Epidemic Meningitis	+		R		−
Infantile Paralysis	+				−
Epidemic Encephalitis	−				
Syphilis of Central Nervous System	+		C		
Influenza	+		C		
Common Cold	+		C		
The Pneumonias	+		C		
Cholelithiasis	+		C		
Urinary Calculus	+		R		
Nephritis	+		C		
Diabetes	+		C		
Pernicious Anemia	+		R		
Osteomyelitis	+		R		
Tuberculosis	+		C		+
Pulmonary	+		C		+
Bone	+		R		
Skin	+		R		
Malignancy (all forms)	+	General			
Trachoma	+		R		
Weil's Disease	−				
Tsutsugamushi Disease	−			−	−
Rabies	+		0		
Unusual Skin Disease	−				−
Thyroid Disease (Goiter)	+		R		
Rheumatic Fever	+		R		
Arthritis (Nonspecific)	+		C		
Rickets	+		R		
Dental Caries	+		C		
Toxemias of Pregnancy	+		R		
Cardio-Vascular Diseases	+		C		
Hypertension	+		C		
Valvular Lesions	+		R		
Aneurysm	+		R		
Myocarditis	+		R		

Reported by: Annual Report on the Medical and Health Department *Period:* 1931

I. TROPICAL DISEASES

Malaria	+		44,632	+[5]	+
Benign tertian	+		30,773	+	+
Quartan	+		11,040	+	+
Subtertian	+		2,819	+	+
Blackwater Fever	+		222		+
Leishmaniasis					
Kala-azar	+		0		−
Espundia	+		0		−
Relapsing Fever	+		0		−
Yellow Fever	+		0	+	−
Dengue Fever	+		0	+	−
Pappataci Fever	+		0	+	−
Plague	+[6]		0	+	−
Typhus Fever	+		0		−
Trypanosomiasis	+		0	+	−

TABLE 38

MAURITIUS—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Undulant Fever	+		0		
Leprosy	+		66		
Syphilis	+		956		+
Yaws	+		0		
Granuloma Inguinale	+		0		
Smallpox	+[7]		0		
Amebiasis	+		5,308		+
Bacillary Dysentery	+		537[8]		+
Cholera	+				
Typhoid Fever	+		84[9]		
Para-Typhoid Infection	+		1		
Sprue	+		1		
Hill Diarrhea					
Ascariasis	+		6,903		+
Hookworm Disease	+		23,023		+
Giardia Enteritis	+		48[10]		
Trichomonas Infection	+		34		
Schistosomiasis	+		195	+	−
Urinary	+		53	+	−
Intestinal	+(?)				
Filariasis	+		160	+	−
Elephantiasis	+		73		
Chyluria	+		1		
Dracontiasis	+		0	+	−
D. medinensi				+	−
Clonorchiasis	+				
C. sinensis	+		17	−	−
Cestodes	+		10	+	
Tænia saginata	+		4	+	
Tænia solium	+			+	
Trichuris	+				
T. trichiura	+		2,421		
Trichinelliasis	+		0[11]		
Myiasis	+		9		
Leucodermia	+		11		
Tinea Imbricata	+		27[12]		
Acarine Dermatomycosis	+		4,966[13]		
Peripheral Neuritis	+				
Beriberi	+		15		
Pellagra	+		1		
Scurvy	+		1		
General Malnutrition or Undernutrition	+				
Heat Stroke	+				
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	−				−
Diphtheria	+		51		+
Measles	+?		[18]		
German Measles	−				−
Varicella	+	Barkly Ind. School Hosp.	13		
Epidemic Meningitis	+		1		

TABLE 38

MAURITIUS—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Infantile Paralysis	−				−
Syphilis of Central Nervous System	+				
Influenza	+		13,164		+
Common Cold	+		309		
The Pneumonias	+		1,473[14]		+
Cholelithiasis	+		7		
Urinary Calculus	+		49		
Nephritis	+		1,662		+
Diabetes	+		155		
Pernicious Anemia	+		323		
Osteomyelitis	+		39[15]		
Tuberculosis	+		2,147		+
Pulmonary	+		1,919[16]		+
Bone	+		91		
Skin	+		31		
Malignancy (all forms)	+		170		
Trachoma	+		0		
Weil's Disease	−				−
Rabies	−				−
Thyroid Disease (Goiter)	+		0		
Rheumatic Fever					
Arthritis (Nonspecific)	+		408		
Rickets	+		14		
Dental Caries	+		6,916[17]		+
Toxemias of Pregnancy	+		9		
Cardio-Vascular Diseases	+				
Hypertension			630		
Valvular Lesions	+		636		
Aneurysm	+		6		
Myocarditis	+		274		

[1] Stegomyia, *Aedes argenteus, A. mascarensis, A. albopictus.*
[2] Absent since 1927.
[3] Not known.
[4] Not since 1922.
[5] *A. costalis, A. funestus, A. maculipalpis* and *A. mauritianus.*
[6] None since 1927.
[7] None since 1913.
[8] 2126 cases undefined or other dysenteries.
[9] 134 cases enteric fever.
[10] 1518 deaths due to diarrhoea and enteritis.
[11] Most patients examined for parasites harbor these.
[12] Reported as taenia.
[13] Reported as scabies.
[14] Deaths.
[15] Osteitis.
[16] Including pharyngeal.
[17] Teeth and gums.
[18] No deaths.

SEYCHELLES

There are 101 islands and islets with an area of about 156 square miles included in Seychelles and its dependencies. These islands are located just

south of the equator in the Indian Ocean at about 55°E. longitude. The principal island is Mahe, comprising some 55 square miles There are also five smaller islands in the group and among the dependencies there are more than a dozen islands sufficiently large to mention. These include the Farquhar Islands and the Cosmoledo group. These islands were first colonized by the French in the middle of the eighteenth century for the purpose of producing spices. In 1794 they were captured by the British and in 1897 they were placed under the administration of a Governor, having had in the interim several forms of government under the British flag.

In 1931 the population of this group of islands was estimated to be 27, 786. The death rate was 13.53 and the birth rate was 29.83. The capital, Victoria, has a good harbor. There were in 1931 twenty-seven grant-in-aid primary schools and two secondary schools. There were 2,906 children attending schools.

In 1931 the revenue of the islands amounted to Rs. 692,412 and the expenditures amounted to Rs. 814,351. The chief products include coconuts, cinnamon, patchouli and other essential oils. Mangrove bark, bird's egg yolk and phosphate deposits represent other interests on some of the islands. The imports for 1930 amounted to Rs. 1,626,077 and for 1931 to Rs. 1,069,958. The principal items included rice, cotton goods, sugar, wheat flour, gunny bags, sheet iron, kerosene and lentils. Exports included such items as copra, cinnamon oil, patchouli oil and guano. There were 214,414 tons of shipping (mainly British) entered and cleared. Current money consists of rupees and notes.

Dr. John T. Bradley has furnished us with information regarding tropical and other diseases in this group of islands and, at the time of his report, he estimates the population at around 29,000. He states that the average temperature is 80°F. and that there is, on the average, about 100 inches of rainfall each year. Altogether he lists some 92 islands in this group. Concerning the diseases present Dr. Bradley states that malaria is sporadic only at Aldabra, dengue fever is epidemic, leprosy is imported from Mauritius and is apparently increasing. There are apparently no very pressing public health problems.

Of some interest is a disease which Dr. Bradley mentions under the local name of "De Clokey" (decoquee) which, in his opinion, resembles pellagra and scurvy but is neither of these two diseases. However, he believes that this disease is undoubtedly a deficiency disease. Beriberi is also apparently quite common in the outlying islands but is not seen in the main islands. Weil's disease is also apparently common, particularly since the war.

The Medical and Sanitary Reports from the British Colonies, Protectorates and Dependencies for 1931 (*Trop. Dis. Bull.*, Supplement) states that there were 882 admissions to the hospital with 29 deaths, seven of which

were due to bacillary dysentery; 2,514 patients were treated in the dispensaries. The outbreak of dysentery referred to above occurred in October at Anseaux-Pins and 73 patients were hospitalized on this account; 67 of these were pure bacillary dysentery and 6 were mixed amoebic and bacillary dysentery. Investigations seemed to indicate that the infection was introduced by a carrier from East Africa. In regard to malaria this report states that in 1929 the infection was found at Aldabra Islands but a recent investigation failed to find the vector *A. costalis* there. In regard to leprosy the report states that there were 84 segregated lepers in 1931 or 13 more than in 1930. In 1931 a total of 11,781 persons received mass treatment for hookworm.

Referring to the Annual Report on the Medical Department for the year 1931 for the Colony of Seychelles several items regarding climate in these islands are of interest. The report states that the island of Mahe, though situated close to the equator, experiences very little of the hot and depressing weather common to equatorial regions. The South East monsoon is regarded as more pleasant than the North West monsoon. Relative humidity is 76 per cent and the minimum temperature record at sea level is 68°F. The mean temperature for the ten year period, 1921–1930, was 79.9°F. (mean of 12 monthly means) and the total average precipitation for this period was 99.44 inches.

Further interesting data regarding health conditions in Seychelles may be found in the *Tropical Diseases Bulletin* (Supplements), Vols. 28, 29 and 30 for 1931, 1932 and 1933.

TABLE 39

COLONY OF SEYCHELLES

Reported by: Dr. John T. Bradley, Chief Medical Officer

Period: Questionnaire dated January, 1934

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Sporadic. Only at Aldabra		+	
Subtertian			80		
Blackwater Fever	−				−
Piroplasmosis	−				−
Leishmaniasis	+		R		
Kala-azar	−				−
Oriental Sore	+		R		
Espundia	−				−
Relapsing Fever	−				−
Rat-Bite Fever	+		5		
Yellow Fever	−				−
Dengue Fever	+	Epidemic			

TABLE 39

COLONY OF SEYCHELLES—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Pappataci Fever	−				−
Plague	−				−
Typhus Fever	−				−
Trypanosomiasis	−				−
Oroya Fever	−				
Undulant Fever	−				
Leprosy	+	Imported from Mauritius	90+		+
Syphilis	+		C		+
Yaws	−				−
Granuloma Inguinale	−				−
Tularemia	−				−
Smallpox	+[1]	Imported			
Amebiasis	+		R		
Balantidium Dysentery	+		R		
Bacillary Dysentery	+	Introduced epidemics	0		
Cholera	−				−
Typhoid Fever	−				−
Para-Typhoid Infection	−				−
Sprue	−				−
Hill Diarrhea	−				−
Ascariasis	+	General	C		
Hookworm Disease	+	General	C		+
Giardia Enteritis	−				−
Trichomonas Infection	−				−
Tropical Liver	+		6		
Infantile Biliary Cirrhosis	−				−
Schistosomiasis	−				−
Filiariasis	+		C	+	+
F. bancrofti	+			+	
Loa Loa	−				−
O. volvulus	−				−
F. perstans	−				−
F. demarquayi	−				−
F. ozzardi	−				−
Juxta-Articular Nodules	+		R		
Elephantiasis	+	Laborers	C		
Chyluria	+		R		
Dracontiasis	−				−
Paragonimiasis	−				−
P. ringeri	−				−
P. westermanii	−				−
P. compactus	−				−
Clonorchiasis	−				−
C. sinensis	−				−
O. felineus	−				−
Fasciolopsis	−				−
F. hepatica	−				−
F. buskii	−				−
Cestodes	+				
Tænia saginata	−				−
Tænia solium	+		R		
Dibothriocephalus latus	−				−
Hymenolepis nana	−				−
Sparganum mansoni	−				−
S. prolifer	−				−

TABLE 39

COLONY OF SEYCHELLES—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Trichuris	+	General	C		
T. trichiura	+	General	C		
H. heptaticus	−				−
Trichinelliasis	−				−
T. spiralis	−				−
Climatic Bubo	−				−
Rhinosporidosi	−				−
Goundou	−				−
Ainhum	−				−
Big Heel	−				−
Myiasis	−				−
Leech Infection	−				−
Leucodermia	+		R		
Cheloid	+				
Ulcus Tropicum	+		C		
Albinism	+	1 Negro family	4[2]		
Septic Sore	+		C		
Pemphigus Contagiosus	−				−
Ulcerating Dermatitis	+		R		
Madura Foot	+		2[2]		
Blastomycosis	−				−
Mossy Foot	−				−
Pityriasis Nigra	−				−
Pityriasis Versicolor	−				−
Dhobie's Itch	+		C		
Seborrhoea	+		R		
Pinta	−				−
Tina Imbricata	−				−
Trichosporosis	−				−
Trichomycosis	−				−
Acarine Dermatomycosis	−				−
Epidemic Dropsy	−				−
Peripheral Neuritis	+		R		
Beriberi	+	Outlying islands	C		
Pellagra	−				−
Scurvy	−				−
Heat Stroke	−				−

II. DISEASES USUALLY CONSIDERED AS OF TEMPERATE CLIMATES

Scarlet Fever	−				−
Diphtheria	−				−
Measles	+	Introduced epidemics			
German Measles	+	Introduced epidemics			
Varicella	+	Endemic	C		
Epidemic Meningitis	−				−
Infantile Paralysis	−				−
Epidemic Encephalitis	−				−
Syphilis of Central Nervous System	+		R		
Influenza	+	Epidemic	R		
Common Cold	+	At change of monsoons	C		
The Pneumonias	+	During wet seasons	C		
Cholelithiasis	+		R		
Urinary Calculus	+		R		

TABLE 39

COLONY OF SEYCHELLES—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Nephritis	+		C		
Diabetes	+		C		
Pernicious Anemia	−				−
Osteomyelitis	+		R		
Tuberculosis	+				
Pulmonary	+	Poor whites; urban	C		−
Bone	+		R		
Skin	+		R		
Malignancy (all forms)	+		C		
Trachoma	−				−
Weil's Disease	+	Since war	C		
Tsutsugamushi Disease	−				−
Rabies	−				−
Unusual Skin Disease	−				−
Thyroid Disease (Goiter)	+		R		
Rheumatic Fever	+		R		
Arthritis (Nonspecific)	+		C		
Rickets	−				−
Dental Caries	+				
Toxemias of Pregnancy	+		5		
Cardio-Vascular Diseases	+		C		
Hypertension	+		C		
Valvular Lesions	+		C		
Aneurysm	+		C		
Myocarditis	+		C		

Reported by: Annual Report of Medical Department (from Hospital Records) *Period:* 1931

I. Tropical Diseases

Malaria	+	Imported	4	+	−
Rat-Bite Fever				+	
Dengue Fever	+	Endemic and sporadic	0	+	
Trypanosomiasis	+		C	+	
Leprosy	+		84		+
Syphilis	+		13		+
Yaws					−
Granuloma Inguinale					−
Tularemia					−
Amebiasis	+	Certain districts	13		
Bacillary Dysentery	+	Epidemic, Anse-aux-Pins	73		
Cholera	−				−
Typhoid Fever					−
Para-Typhoid Infection					−
Sprue					−
Hill Diarrhea					−
Ascariasis					−
Hookworm Disease	+		727		+
Infantile Biliary Cirrhosis	−				
Schistosomiasis	−				−
Elephantiasis	+	Outlying districts	0		
Dhobie's Itch	+		1		
Beriberi	+	Outlying islands	0		

TABLE 39

COLONY OF SEYCHELLES—*Concluded*

II. Diseases Usually Considered as of Temperate Climates

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Varicella	+	Epidemic and sporadic	0		
Epidemic Meningitis	+		1[3]		
Influenza	+		C; 25		
The Pneumonias	+		9[4]		
Nephritis	+		4		
Diabetes	+		8		
Osteomyelitis	+		2		
Tuberculosis	+	Poor classes	C		
Pulmonary	+		18[3]		
Malignancy (all forms)	+		2		
Arthritis (Nonspecific)	+		9		
Cardio-Vascular Diseases	+				
Myocarditis	+		11[3]		

[1] Not for 35 years.
[2] In 30 years.
[3] Deaths.
[4] One of the principal causes of death.

PALESTINE

Since the World War Palestine has been under British administration although, in 1920, a Civil Administration replaced the Military Administration. In 1927 the High Commissioner made regulations for the organization of the Jewish population as a religious community. There is a Moslem Supreme Council in control of Moslem religious affairs. English, Arabic and Hebrew are the official languages of Palestine.

An area of about 10,000 square miles in Palestine is under British Mandate. The population, in 1931, was 1,035,154 of whom 759,952 were Moslems, 175,006 Jews, 90,607 Christians and 9,589 others. The country is divided into three districts, i.e., Southern (Jaffa), Northern (Haifa) and Jerusalem. The chief town or city is Jerusalem, which has a population of 90,407 (1931).

In 1931, based upon a registered population of 872,165, there were 46,011 births and 21,149 deaths and an infantile mortality per 1,000 births of 170.1. During this year the Government maintained 308 schools (12 secondary) with 24,288 students, mostly Moslems. There is also a Teachers Training College and a Law School in Jerusalem. The Jewish Agency controlled, in 1932, 256 schools with 22,486 students and 1,233 teachers. There are also other institutions such as a School of Music, Arts and Crafts Institute and Schools of Agriculture. In 1925 the Hebrew University on Mount Scopus, Jerusalem, was established and now has nearly 200 students.

The revenue of Palestine for 1931 amounted to £2,333,895 and the expenditures amounted to £2,374,867. The country is essentially an agricultural country. The area under British administration produces wheat, barley, durra, olives, lentils, tobacco, and various livestock, including cattle, sheep, goats, camels, horses, donkeys and buffaloes. The principal industry of export is that of wine-making. Oranges are exported in fair quantity. The principal imports include rice, wheat, wheat flour, sugar, cattle, dishes, coal, wood and timber, iron, cotton goods, woolens, garments, boots and shoes, kerosene and motor cars.

According to the Annual Report of the Department of Health for 1932, the following diseases were of public health importance: Malaria, relapsing fever, syphilis, amebiasis, bacillary dysentery, typhoid fever, hookworm diseases, schistosomiasis and the respiratory infections, including tuberculosis. Further data are available in Table 40. Additional information may also be found in the *Tropical Diseases Bulletin* (Supplements), Vols. 28 to 31, for 1931 and 1934.

No data are available to us concerning weather conditions in Palestine.

TABLE 40

PALESTINE

Reported by: Annual Report of the Department of Health *Period:* 1932

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General	2,984[1]	+	+
Benign tertian	+	Jerusalem, Jaffa, Haifa	207	+	+
Quartan	+		6	+	
Subtertian	+		103	+	+
Leishmaniasis	+		3	+	
Oriental Sore	+	Outbreak Beit Jala			
Espundia	+		13[2]		
Relapsing Fever	+		13	+	
Pappataci Fever	+	British	6	+	
Plague	+	Haifa, Jaffa	0	+	+
Typhus Fever	+	Sporadic	30	+	
Undulant Fever	+		5	+	
Leprosy	+	Leper Hospital	21		
Syphilis	+	Widespread and endemic in Hebron dist.	936[3]		+
Smallpox	+		0		
Amebiasis	+		379[2]		+
Bacillary Dysentery	+	Jerusalem, Haifa, Tel Avin	405[4]		+
Cholera	+		0		+
Typhoid Fever	+	Jews, Europeans; outbreak in Arab villages	1,215		+

TABLE 40

PALESTINE—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Para-Typhoid Infection....	+		220		
Ascariasis.....	+		924[2]		
Hookworm Disease.....	+	Jaffa plains	546[2,5]		+
Giardia Enteritis.....	+		434[2]		
Trichomonas Infection.....	+		410[2]		
Schistosomiasis.....	+		31	+	
Urinary.....	+		31[2]	+	
Cestodes.....	+			+	
Tænia saginata.....	+		132[2]	+	
Dibothriocephalus latus...	+		2[2]	+	
Hymenolepis nana.....	+		77[2]		
Trichuris.....	+		930[2]		
Ulcus Tropicum.....	+		2[6]		
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever.....	+	Jerusalem, Teo Aviv, Haifa	243		
Diphtheria.....	+		180		
Measles.....	+	Arabs especially	4,507		+
German Measles.....	+		0		
Varicella.....	+		544		+
Epidemic Meningitis.....	+	Jerusalem, Jaffa, Haifa Nazareth	5		
Infantile Paralysis.....	+	Jerusalem vicinity chiefly	16		
Epidemic Encephalitis....	+	Jerusalem	1		
Influenza.....	+	General	790		+
The Pneumonias.....	+	General	722		+
Diabetes.....	+	British	2		
Osteomyelitis.....	+	British	1		
Tuberculosis.....	+	Widespread. Arab villages. Jews	598[3]		+
Pulmonary.....	+	General	440		+
Bone.....	+		43		
Skin.....	+		21		
Malignancy (all forms)....	+		13		
Trachoma.....	+	General	9,237[7]		+
Rabies.....	+		5[8,9]	+	+
Rheumatic Fever.....	+		34		
Dental Caries.....	+		40[7]		
Cardio-Vascular Diseases..	+		36[7]		

[1] Figure represents "new patients attendances."
[2] Laboratory findings.
[3] Incidence far greater than the figures indicate.
[4] "Dysentery."
[5] Near Jaffa, 1336 stools examined and 464 were positive.
[6] "Epidemic ulcer."
[7] School children.
[8] Deaths.
[9] 1690 persons bitten and 1165 treatments carried out completely
Actinomycosis present, 1 case.
Heterophyes heterophyes present, 37 cases (laboratory findings).

TRANSJORDAN

Transjordan is one of the mandated territories of the British Government and is governed by a local Arab Administration. The country is covered by the Palestine Mandate. The High Commissioner for Palestine, since 1928, has also been High Commissioner for Transjordan. The population of Transjordan is variously estimated as between 240,000 and 260,000. The resources of the country are agricultural and pastoral products. Phosphate deposits and potash are present and oil is probably to be found in the southern area. The estimated revenue of the country for 1931–32 was £348,690 and the expenditures were £357,028.

We have been furnished information regarding health conditions in Transjordan by Dr. Halim Abu-Rahmah. Among the important diseases present and of public health importance are malaria, typhus fever, syphilis, typhoid fever, ascariasis, trachoma and tuberculosis. Occasional cases of relapsing fever are seen. Leprosy is regarded as rare. Oriental sore, the dysenteries, etc., are seen in a small number of cases most of the time.

No data are available regarding weather conditions in "World Weather Records."

Further data regarding health conditions in Transjordan are available in *Tropical Diseases Bulletin* (Supplements), Vols. 28, 29 and 30 for 1931, 1932 and 1933.

TABLE 41

TRANSJORDAN

Reported by: Dr. Halim Abu-Rahmeh *Period:* Questionnaire dated January, 1934

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Jordan Valley and Azraq	15,000	+	+
Benign tertian	+	Jordan Valley and Azraq	75%	+	+
Quartan	+		2	+	
Subtertian	+	Jordan Valley and Azraq	25%	+	+
Blackwater Fever	−				−
Piroplasmosis	−				−
Leishmaniasis	+				
Kala-azar	+		R		
Oriental Sore	+	Jordan Valley	20–30		−
Espundia	−				−
Relapsing Fever	+		2–3	+	+
S. recurrentis	+		R		
S. duttoni	−				−
S. venezuelense	−				−
S. berberum	−				−

TABLE 41

TRANSJORDAN—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Rat-Bite Fever	−				−
Yellow Fever	−				−
Dengue Fever	+		R		
Pappataci Fever	+	Urban, summer			
Plague	−				−
Typhus Fever	+	Sporadic, southern part	20–30	+	+
Trypanosomiasis	−				−
African Human	−				−
T. gambiense	−				−
T. rhodesiense	−				−
South American	−				−
T. cruzi	−				−
Oroya Fever	−				−
Undulant Fever	+		2–3		
Leprosy	+		R		
Syphilis	+	South	200–250	−	+
Yaws	−				−
Granuloma Inguinale	−				−
Tularemia	−				−
Smallpox	+	General	9		+
Amebiasis	+	General	10[1]		+
Balantidium Dysentery	+	General	2[1]		
Bacillary Dysentery	+	General	30[1]		+
Cholera	−				−
Typhoid Fever	+	Urban	100–150		+
Para-Typhoid Infection	+	Urban	40–50		+
Sprue	−				−
Hill Diarrhea	−				−
Ascariasis	+	General	?		
Hookworm Disease	−				−
Giardia Enteritis	+		?		
Trichomonas Infection	+		?		
Tropical Liver	+		R		
Infantile Biliary Cirrhosis	+		R		
Schistosomiasis	+				
Urinary	+	Imported	2–3	−	+
Intestinal	−				−
Visceral	−				−
Far Eastern	−				−
Filariasis	−				−
F. bancrofti	−				−
Loa Loa	−				−
O. volvulus	−				−
F. perstans	−				−
F. demarquayi	−				−
F. ozzardi	−				−
Juxta-Articular Nodules	−				−
Elephantiasis	−				−
Chyluria	−				−
Dracontiasis	−				−
D. medinensis	−				−
Paragonimiasis	−				−
P. ringeri	−				−
P. westermanii	−				−
P. compactus	−				−

TABLE 41

TRANSJORDAN—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Clonorchiasis	−				−
C. sinensis	−				−
O. felineus	−				−
Fasciolopsis	−				−
F. hepatica	−				−
F. buskii	−				−
Cestodes	+				
Tænia saginata	+	Urban	200–300		
Tænia solium	−				−
Dibothriocephalus latus	−				−
Hymenolepis nana	+		2–3		
Sparganum mansoni	−				−
S. prolifer	−				−
Trichuris	+				
T. trichiura	+				
H. heptaticus	−				−
Trichinelliasis	−				−
T. spiralis	−				−
Climatic Bubo	−				−
Rhinosporidiosis	−				−
Goundou	−				−
Ainhum	−				−
Big Heel	−				−
Myiasis	−				−
Subcutaneous	−				−
Blood sucking	−				−
Intestinal	−				−
Larva Migrans	−				−
Leech Infection	−			+	−
Leucodermia	−				−
Cheloid	+		R		
Ulcus Tropicum	−				−
Albinism	+		R		
Septic Sore	+	Jordan Valley	R		
Pemphigus Contagiosus	+[2]	Infants and children	5–10%		−
Ulcerating Dermatitis	−				−
Madura Foot	−				−
Other Mycetoma	−				−
Blastomycosis	−				−
Mossy Foot	−				−
Pityriasis Nigra	−				−
Pityriasis Versicolor	+		R		
Dhobie's Itch	−				−
Seborrhoea	+		R		
Pinta	−				−
Tinea Imbricata	+		R		
Trichosporosis	−				−
Trichomycosis	−				−
Acarine Dermatomycosis	+		R		
Epidemic Dropsy	−				−
Peripheral Neuritis	+		R		
Beriberi	−				−
Pellagra	−				−
Scurvy	−				−
General Malnutrition or Undernutrition	+		R		
Heat Stroke	+		R		

TABLE 41

TRANSJORDAN—*Continued*

II. Diseases Usually Considered as of Temperate Climates

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Scarlet Fever	+		R		
Diphtheria	+		R		
Measles	+	General. Epidemic	?		+
German Measles	+		R		
Varicella	+				−
Epidemic Meningitis	−				−
Infantile Paralysis	+		R		
Epidemic Encephalitis	+		R		
Syphilis of Central Nervous System	+		R		
Influenza	+	General. Epidemic	?		
Common Cold	+				
The Pneumonias	+		300–400		
Cholelithiasis	+		R		
Urinary Calculus	+	General	100–200		
Nephritis	+	General	R		
Diabetes	+		R		
Pernicious Anemia	+		R		
Osteomyelitis	+		R		
Tuberculosis	+	General	?		+
Pulmonary	+	General			+
Bone	+	General	?		+
Skin	+		R		−
Malignancy (all forms)	+	General	10		−
Trachoma	+	Urban	?		+
Weil's Disease	−				−
Tsutsugamushi Disease	−				−
Rabies	+	Villages	1–2	+	+
Unusual Skin Disease	−				−
Thyroid Disease (Goiter)	−				−
Rheumatic Fever	+		R		−
Arthritis (Nonspecific)	+		R		−
Rickets	+		R		−
Dental Caries	+	General	C[3]		
Toxemias of Pregnancy	+		R		
Cardio-Vascular Diseases	+	General			
Hypertension	+		C		
Valvular Lesions	+		R		
Aneurysm	+		R		
Myocarditis	+		R		

Reported by: Annual Report of the Department of Health *Period:* 1932

I. Tropical Diseases

Malaria	+		1,283	+	+
Leishmaniasis	+		14	+	
Relapsing Fever	+		3	+	
Yellow Fever	+		0		
Plague	+		0		
Typhus Fever	+	Kerak, Amman and Madaba	19	+	
Undulant Fever	+		0		
Syphilis	+		171		

TABLE 41

TRANSJORDAN—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Smallpox	+		9		
Amebiasis	+		17		
Balantidium Dysentery	+				
Bacillary Dysentery	+	Amman and Es-Salt	13[4]		
Cholera	+		0		
Typhoid Fever	+		94		
Para-Typhoid Infection	+		52		
Ascariasis	+		29		
Giardia Enteritis	+		3		
Trichomonas Infection	+		27		
Schistosomiasis	+			+	
Urinary	+		2	+	
Trichuris	+				
T. trichiura	+		23		
Scurvy	+		3		
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+		1		
Diphtheria	+		3		
Measles	+	Sporadic except Tafila	425		+
Varicella	+		55		
Epidemic Meningitis	+		0		
Infantile Paralysis	+		1		
Epidemic Encephalitis	+		1		
Influenza	+		615		+
The Pneumonias	+		143		
Tuberculosis	+		204		+
Trachoma	+	General	824[5]		+
Rabies	+		22	+	

[1] Few stools examined outside Amman where these cases occurred.
[2] Includes impetigo contagiosus.
[3] Rare among nomads.
[4] Undefined types of dysentery, 122.
[5] School children.

CYPRUS

The island of Cyprus in the Mediterranean Sea north of the Tropic of Cancer has an area of 3,584 square miles. This island is 40 miles off the coast of Asia Minor and 60 miles from the coast of Syria. The island has been under the administration of Great Britain since 1878. The population in 1931 was estimated at 347,959, including Moslems, Christians, Maronites, Armenians and Anglicans. Each race has its own schools and in 1931 there were over 1000 elementary schools. In addition there are about 18 secondary schools. In 1931 there were 10,523 births registered and 5,950 deaths. The Annual Medical and Sanitary Report for 1932 estimates the population at 352,340 and on this basis the birth rate was 28 and the death rate was 16. The infantile mortality rate for this year was 155.

The total revenue for Cyprus in 1931 was £728,396 and the expenditures were £743,076. The imports of merchandise amounted in 1931 to £1,414,101 and the exports to £1,101,706. There were 2,269,249 tons of shipping entered and cleared. The chief imports were beans and peas, beer and ale, butter, coffee, confectionery, flour, fish, milk, oils, sugar, tobacco, asphalt, coal, iron and steel bars, joists, rods, petrol, petroleum, timber, cotton manufactures, leather goods and many other manufactures such as clothing, motor cars, hardware, electrical equipment, etc. The chief exports were animals, beans and peas, carobs, cheese, wheat, almonds, grapes, lemons and oranges, pomegranates, raisins, wines, tobacco, raw silk and spices.

Dr. G. C. Strathairn, Director of Health, has kindly furnished us with first hand information regarding health conditions on the island and much detailed information is to be found in his last annual report for 1932. Of chief importance from a public health standpoint are malaria and trachoma. Dengue fever and pappataci fever are both present, as well as bacillary dysentery and the typhoid infections. Reference to Table 42 will give further information regarding the incidence of other diseases.

Of interest is an outbreak of solanine poisoning which affected about 50 persons in the Morphou area. This outbreak, first attributed to dysentery, was found to be caused by the consumption of green potato plants which contained comparatively large amounts of the alkaloid, solanine. Investigations seem to indicate that the solanine content of the Irish potato (which is principally produced in the island) diminishes as the altitude increases and indicates the influence of climate as conditioned by altitude.

No data are available concerning weather conditions in "World Weather Records."

TABLE 42

CYPRUS

Reported by: G. C. Strathairn, Director *Period:* Questionnaire dated September, 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+			+	+
Benign tertian	+	General	10,170	+[1]	+
Quartan	+	General	854	+[1]	+
Subtertian	+	General	1,495	+[1]	+
Blackwater Fever	+	Valley			
Piroplasmosis	−				−
Leishmaniasis	−			+	−
Kala-azar	−				−
Oriental Sore	−				−
Espundia	−				−

TABLE 42

CYPRUS—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Relapsing Fever	−				−
S. recurrentis	−				−
S. duttoni	−				−
S. venezuelense	−				−
S. berberum	−				−
Rat-Bite Fever	−				−
Yellow Fever	−				−
Dengue Fever	+			+	
Pappataci Fever	+			+	
Plague	−				−
Typhus Fever	+	1919 Russians imported	0		
Trypanosomiasis	−				−
African Human	−				−
T. gambiense	−				−
T. rhodesiense	−				−
South American	−				−
T. cruzi	−				−
Oroya Fever	−				−
Undulant Fever	−				−
Leprosy	+		90		
Syphilis	+		746		
Yaws	−				−
Granuloma Inguinale	−				−
Tularemia	−				−
Smallpox	[2]				
Amebiasis	+		29		
Bacillary Dysentery	+	General	388		
Cholera	−			−	−
Typhoid Fever	+	General	116		
Para-Typhoid Infection	+	General	24		
Sprue	−(?)		3		
Hill Diarrhea	−(?)		22		
Ascariasis	+		326		
Hookworm Disease	−				−
Giardia Enteritis	+		?		
Trichomonas Infection	−				−
Tropical Liver	−				−
Infantile Biliary Cirrhosis	−				−
Schistosomiasis	+	One area, Syrianochori	14		
Urinary	+		14		
Intestinal	−				−
Visceral	−				−
Far Eastern	−				−
Filariasis	−				−
F. bancrofti	−				−
Loa Loa	−				−
O. volvulus	−				−
F. perstans	−				−
F. demarquayi	−				−
F. ozzardi	−				−
Juxta-Articular Nodules	−				−
Elephantiasis	−				−
Chyluria	−				−

TABLE 42

CYPRUS—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Dracontiasis	−				−
D. medinensis	−				−
Paragonimiasis	−				−
P. ringeri	−				−
P. westermanii	−				−
P. compactus	−				−
Clonorchiasis	−				−
C. sinensis	−				−
O. felineus	−				−
Fasciolopsis	−				−
F. hepatica	−				−
F. buskii	−				−
Cestodes	+		52		
Climatic Bubo	?		204		
Ainhum	−				−
Big Heel	−				−
Myiasis	−				−
Subcutaneous	−				−
Blood sucking	−				−
Intestinal	−				−
Larva Migrans	−				−
Leech Infection				+	
Leucodermia	−				−
Cheloid	−				−
Ulcus Tropicum	−				−
Albinism	−				−
Septic Sore	−				−
Pemphigus Contagiosus	−				−
Ulcerating Dermatitis	−				−
Madura Foot	−				−
Other Mycetoma	−				−
Blastomycosis	−				−
Mossy Foot	−				−
Pityriasis Nigra	−				−
Pityriasis Versicolor	+				
Dhobie's Itch	−				−
Seborrhoea	+				
Pinta	−				−
Tinea Imbricata	−				−
Trichosphorosis	−				−
Trichomycosis	−				−
Acarine Dermatomycosis	−				−
Epidemic Dropsy	−				−
Peripheral Neuritis	−				−
Pellagra	−				−
Scurvy	−				−
General Malnutrition or Undernutrition	−				−
Heat Stroke	−				−
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+		1		
Diphtheria	+		156		
Measles	+		12		

TABLE 42

CYPRUS—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
German Measles	+		—		
Varicella	+		153		
Epidemic Meningitis	+		14		
Infantile Paralysis	+		12		
Epidemic Encephalitis	+		9		
Syphilis of Central Nervous System	+				
Influenza	+		1,091		
Common Cold	+				
The Pneumonias	+		749		
Cholelithiasis	−				
Urinary Calculus	+		125		
Nephritis	+		345		
Diabetes	+		28		
Pernicious Anemia	+		301		
Osteomyelitis	+				
Tuberculosis	+		250		
Pulmonary	+				
Bone	+		8		
Skin	+		17		
Malignancy (all forms)	+		251		
Trachoma	+	Plains	12,249		+
Weil's Disease	−				−
Tsutsugamushi Disease	−				−
Rabies	−				−
Unusual Skin Disease	−				−
Thyroid Disease (Goiter)	+ (?)		11		
Rheumatic Fever	+		2,399		
Arthritis (Nonspecific)	+		335		
Rickets	+		5		
Dental Caries	+		19,242		
Toxemias of Pregnancy	+				
Cardio-Vascular Diseases	+		268		
Hypertension	+				
Valvular Lesions	+		156		
Aneurysm	+				
Myocarditis	+		111		

Reported by: Annual Medical and Sanitary Report *Period:* 1932

I. Tropical Diseases

Malaria	+		12,976	+	+
Benign tertian	+		10,170	+	+
Quartan	+		854	+	+
Subtertian	+		1,495	+	+
Blackwater Fever	+		0		
Leishmaniasis	+		2		
Kala-azar	+		0		
Espundia	+		2		
Relapsing Fever	+		0		
Yellow fever	+		0		
Dengue Fever	+		0		
Pappataci Fever	+		0		
Plague	+		0	+	

TABLE 42

CYPRUS—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Typhus Fever	+		0		
Trypanosomiasis	+		9		
African Human	+		0		
Undulant Fever	+		2	+	
Leprosy	+		100		+
Syphilis	+		746		+
Yaws	+		0		
Smallpox	+		0		
Amebiasis	+		29		
Balantidium Dysentery	+				
Bacillary Dysentery	+		388[3]		+
Cholera	+		0		
Typhoid Fever	+		109		+
Para-Typhoid Infection	+		13		
Sprue	+		3		
Ascariasis	+		326		
Hookworm Disease	+		0		
Giardia Enteritis	+		2		
Schistosomiasis	+		14	+	
Urinary	+		14	+	
Elephantiasis	+		3		
Chyluria	+		3		
Dracontiasis	+		3[4]	+	
Paragonimiasis	+				
Clonorchiasis	+				
Fasciolopsis	+				
Cestodes	+			+	
Tænia saginata	+	}	52	+	
Tænia solium	+	}		+	
Trichuris	+		7		
Trichinelliasis	+				
Myiasis	+				
Tinea Imbricata	+		73[5]		
Acarine Dermatomycosis	+		315[6]		
Epidemic Dropsy	+		0		
Beriberi	+		0		
Pellagra	+		0		
Scurvy	+		0		
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+		1		−
Diphtheria	+		1,091		+
Measles	+		12		−
German Measles	+		0		−
Varicella	+		153		+
Epidemic Meningitis	+		14		−
Infantile Paralysis	+		6		−
Epidemic Encephalitis	+		7		−
Syphilis of Central Nervous System	+		0		−
Influenza	+		0		−
Common Cold	+		3,713		+

TABLE 42

CYPRUS—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
The Pneumonias	+		749		+
Cholelithiasis	+		17		
Urinary Calculus	+		125		
Nephritis	+		491		
Diabetes	+		23		
Pernicious Anemia	+		301		
Osteomyelitis	+		74		
Tuberculosis	+				+
Pulmonary	+		250		+
Bone	+		102		
Skin	+		17		
Malignancy (all forms)	+		260		
Trachoma	+		12,249		+
Weil's Disease	+		0		
Rabies	+		0		
Arthritis (nonspecific)	+		335		
Rickets	+		5		
Dental Caries	+		19,242[7]		+
Cardio-vascular Diseases					
Hypertension	+		458		
Valvular Lesions	+		155		
Aneurysm	+		0		
Myocarditis	+		111		

[1] *A. maculipennis, A. elutus, A. bifurcatus, A. hyrcanus, A. superpictus, A. multicolor.*
[2] Not since 1921.
[3] 188 undefined dysenteries.
[4] Cases of flukes.
[5] Taenia.
[6] Scabies.
[7] Including pyorrhoea.

GIBRALTAR

Gibraltar was ceded to Great Britain in 1713. The Rock of Gibraltar is a crown colony in the Province of Andalusia, Spain, and commands the entrance to the Mediterranean. The area of Gibraltar is just short of two square miles and there is a population (1931 census) of 21,372, including civil and military. The fixed civil population is estimated (1932) at 15,428. When this estimate was made there were 1,480 aliens. The civil population are mostly descendants of the Spanish and Italians. The birth-rate, in 1931, was 21.23 and the death-rate was 17.32. Religions are Catholic and Protestant. Education between years 5 and 14 is obligatory. In 1931–32 there were 2,700 students. The revenue for 1931 amounted to £151,415 and the expenditures amounted to £178,955. The trade of the port is chiefly transit.

There are no outstanding public health problems in Gibraltar, as judged from the Annual Medical and Sanitary Report for 1932. Among the

diseases which existed during 1932 were malaria, undulant fever, leprosy, syphilis, smallpox, bacillary dysentery, typhoid fever, chyluria, climatic bubo, septic sore, measles, the pneumonias and tuberculosis. Most of these diseases were present in such small numbers, however, as not to constitute a public health menance when under proper supervision. See Table 43 for further details. Health conditions in Gibraltar are also described in the *Tropical Diseases Bulletin* (Supplements), Vols. 29, 30 and 31 for 1932, 1933 and 1934.

Regarding weather conditions in Gibraltar, the mean pressure (29 inches plus) over a period of ten years, 1921–30, was 1.004. The mean temperature for the same period was 63.4°F. and the mean precipitation was 31.87 inches.

TABLE 43

GIBRALTAR

Reported by: Annual Medical and Sanitary Report *Period:* 1932

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+			+	
Benign tertian	+		2	+	
Quartan	+		0		
Subtertian	+		0		
Blackwater Fever	+		0		
Leishmaniasis	+				
Kala-azar	+		0		
Relapsing Fever	+		0		
Yellow Fever	+		0		
Dengue Fever	+		0		
Pappataci Fever	+		0		
Plague	+		0		
Typhus Fever	+		0		
Trypanosomiasis	+		0		
Undulant Fever	+		1	+	
Leprosy	+		2		
Syphilis	+		23		
Yaws	+		0		
Smallpox	+	Imported	1		
Amebiasis	+		0		
Bacillary Dysentery	+	Imported	1[1]		
Cholera	+		0		
Typhoid Fever	+		17		
Para-Typhoid Infection	+		2		
Sprue	+		0		
Ascariasis	+ (?)		?		
Hookworm Disease	+		0		
Schistosomiasis	+		0		
Elephantiasis	+		0		
Chyluria	+		1		
Dracontiasis	+		0		
Cestodes	+		0		

TABLE 43

GIBRALTAR—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Trichuris	+		0		
Trichinelliasis	+		0		
Climatic Bubo	+		8[3]		
Septic Sore	+		47[4]		
Acarine Dermatomycosis	+		1[5]		
Epidemic Dropsy	+		0		
Beriberi	+		0		
Pellagra	+		0		
Scurvy	+		0		
General Malnutrition or Undernutrition	+		1[6]		
Heat Stroke	+		0		
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+		12		
Diphtheria	+	Sporadic	14		
Measles	+	Widespread epidemic	779		+
German Measles	+		59		
Varicella	+		15		
Epidemic Meningitis	+		2		
Infantile Paralysis	+		1		
Epidemic Encephalitis	+		1		
Influenza	+		5		
Common Cold	+		1		
The Pneumonias	+		168		+
Cholelithiasis	+		0		
Urinary Caculus	+		3		
Nephritis	+		15		
Diabetes	+		3		
Pernicious Anemia	+		0		
Osteomyelitis	+		15[7]		
Tuberculosis	+		59		+
Pulmonary	+		49		+
Bone	+		7		
Malignancy (all forms)	+		22		
Trachoma	+		0		
Weil's Disease	+		0		
Rabies	+		0		
Thyroid Disease (Goiter)	+		2		
Rheumatic Fever	+		8[8]		
Rickets	+		2		
Dental Caries	+		8[9]		
Toxemias of Pregnancy	+		3		
Cardio-Vascular Diseases	+		27		
Hypertension	+		7		
Valvular Lesions	+		8		
Aneurysm	+		0		
Myocarditis	+		12		

[1] *B. dysenteriae* Flexner ("Sonne" strain).
[2] "Helminthic diseases are of no importance." [3] Nonspecific bubo.
[4] Figures includes impetigo and eczema. [5] Scabies. [6] "Hunger or thirst."
[7] Osteitis. [8] Acute rheumatism. [9] Includes diseases of the teeth or gums.

MALTA

Malta was annexed by Great Britain by the Treaty of Paris in 1814. The Maltese language is used generally, though English and Maltese are both taught in the schools. The total area of Malta, with Gozo and Comino, is 122 square miles. Malta is over 17 miles long and has an area of 95 square miles. The total population, according to the 1931 census, was 241,621. During this year the births numbered 7,804 and the deaths, 5,564. Valletta is the chief town and port. In 1931–32, there were 165 public schools with over 30,000 students, a university having 120 students, a Government high school for boys having 379 students, two Government secondary schools and 25 manual training schools. During the year mentioned the expenditure on elementary education amounted to £102,632, for secondary education, £11,461 and for the university, £10,080. In addition to the schools mentioned above, there are some 50 private schools, some of which receive state aid, and having over 3,500 students.

The revenue during 1931–32 amounted to £971,313 and the expenditures to £967,189. The imports during 1931 amounted to £3,714,530 and the exports to £499,055 (both including bullion and specie). The chief products are grains, vegetables, fruits and cotton. Over 43,000 acres are cultivated. Lace, filigree, cotton goods, beer and cigarettes are manufactured. Livestock and fishing are also important industries.

Among the diseases of public health importance, according to the Annual Report of the Health of the Maltese Islands for 1933, are leishmaniasis, undulant fever (1725 cases), leprosy (11 deaths), typhoid fever, trachoma, children's diseases, influenza, the pneumonias and tuberculosis. Further information may be found in Table 44. A discussion of health conditions in the Maltese Islands is presented in the *Tropical Diseases Bulletin* (Supplements), Vols. 29, 30 and 31 for 1932, 1933 and 1934.

No data concerning weather conditions are available in "World Weather Records."

TABLE 44

MALTA

Reported by: Annual Report of the Health of the Maltese Islands *Period:* 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+		4[1]	+	
Leishmaniasis	+		14[2]	+	
Plague	+		0		
Undulant Fever	+		1,725	+	+
Leprosy	+		11[3]		
Syphilis	+		1[3]		

TABLE 44

MALTA—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Smallpox	+		1		
Amebiasis	+		1[3]		
Bacillary Dysentery	+		1[4]		
Typhoid Fever	+	South East half of Islands	367[5]		+
Acarine Dermatomycosis	+		112[6]		
Heat Stroke	+		1[3]		
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+		29		
Diphtheria	+		135		+
Measles	+		35		
Varicella	+		162		+
Epidemic Meningitis	+		11		
Infantile Paralysis	+		4		
Epidemic Encephalitis	+	Msida and Pietà	1[3]		
Influenza	+		182		+
The Pneumonias	+		287		+
Nephritis	+		224[3]		
Diabetes	+		117[3]		
Pernicious Anemia	+		4[3]		
Osteomyelitis	+		5[3]		
Tuberculosis	+		245		+
Pulmonary	+		210		+
Bone	+		3[3]		
Malignancy (all forms)	+		158[3]		+
Trachoma	+		329[7]		+
Rheumatic Fever	+		9[3]		
Rickets	+		4[3]		
Toxemias of Pregnancy	+		1[3]		
Cardio-Vascular Diseases	+				
Hypertension	+		53[3]		
Valvular Lesions	+		149[3]		

[1] All figures include Malta, Gozo, the Garrison and Navy and Merchant shipping.
[2] Figure represents positive spleen smears for "leishmaniasis infantum."
[3] Deaths.
[4] Listed as dysentery.
[5] Enteric fever.
[6] Scabies.
[7] Figure is "notified incidence" but 2466 patients were treated for trachoma, of which 1359 were school children.

PART THREE

THE BRITISH EMPIRE (*Continued*)

SARAWAK

Sarawak, in Borneo, has an area of about 50,000 square miles and a coast line of 500 miles. In 1888 Sarawak was recognized as an independent state under the protection of Great Britian. The population is estimated at 475,-000 Malays, Dyaks, Kayans, Kenyahs, Muruts, Chinese and others. The capital is Kuching, about 23 miles inland on the Sarawak River. Churches and schools are present in the capital. The revenue in 1931 amounted to $4,342,909 and the expenditures amounted to $5,466,366. Coal and oil are present. The imports, in 1931, amounted to $10,385,056 and the exports amounted to $17,414,672. The principal exports are sago flour, pepper, rubber, gutta jelutong and gutta-percha, scutch, benzine, kerosene, fuel oil, crude oil, fish, rattans and damar. Trade is mostly with Singapore. Shipping entered and cleared in 1931 was 1,377,076 tons.

According to the health report for 1931 the following diseases were among those reported in Sarawak: malaria, dengue fever, leprosy, syphilis, yaws, amebiasis, bacillary dysentery, typhoid fever, ascariasis, hookworm disease, filariasis, beriberi and the usual respiratory diseases, including tuberculosis. See Table 45 for further information.

"World Weather Records" contains no data relative to climatic conditions in Sarawak.

TABLE 45

SARAWAK

Reported by: Public Health Report *Period:* 1931

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Widespread	285	+	+
Benign tertian	+		131	+	+
Quartan	+		16	+	+
Subtertian	+		138	+	+
Dengue Fever	+	Europeans	3	+	
Leprosy	+		27		
Syphilis	+		302[1]		+
Yaws	+		4,686[2]		+
Amebiasis	+		34		

TABLE 45

SARAWAK—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Bacillary Dysentery	+	Sporadic 3rd division	60		
Typhoid Fever	+	Sporadic	6		
Ascariasis	+	Sibu mostly	112[3]		
Hookworm Disease	+		32[3]		
Filariasis	+	General hospital. Sarawak rangers	4	+	
Cestodes	+				
Hymenolepis nana	+	Sibu	1		
Trichuris	+	Sibu	27		
Myiasis	+				
Larva Migrans	+	Europeans	1		
Tinea Imbricata	+	Sarawak police	1		
Beriberi	+		69		+
Scurvy	+	Sibu	1[4]		
II. Diseases Usually Considered as of Temperate Climates					
Varicella	+	General hospital	1[4]		
Influenza	+	Sarawak rangers and police	45		
The Pneumonias	+		20		
Cholelithiasis	+	Sarawak police	1		
Urinary Calculus	+		1[4]		
Nephritis	+		49		
Diabetes	+	Sarawak police	1		
Pernicious Anemia	+	Sarawak police	1		
Osteomyelitis	+	Sarawak police	1		
Tuberculosis	+				
Pulmonary	+		92		+
Malignancy (all forms)	+		15		
Trachoma	+	Sarawak ranger	1		
Weil's Disease	+		2		
Arthritis (Nonspecific)	+	Sarawak rangers and police	3		
Dental Caries	+	Sarawak rangers and police	3		
Cardio-Vascular Diseases	+				
Valvular Lesions	+	Pauper's camp, 3rd division	5		

[1] Positive Wassermann reactions at Kuching laboratory.
[2] Refers to number N.A.B. injections given.
[3] Of 1422 persons examined (Kuching Lab.) 14 per cent were positive for hookworm, 23 per cent positive for ascaris and 10 per cent had both.
[4] Deaths.

STATE OF BRUNEI (BORNEO)

Since 1888 the State of Brunei has, with Sarawak, been under the protection of Great Britain. In 1906 the Sultan of Brunei turned over the government to a British Resident. In 1931 the new Sultan assumed power when he became of age. The area of Brunei is approximately 2,500 square miles and the population, in 1931, was 30,135, of which nearly 27,000 were Malays and

Bornean races. Brunei is the principal town with a population of 10,453. In 1931 there were 10 vernacular schools with nearly 600 students.

The revenue, in 1931, was £39,901, the expenditures, £37,659, the imports, £255,910 (mainly tobacco, piece goods and machinery) and the exports, £58,508 (chiefly cutch and rubber). Jelutong and sago are also produced.

Among the diseases of public health importance, according to the annual report of the medical department for 1933, are malaria, yaws, amebiasis, bacillary dysentery, ascariasis, hookworm disease, beriberi and respiratory infections. Further information concerning health conditions in Brunei may be found in the *Tropical Diseases Bulletin* (Supplements), Vols. 30 and 31 for 1933 and 1934; see also Table 46.

Regarding weather conditions in North Borneo, the mean temperature for the ten year period 1921–30, was 81.3°F. and the mean precipitation for the same period was 139.59 inches (all data collected at Sandakan). In Brunei the climate is hot and moist though the nights are cool.

TABLE 46

STATE OF BRUNEI

Reported by: Annual Report on the Medical Department *Period:* 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Mostly rural districts	927	+	+
Benign tertian	+		5	+	
Quartan	+		3	+	
Subtertian	+		4	+	
Blackwater Fever	+		0		
Leprosy	+		2		
Syphilis	+	Brunei and Kuala Belait	26		
Yaws	+	Brunei and Kuala Belait	108		
Amebiasis	+	Brunei and Kuala Belait	13[1]		
Bacillary Dysentery	+	Epidemic Brunei and Kuala Belait	69[2]		
Typhoid Fever	+		3[3]		
Ascariasis	+	Brunei and Kuala Belait	1,408[4]		
Hookworm Disease	+	Brunei and Kuala Belait	183[4]		
Elephantiasis	+		1		
Trichuris	+		90		
Tinea Imbricata	+		15		
Beriberi	+	Chinese	13[5]		
II. Diseases Usually Considered as of Temperate Climates					
Measles	+	Widespread epidemic	36		
Varicella	+		6		
Influenza	+	Epidemic	15		

TABLE 46

STATE OF BRUNEI—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
The Pneumonias	+	Brunei and Kuala Belait	41		
Nephritis	+		5		
Pernicious Anemia	+		1		
Osteomyelitis	+		1		
Tuberculosis	+		57[6]		+
Pulmonary	+	Brunei and Kuala Belait	54		+
Trachoma	+		3		
Thyroid Disease (Goiter)	+		1		
Arthritis (Nonspecific)	+		2		
Dental Caries	+		C		
Cardio-Vascular Diseases	+		10[5]		
Myocarditis	+		2		

[1] Referred to in text as "common" but only 13 cases listed.
[2] 45 deaths were listed as due to dysentery.
[3] Enteric fever. 15 deaths listed as "fever unspecified."
[4] Examinations of stools of school children give the percentages—49 per cent for ascaris and 15.4 per cent for ankylostoma (direct smear method).
[5] Deaths.
[6] 58 deaths were listed as due to tuberculosis.

STATE OF NORTH BORNEO

The northern part of the Island of Borneo is British North Borneo. Its area is about 31,106 square miles with a population (1931 census) of 270,223. The coast line is over 900 miles in length. The people are mostly Mohammedans and aborigines. There were, in 1931, 340 Europeans, 236 Eurasians, 47,799 Chinese and 11,494 Malays. There were 205,218 natives, the most numerous of whom are the Dusuns, numbering 97,862. The British Government proclaimed a protectorate over North Borneo in 1888. In 1898 certain border lands were acquired from the Sultan of Brunei. In 1904 about 200 square miles were exchanged with Sarawak for rights over coal mines on Brunei Bay. The entire area is divided into four Residencies for administrative purposes.

The revenue for 1931 amounted to £297,950, the expenditures to £250,858, the imports to £509,273 and the exports to £878,994. Most of the trade is carried on through Singapore and Hong Kong. The chief products are timber, sago, rice, coconuts, gums, coffee, fruits, nutmegs, cinnamon, pepper, rubber, gutta-percha, camphor, tobacco, coal, iron, gold and mineral oil. The exports include the products mentioned and in addition such things as birds' nests, seed pearls, leaf tobacco and Estate rubber. In 1930 over 400,000 tons of shipping entered and cleared.

Among the diseases of public health importance, according to the health

report for 1932, may be mentioned malaria, leprosy, yaws, amebiasis, hookworm disease, beriberi and tuberculosis.

According to "World Weather Records" the mean temperature for the ten year period, 1921–30, taken at Sandakan, was 81.3°F. and the mean precipitation for the same period at the same locality was 139.59 inches.

TABLE 47

STATE OF NORTH BORNEO

Reported by: Annual Report on the Medical Department *Period:* 1932

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General. Small outbreak near Berhala Darat	1,577	+[1]	+
Benign tertian	+		77	+	+
Quartan	+		58	+	+
Subtertian	−		139	+	+
Plague	+		0		
Leprosy	+	Leper settlement	74		
Syphilis	+	Sandakan civil hospital	120		
Yaws	+	General	6,821		+
Smallpox	+		0		
Amebiasis	+		129		
Bacillary Dysentery	+		74[2]		
Cholera	+		0		
Typhoid Fever	+		2[3]		
Hookworm Disease	+	Sandakan and Jesselton	446[4]		+
Clonorchiasis	+				
C. sinensis	+		2	+	
Trichuris	+				
T. trichiura	+		276		
Beriberi	+	Sandakan. Outbreak Jesselton natives	151		

II. Diseases Usually Considered as of Temperate Climates

Diphtheria	+	Jesselton civil hospital	3		
Epidemic Meningitis	+		0		
The Pneumonias	+		121		
Tuberculosis	+				+
Pulmonary	+	General	96		+
Cardio-Vascular Diseases	+				
Myocarditis	+		1[5]		

[1] *A. Kochi, A. leucosphyrus, A. ludowi, A. maculatus, A. tesselatus.*
[2] Reported as dysentery, undefined.
[3] Enteric fever.
[4] Of 6104 persons examined at Sandakan and Jesselton 322 were positive. In the State 6977 treatments were given.
[5] Death at Sandakan Mental hospital.

CEYLON

The island of Ceylon in the Indian Ocean is well within the tropical belt lying between 5° 55′ and 9° 50′ N. latitude and 79° 42′ and 81° 53′ longitude. It has an area of 25,332 square miles. The island is divided into nine provinces which are presided over by Government agents. There are three municipalities, with eleven Urban District Councils, eleven local boards and one Board of Improvement which deals chiefly with sanitary problems. The population in 1931 was 5,312,548, the Western province being the smallest in square miles and having the largest population, estimated at 1,445,024. In 1931 there were 199,170 births registered and 117,453 deaths. The urban population is estimated at 13.2 per cent of the total. Colombo is the principal town with a population of 284,155. In 1930 there were 24,992,929 tons of shipping entered and cleared. By the end of 1931 there were 951 miles of railway open and it is reported that several new lines have been surveyed.

In 1931 the imports amounted to £15,213,078 and the exports amounted to £15,113,816. The chief exports were cacao, cinnamon, coir and manufactures, copra, coconut oil, tea, plumbago, fresh and dried coconuts, areca nuts, rubber and citronella. The principal imports were cotton goods, rice and paddy, coal, coke, spirits, sugar, manures, bullion and specie.

Buddhism still remains the religion of the majority of the people. It was introduced from India in the third century B. C. and today there are said to be about 2,500,000 or more Buddhists. There are also some 982,073 Hindus, 302,532 Moslems and nearly 500,000 Christians. In 1931 the Government maintained 1,395 schools for 131,998 boys and 69,913 girls. There were 2,248 aided schools (159,730 boys and 116,396 girls) and 1,185 unaided schools (21,079 boys and 9,864 girls). In addition there were 343 English and bilingual schools (59,124 boys and 18,943 girls). There is a Royal College, a Government Training College and a University College which was opened in 1921. In addition there are 74 industrial schools.

Dr. R. Briercliffe has kindly furnished most detailed information regarding health conditions in Ceylon, from which the following observations are taken. Examination of the questionnaire returned by him indicates that malaria is the most important health problem in Ceylon. The disease is so prevalent that the development of large tracts of land in the country is prevented. Endemicity is moderate to high in the northern, eastern and south-eastern plains and foot-hills (dry zones); low in the south-western low-lands and foot-hills (wet zones) and in the hill country generally (above 1500–2000 feet elevation). In the dry zones annual epidemics of varying intensity occur regularly during the north-east monsoon period (November to February or March); in the south-western area epidemics are rare and usually distinctly localized. The three common forms of malaria are present throughout Ceylon approximately in the proportions of: Benign Tertian 60 per cent, Quartan 30 per cent and Subtertian 10 per cent. The chief vector is *A. culicifacies*

—prevalent in the dry zone, very common in the wet zone except under special conditions. Epidemiological evidence suggests that *A. listoni minimus* also transmits malaria but no definite incriminative evidence has as yet been obtained in Ceylon. Epidemiological evidence in respect to *A. maculatus* indicates that it is not a carrier in Ceylon.

In reference to hookworm and other nematode infections, out of 90,230 specimens of feces examined miscroscopically in the laboratory during the three year period from 1930 to 1932, there were 66,592 or 73.8 per cent positive for hookworm ova (*Necator americanus*). Roundworm ova (*Ascaris lumbricoides*) were found in 73,968 or in 81.9 per cent. *Trichuris trichiura* ova were found in 68,282 or 75.7 per cent. *Enterobius vermicularis* (*Oxyuris vermicularis*) ova were present in 2,424 or 2.7 per cent. *Taenia solium* ova were found in 63 or 0.07 per cent; *Taenia saginata* in 7 or 0.008 per cent and *Hymenolepsis nana* ova in 24 or 0.03 per cent.

Filariasis is present and has a widespread but erratic distribution. Microfilaria rate up to as much as 35 per cent in certain villages and available evidence indicates that filariasis is due to both *W. bancrofti* and *W. malayi*. The vector of *W. bancrofti* in Ceylon has not been definitely ascertained but is probably *Culex fatigans* which is common in many towns and villages. *W. malayi* has been shown to be carried by three species of *Mansonioides*, viz.: *M. annuliferus*, *M. indianus* and *M. uniformis*. These mosquitoes are common in rural areas (especially in dry zones) where the aquatic plant *Pistia* is prevalent.

Elephantiasis is prevalent in certain towns and villages. In general wherever the microfilaria rate is high, the proportion of cases of elephantiasis is also high. In a village with a microfilarial rate (*W. malayi*) of 35 per cent, it was found that 23 per cent of the adults examined were affected (chiefly legs and feet) with elephantiasis.

Subcutaneous myiasis has not been observed although cases are probably not uncommonly recorded at the various hospitals and dispensaries. Potential myiasis-producing flies of the genera *Chrysomyia*, *Lucilia* and *Sarcophaga* are abundant in Ceylon. However, true subcutaneous myiasis due to *Oestrid* flies or to *Cordylobia* is unknown.

No blood sucking larvae of flies have as yet been recorded. Cases due to *Apicchaeta* and to the Scaralid bettle *Onthophagus* have occurred. The latter infection evidently was well known among the indigenous population and is termed "Kurumini Mandama," meaning "beetle disease."

In 1932 there were 1041 patients who received preventive inoculation against rabies and treatment of the wound, which represents an increase of 277 over the number for 1931. There were 274 brains of dogs and other animals examined for rabies during this period, an increase of 54 over those of 1931. In 1931 there were 764 persons treated and given preventive inoculation against rabies and of these only 6 died. There is some indication that

the poorer classes do not respond quite as effectively to immunization against rabies as do the better classes. The general standard of living and the general health seem to play some rôle. Nakedness also probably is a factor since persons bitten by rabid dogs on the bare limbs or body are at greater risk than those who have been bitten through clothing.

Reference to Table 48 will give further information regarding other diseases in Ceylon. Occasional discrepancies will be noted between figures given in the questionnaire and in the annual medical report. For example, the Administration Report for 1932 states that 1,216 cases of leprosy were treated in 1932, while the questionnaire material indicates that some 1500 cases of this disease are known to exist in the island. Other diseases rated as important public health problems in Ceylon by Briercliffe include plague, yaws, amebiasis, bacillary dysentery, typhoid fever, ascariasis, hookworm disease, filariasis and elephantiasis, tropical ulcer, influenza, the pneumonias, nephritis, diabetes mellitus, pulmonary tuberculosis and dental caries.

According to the Medical and Sanitary Reports from British Colonies, Protectorates and Dependencies for the year 1931 (*Trop. Dis. Bull.*, Supplement, Vol. 30, p.122), the planting districts have 66 Government hospitals and 108 Government dispensaries with qualified staff. In addition there are 87 (88) estate hospitals and 720 (715) estate dispensaries. In Colombo there are the King Edward VII Memorial Anti-Tuberculosis Institute, Grenier Ear, Nose and Throat Clinic and the Dental Institute. Special clinics for treatment of eye diseases are associated with hospitals at Kandy, Galle, Jaffna, Batticaloa and Badulla. At the Colombo General Hospital (1931) in-patients numbered 19,122 and out-patients 28,620 (29,103). There is a full-time pathologist who had some 31,305 specimens in connection with the routine clinical material. At the Bacteriological Institute 18,375 specimens were examined. At ten branch laboratories 99,475 specimens were examined. At Mandapam Camp the laboratory has examined 37,865 specimens of feces for *V. cholerae* and among 40,552 persons tested 11 postives have been found.

The report mentioned above also states, in regard to the malaria problem, that there were 615 deaths attributed to cerebral malaria and 141 deaths to malarial cachexia, in 1931; 14.4 per cent of those treated in hospitals and 30.1 of those at dispensaries were suffering from malarial infection.

As regards medical education in Ceylon the report mentioned states (for 1931) that eight students qualified for the L.M.S. diploma at the Ceylon Medical College; 37 students were admitted and the total roll for 1931 was 154 students. The report expresses regret that no post-graduate instruction was offered, since the general hospital in Colombo and the institutions nearby furnish such an abundance of clinical material and possess such well qualified and experienced staffs. During the year under discussion the Government spent Rs. 9,703,755 for medical and public health work, this representing 11 per cent of the revenue of the island.

Data on weather conditions in Ceylon for the ten year period, 1921–1930, indicate a mean pressure (corrected) of 0.797. The mean temperature for this period was 80.2°F. and the average total precipitation was 98.50 inches.

Further interesting data concerning health conditions in Ceylon are to be found in *Tropical Diseases Bulletin* (Supplements), Vols. 28, 29 and 30 for 1931, 1932 and 1933.

TABLE 48

CEYLON

Reported by: Dr. R. Briercliffe, Director

Period: Questionnaire dated September, 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General except southwest	1,423,106	+	+[1]
Benign tertian	+		28,125	+	+
Quartan	+		904	+	+
Subtertian	+		217[2]	+	+
Blackwater Fever	−				
Piroplasmosis	+	Cattle and dogs		+	
Leishmaniasis	−				−
Kala-azar	−				−
Oriental Sore	−				−
Espundia	−				−
Relapsing Fever	−				−
S. recurrentis	−				−
S. duttoni	−				−
S. venezuelense	−				−
S. berberum	−				−
Rat-Bite Fever	+				−
Yellow Fever	−				−
Dengue Fever	+	Coastal	11	+	−
Pappataci Fever	−				−
Plague	+	Colombo. Enzootic in rats	60	+	+
Typhus Fever	−				−
Trypanosomiasis	−				−
African Human	−				−
T. gambiense	−				−
T. rhodesiense	−				−
South American	−				−
T. cruzi	−				−
Oroya Fever	−				−
Undulant Fever	−				−
Leprosy	+		1,500		+
Syphilis	+		7,451		−
Yaws	+	Inaccessible places	24,560		+
Granuloma Inguinale	+		R		−
Tularemia	−				−
Smallpox	+	Imported	89		−
Amebiasis	+		3,157		+
Balantidium Dysentery	+		R	+	−
Bacillary Dysentery	+		1,698		+

TABLE 48

CEYLON—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Cholera	+	Imported from India	R		−
Typhoid Fever	+		2,754		+
Para-Typhoid Infection	+		37		−
Sprue	+		13		−
Hill Diarrhea	+		R		−
Ascariasis	+	Children	2,232		+
Hookworm Disease	+		316,190		+
Giardia Enteritis	+				−
Trichomonas Infection	+				−
Tropical Liver	−[3]				−
Infantile Biliary Cirrhosis	−				−
Schistosomiasis	−				−
Urinary	−				−
Intestinal	−				−
Visceral	−				−
Far Eastern	−				−
Filariasis	+	Widespread but erratic	506	+	+
F. bancrofti	+			+	+
Loa Loa	−				−
O. volvulus	−				−
F. perstans	−				−
F. demarquayi	−				−
F. ozzardi	−				−
Juxta-Articular Nodules	−				−
Elephantiasis	+	Spotted	52		+
Chyluria	+		5		−
Dracontiasis	+		R		−
D. medinensis	−				−
Paragonimiasis	−				−
P. ringeri	−				−
P. westermanii	−				−
P. compactus	−				−
Clonorchiasis	−				−
C. sinensis	−				−
O. felineus	−				−
Fasciolopsis	−	Common in cattle			−
F. hepatica	−				−
F. buskii	−				−
Cestodes	+		30		−
Tænia saginata	+		7		−
Tænia solium	+		63		−
Dibothriocephalus latus	−				−
Hymenolepis nana	+		24		−
Sparganum mansoni	−				−
S. prolifer	−				−
Trichuris	+				−
T. trichiura	+		68,282		−
H. heptaticus	−				−
Trichinelliasis	−				−
T. spiralis	−				−
Climatic Bubo	+		R		−
Rhinosporidiosis	+				−
Goundou	−				−
Ainhum	+				−

TABLE 48

CEYLON—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Big Heel	−				−
Myiasis	+				−
Subcutaneous	−				−
Blood sucking	−				−
Intestinal	−				−
Larva Migrans	−				−
Leech Infection	+	Up-country	C		−
Leucodermia	+		C		−
Cheloid	+		C		−
Ulcus Tropicum	+		196,973		+
Albinism	+		C		−
Septic Sore	+				−
Pemphigus Contagiosus	+		R		−
Ulcerating Dermatitis	+		R		−
Madura Foot	+		R		−
Other Mycetoma	+		R		−
Blastomycosis	+		R		−
Mossy Foot	+		R		−
Pityriasis Nigra	+		R		−
Pityriasis Versicolor	+		R		−
Dhobie's Itch	+		C		−
Seborrhoea	+		R		−
Pinta	+		R		−
Tinea Imbricata	+		82		−
Trichosporosis	+		R		−
Trichomycosis	−				−
Acarine Dermatomycosis	+		C		−
Epidemic Dropsy	−				−
Peripheral Neuritis	+		450		−
Beriberi	+		R		−
Pellagra	−				−
Scurvy	+		10		−
General Malnutrition or Undernutrition	+		R		−
Heat Stroke	+		R		−

II. Diseases Usually Considered as of Temperate Climates

Scarlet Fever	−				−
Diphtheria	+		61		−
Measles	+		3,700		−
German Measles	+		R		−
Varicella	+		6,902		−
Epidemic Meningitis	−				−
Infantile Paralysis	+		R		−
Epidemic Encephalitis	+	Sporadic	26		−
Syphilis of Central Nervous System	+		R		−
Influenza	+		147,615		+
Common Cold	+				−
The Pneumonias	+		6,134		+
Cholelithiasis	+		13		−
Urinary Calculus	+		360		−
Nephritis	+		2,687		+

TABLE 48

CEYLON—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Diabetes	+		409		+
Pernicious Anemia	+		47		−
Osteomyelitis	+				−
Tuberculosis	+				+
Pulmonary	+		4,508		+
Bone	+		70		+
Skin	+		25		+
Malignancy (all forms)	+		1,052		+
Trachoma	+		38		−
Weil's Disease	−				−
Tsutsugamushi Disease	−				−
Rabies	+		21		−
Unusualy Skin Disease	−				−
Thyroid Disease (Goiter)	+		57		−
Rheumatic Fever	+		182		−
Arthritis (Nonspecific)	+		424		−
Rickets	+		158		−
Dental Caries	+	School children	8,000		+
Toxemias of Pregnancy	+		1,479		−
Cardio-Vascular Diseases					+
Hypertension	+		90		−
Valvular Lesions	+		859		+
Aneurysm	+		27		−
Myocarditis	+		360		+

Reported by: Administration Report of Director of Medical and Sanitary Services
Period: 1932

I. TROPICAL DISEASES

Malaria	+		1,538,890	+	+
Benign tertian	+		28,125	+	+
Quartan	+		904	+	+
Subtertian	+		217	+	+
Blackwater Fever	+		0		
Leishmaniasis	+		2,190	+	+
Espundia	+		2,190		+
Relapsing Fever	+		54	+	
Dengue Fever	+		11	+	
Plague	+	Colombo and Kurunegala	77	+	+
Undulant Fever	+		27	+	
Leprosy	+		1,216		+
Syphilis	+		2,237		
Yaws	+		24,560		+
Smallpox	+	West, north and south Provinces. Epidemic	106		
Amebiasis	+		3,157		+
Bacillary Dysentery	+	Sporadic	1,698[4]		+
Cholera	+		0		
Typhoid Fever	+		2,525		+
Para-Typhoid Infection	+		37		
Sprue	+		13		
Ascariasis	+		2,232[5]		

TABLE 48

CEYLON—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Hookworm Disease	+		1,680,289		+
Trichomonas Infection	+		0		
Schistosomiasis	+		0		
Urinary	+		0		
Filariasis	+	East and south coasts	36	+	+
F. bancrofti	+			+	+
Elephantiasis	+		52		−
Chyluria	+		5		−
Dracontiasis	+		0		−
Cestodes	+		30[5]	+	−
Trichuris	+		?[5]		−
Trichinelliasis	+		0		−
Myiasis	+		106	+	−
Tinea Imbricata	+		82[6]		
Acarine Dermatomycosis	+		1,871[7]		
Beriberi	+		1		
Pellagra	+		0		
Scurvy	+		10		
General Malnutrition or Undernutrition	+	Northern Inspectorate, Western Province	3,460		+
Heat Stroke	+		1		
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever					−
Diphtheria	+	West	61		−
Measles	+	Central and west	3,700		−
German Measles	+		1		−
Varicella	+	Central and west	6,902		−
Epidemic Meningitis	+		1		−
Infantile Paralysis	+		12		−
Epidemic Encephalitis	+		29		−
Syphilis of Central Nervous System					−
Influenza	+		147,615		+
Common Cold	+		104		−
The Pneumonias	+		6,307[8]		+
Cholelithiasis	+		13		−
Urinary Calculus	+		360		−
Nephritis	+		2,687		+
Diabetes	+		637		+
Pernicious Anemia	+		47[9]		−
Osteomyelitis	+		265[10]		−
Tuberculosis	+		6,437		+
Pulmonary	+		6,007		+
Bone	+		86		+
Skin	+		25		+
Malignancy (all forms)	+		1,052		+
Trachoma	+		38		−
Weil's Disease					−
Tsutsugamushi Disease					−
Rabies	+		52[8]		−

TABLE 48

CEYLON—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Unusual Skin Disease.....					−
Thyroid Disease (Goiter)..	+		75		−
Rheumatic Fever.....	+		182		−
Arthritis (Nonspecific).....	+		424		+
Rickets.....	+	Children and West Province	4,300[8]		+
Dental Caries.....	+	General	8,037[11]		+
Toxemias of Pregnancy....	+		94		−
Cardio-Vascular Diseases..	+				+
Hypertension.....	+		90		−
Valvular Lesions.....	+		859		+
Aneurysm.....	+		27		−
Myocarditis.....	+		360		+

[1] See Appendix for recent reports concerning epidemic of malaria in Ceylon (1934).
[2] Malarial cachexia, 3,450 cases in hospital.
[3] Liver abscess due to *E. histolytica* fairly common. 223 cases.
[4] 26,960 cases of undefined dysentery.
[5] Of 24,838 persons examined, 78% harbored ascaris, 75.8% *T. trichuria* and 0.1% taenia.
[6] Reported as taenia.
[7] Reported as scabies.
[8] Deaths.
[9] 20,469 cases of unknown causation.
[10] Reported as osteitis.
[11] School children.

INDIA AND DEPENDENCIES

Greater India comprises the parts of the Indian Peninsula directly or indirectly under the British Government, including the so-called Indian States. For this vast country with its manifold and complicated systems of government it is impossible, as will be seen in the charts which follow, to get much of an exact picture of health conditions. In order to obtain some idea of the enormous problem to be dealt with in India we will present a few of the salient facts concerning the country as a background for the health conditions as they will be referred to later.

The area of so-called British India in 1931 was 1,318,346 square miles and the population was estimated at over 289,000,000 and the area of the Indian States was given as 490,333 square miles with a population of 55,511,674, making a total area for Greater India of 1,808,679 square miles, with a total population of 352,837,778. It appears from the records that there has been an increase in population of ten per cent between 1921 and 1931. There are about 10,000,000 more males than females. Eight groups of languages are spoken in India, the largest numbers of the people speaking the Indian languages, Indo-European languages and Hindustani languages. Over a fourth of the people engage in agriculture but large numbers also engage in

fishing, hunting, mining, industries, transportation, trades, the miltary, professions, domestic service, etc. The birth rate for the provinces for 1930 was 35.99 and the death rate was 26.85. There are many religions in India, too numerous to mention in these brief notes. The Hindus and the Moslems are in the majority. In 1921 the Census gave a total of 22,623,651 persons able to read and write and 293,431,580 who could neither read nor write. In 1930–31 there were in British India 227,189 educational institutions with 12,056,837 students, and 34,879 unrecognized institutions with 632,249 students. The total sum spent for the recognized educational institutions in 1930–31 was Rs. 283,164,460. There are 65 professional schools for men and 8 for women with some 17,000 students attending both.

The revenue for the Central Government for 1932–33 was Rs. 1,299,629,000 and the expenditures amounted to Rs. 1,287,145,000 (budget estimates). The revenue for the Provincial Governments for 1932–33 was estimated at Rs. 846,718,498 and the expenditures amounted to Rs. 866,459,247. In 1931–32 large areas were devoted to crops such as rice, wheat and cotton. Over 84,000,000 acres were cultivated for rice, nearly 34,000,000 acres for wheat and over 23,000,000 acres for cotton. In addition millions of acres were cultivated for sugar cane, linseed, rape and mustard, groundnut, tea, rubber, coffee, indigo, sesamum and castor.

In addition to agriculture India maintained large areas in reserve forests—a total of 107,753 square miles. It was estimated that a total of 229,087,103 acres were sown in 1929–30 and some 49,690,527 acres were irrigated.

In the industries there are several thousand factories of all types employing large numbers of people. To mention only two types of these, there are over 2,000 cotton ginning and pressing factories and over 1,600 rice mills. The next largest number of factories is for tea, their being nearly 1,000 of these.

A large number of minerals is found in India such as silver, gold, tungsten, mica, etc. In 1930, 311,030,108 gallons of petroleum were produced and over 23,000,000 tons of coal were mined.

The imports of merchandise into India during 1931–32 amounted to Rs. 1,306,428,506 and the exports and re-exports of merchandise during the same year amounted to Rs. 1,612,022,325. These figures apply only to the seabourne trade of an external nature. Reference to "The Statesman's Year-Book" will give the many details concerning the commerce of this vast country. The total tonnage of shipping entered and cleared in the interportal trade during 1931–32 was over 20,000,000 tons.

Among the diseases of public health importance, according to General Sprawson, are malaria (nearly 1,500,000 cases), blackwater fever, leishmaniasis, relapsing fever, dengue fever, plague, leprosy, syphilis, yaws, granuloma inguinale, amebiasis, smallpox, bacillary dysentery, typhoid fever, ascariasis, filariasis, many of the skin diseases and the respiratory infections, including tuberculosis. Further details are given in Table 49. At best the

information represents only an attempted approximation but also represents what is available in the best informed sources.

According to "World Weather Records" the mean pressure (29 inches plus) at Akyab, India, for the ten year period 1921–30, was 0.795. The mean temperature for the same period was 78.0°F. and the mean total precipitation for the same period was 216.06 inches. At Allahabad, India, for the same period the figures were 0.469, 79.0° and 39.92, respectively; at Bangalore the figures were 0.885, 75.4°, and 31.73; at Bombay the figures given were 0.801, 81.1° and 71.95; at Calcutta the figures were 0.770, 79.7° and 62.57; at Cherrapunji the figures were 0.630, 63.5° and 418.04; at Cochin the figures given were 0.863, 80.8° and 125.32, respectively. Figures are also available for many other localities.

TABLE 49

INDIA[1]

Reported by: Major-General C. A. Sprawson, Director General, Indian Medical Service
Period: Questionnaires dated January, 1934

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General	1,460,254[2]	+[3]	+
Benign tertian	+		800,206	+	+
Quartan	+		5,031	+	+
Subtertian	+		400,217	+	+
Blackwater Fever	+	Scattered: C, D, E, A, F and B	61	+	+
Piroplasmosis	−				−
Leishmaniasis	+	General: C, H, G, F, B, and imported into J			+
Kala-azar	+	General: C, G, F, D, B and imported into J and A	63,098		+ F, D, B
Oriental Sore	+	G, H and D	780	+	+
Espundia	−				−
Relapsing Fever	+	F epidemic. Present in J, C, D, A and B	78	+	−
S. recurrentis	+	Epidemic in F	1,141	+	−
S. duttoni	−				−
S. venezuelense	−				−
S. berberum	−				−
Rat-Bite Fever	+	Sporadic F. Everywhere except G	11	+	−
Yellow Fever	−			+	−
Dengue Fever	+	General in B and F. Epidemic G. Sporadic H	71		+ B
Pappataci Fever	+	E, F, H and G epidemic. B especially	B C	+	+ B
Plague	+	Widespread, except C	4,392		+ H

TABLE 49

INDIA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Typhus Fever	+	J, A, G and F	R		
Trypanosomiasis	−				−
African Human	−				−
T. gambiense	−				−
T. rhodesiense	−				−
South American	−				−
T. cruzi					−
Oroya Fever	−				−
Undulant Fever	+	Sporadic in D and F	R		−
Leprosy	+	General	60,577[4]		+
Syphilis	+	General	190,790[5]		+
Yaws	+	General J, E, A and F. B and C hills	C. J		−
Granuloma Inguinale	+	E, H, F and J	C. H 33		+ H
Tularemia	−				−
Smallpox	+	General. Epidemic H	11,314[6]		+ H
Amebiasis	+	General	200,512[7]		+
Balantidium Dysentery	+	F, A, G, B and J	R[7]		+ D
Bacillary Dysentery	+	General	150,271[7]		
Cholera	+	General. Epidemic H	35,578[8]		+
Typhoid Fever	+	General	6,375		+
Para-Typhoid Infection	+	General	2,017[9]		+
Sprue	+	No figures J, A, G and F. Scattered everywhere	C 25		+ F and J
Hill Diarrhea	+	G, J and F	R[10]		+ J
Ascariasis	+	General	C. G 664,942		+ B and J
Hookworm Disease	+	General	201,356		+ F
Giardia Enteritis	+	G, F and B	50,000		+ B
Trichomonas Infection	+	J, F, E, G and B	C		+ B
Tropical Liver	+	G, J, C, H, F, E and B	C. F 24[11]		+ J and B
Infantile Biliary Cirrhosis	+	G imported. Present C, J, F, A, E and B	C. F R		+
Schistosomiasis	−				−
Urinary	−				−
Intestinal	−				−
Visceral	−				−
Far Eastern	−				−
Filariasis	+	General except D and A	50,106[12]	+	+
F. bancrofti	+	General except D and A		+	+
F. perstans	+	H	R	+	−
Juxta-Articular Nodules	?	G			
Elephantiasis	+	General and coast except G. No figures H, F and J	R. A, C 5,073	+	+ B, F, E and C
Chyluria	+	General and coast except B, D and A	500 R	+	+ B

TABLE 49

INDIA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Dracontiasis	+	H rural. F Northwest port	?	+	−
D. medinensis	+			+	
Paragonimiasis	−				−
P. ringeri	−				−
P. westermanii	−				−
P. compactus	−				−
Clonchiasis	+	B		+	
C. sinensis	+	Patna		+	−
O. felineus	−				−
Fasciolopsis	+	B at Bhagalpur	R[13]	+	+
F. hepatica	−				
F. buskii	+	Bhagalpur	100	+	+
Cestodes	+	General	45,092	+	−
Tænia saginata	+	General except A	9[14]	+	+ B
Tænia solium	+	E, H, F and B	R	+	+ B
Dibothriocephalus latus	−				−
Hymenolepis nana	+	G, B and F	C	+(?)	−
Sparganum mansoni	−				−
S. prolifer	−				−
Trichuris	+				
T. trichiura	+	General, J, C, H, F, E and A	C		−
H. heptaticus	−				
Trichinelliasis	+(?)	A			
T. spiralis	+	E		+	
Climatic Bubo	+	J, E, H and F	J, E, R. H, C.		+ H
Rhinosporidiosis	+	J, E, H and F	R		−
Goundou	−				−
Ainhum	+	H and B. Imported J			
Big Heel	−				
Myiasis	+	J and B	R	+	
Subcutaneous	+	General. B and J	R. J; C.	+	−
Blood sucking	−				−
Intestinal	−				−
Larva Migrans	−				−
Leech Infection	+	J, B and F	R		−
Leucodermia	+	General	190[15]		−
Cheloid	+	General except J and A	38[16]		−
Ulcus Tropicum	+	F and G (?)			
Albinism	+	General except H	R[15]		−
Septic Sore	+	J, B and F (?)	C		−
Pemphigus Contagiosus	+	C, F, D and B	R. B; 39 C, D		−
Ulcerating Dermatitis	+	D and F	168 D		
Madura Foot	+	A and J imported. C, D, E, F and H	14 D, E		−
Other Mycetoma	+	Present F. Imported J			
Blastomycosis	+	F, B and imported J	R		−
Mossy Foot	−				
Pityriasis Nigra	+	Madras only	2		−

TABLE 49

INDIA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Pityriasis Versicolor	+	Everywhere except J	C.; 216 E, C, D		−
Dhobie's Itch	+	General	C.; 465 E, C, D		+ H
Seborrhoea	+	General except A	R. B; 754 D, E, C		−
Pinta	−				−
Tinea Imbricata	+	E, F, J and B	R		−
Trichosporosis	+	Madras only			
Trichomycosis	+	Madras only			
Acarine Dermatomycosis	+	E laborers. J, H and B	C. B; 300 E		−
Epidemic Dropsy	+	Imported J. General C, D and B	R, D, B; 81 C		+ C and B
Peripheral Neuritis	+	Everywhere except G and A	C, F, B; 132		+ E and B
Beriberi	+	Occasional epidemics E and B. H imported. None A	18,357		− G and D +
Pellagra	+	E, F and B at Patna	R		−
Scurvy	+	Everywhere but G	R. F; 468		+ B and C
General Malnutrition or Undernutrition	+	General	J and C 3,165		+
Heat Stroke	+	General. A Europeans	R. B; 63 C, D		−

II. Diseases Usually Considered as of Temperate Climates

Scarlet Fever	+	B and H	R.; 1 B 189[17]		−
Diphtheria	+	General			+ B
Measles	+	General	C.; 99 J, D		+ C, H and B
German Measles	+	H and F			−
Varicella	+	General	C; 26 J, D		+ C, H and B
Epidemic Meningitis	+	Sporadic J. Everywhere except G and B	J, C and D 83		+ C and D
Infantile Paralysis	+	Sporadic H and G. Everywhere except C	D and E 34		+ B
Epidemic Encephalitis	+	Sporadic H. Everywhere except C and A	D and E 93		+ B
Syphilis of Central Nervous System	+	General	R.; 148 D, C, E		+ J,C, H and B
Influenza	+	General	331,680		+ J, C, H and B
Common Cold	+	General	C.; 2114 D, C		+ H

TABLE 49
INDIA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
The Pneumonias	+	General	54,508		+ except E, A and G
Cholelithiasis	+	Everywhere except A	C; 96 E, D, C		+ B
Urinary Calculus	+	Everywhere except E	747 C, F, E and D		+ B
Nephritis	+		C 43,370		+ B and J
Diabetes	+	General. Hindu G	16,830		+ J, H, F and B
Pernicious Anemia	+	General	240 D, C, E and H		+ B
Osteomyelitis	+	Everywhere except E	286[18]		+ B
Tuberculosis	+	General	94,089		+ F, J, C, H and B
Pulmonary	+		73,564		+
Bone	+	General	174[19]		
Skin	+	General	C and E 15		+ J and F
Malignancy (all forms)	+	General	C. G; 17,178		
Trachoma	+	General	7,775		+ H
Weil's Disease	+	H, F and J	R		
Tsutsugamushi Disease	−				−
Rabies	+	General	64[20]	+	+ H, B, J and G
Unusual Skin Disease	+	General J, C and H	[21]		
Thyroid Disease (Goiter)	+	General. H better classes	C.; 49 C, D, E		+ B
Rheumatic Fever	+	General	276,611[22]		+ J, C, F and B
Arthritis (Nonspecific)	+	General	C. F; 2,328		+ B
Rickets	+	General	R. G; 6,847		+ B and C
Dental Caries	+	General	773[23]		+ H and B
Toxemias of Pregnancy	+	General	C.; 186 C, E		+ H, C and E
Cardio-Vascular Diseases	+	General	68,847		+ J, H and B
Hypertension	+	F rich class. General E, J, H and B	63[24]		+ H and B
Valvular Lesions	+	General D, E, J, F, B and H	274[25]		+ H and B
Aneurysm	+	All except A and C			+ B
Myocarditis	+	All except A and C			+ E, H and B

[1] Including Central Provinces, Behar and Orissa, Bengal, Lahore (Punjab), Vizagapatam, Madras, United Provinces, Bombay and Burma. To include data on distribution of the various diseases the letters A, B, C, D, E, F, G, H and J are employed in the tables to indicate the foregoing divisions of India in the order given to conform with the space available.

TABLE 49

INDIA—*Concluded*

[2] Figures for all cases incomplete as some provinces do not submit figures at all.
[3] *A. culicifacies, A. listori, A. minimus, A. maculatus*, etc. See Appendix.
[4] No figures for United Provinces and Bombay. Major-General J. D. Graham estimates at least one million cases of leprosy in India is not too high.
[5] No figures for G.
[6] No figures for H, C and G.
[7] No figures for H. A all dysenteries = 6711; F all dysenteries = 304,209; J all dysenteries = 30,232; D = 527 cases of amebiasis and bacillary dysentery; G = very common.
[8] No figures for C, H and G.
[9] No figures for G and H. D reports enteric cases = 239.
[10] J reports 922 deaths from diarrhea.
[11] B and G = few cases; no figures for J; D reports 139 cases liver abscess and 472 other diseases.
[12] No figures for J, E, D and F. Rare in E, C and H.
[13] Gastrodiscus hominis, just discovered, no data published yet.
[14] 46,376 cases of worms reported in J, D, F and A. Includes cestodes, trichuris and trichinelliasis
[15] Figures for D, E and C; rare B; common A.
[16] Figures for D, E and C; common F; rare B and H.
[17] 189 J, C and D. Rare H, E and A. Common B.
[18] 286 E, H, D and C. Many B. Rare A.
[19] 21,776 cases of tuberculosis other than pulmonary from F, A, D and J. 174 cases in C, E and H.
[20] 2545 people given anti-rabic treatment in J.
[21] Herpes urticaria and lupus erythematosus occasionally seen.
[22] 4,700 cases in A include rheumatism. In G "endocardial diseases typical of the fever is fairly common."
[23] 773 E and C. Few G. Common B and A.
[24] 63 E, H and C. Common F. Few G.
[25] 274 D, E, F and H. Common B and G.

STRAITS SETTLEMENTS AND FEDERATED MALAY STATES

The Straits Settlements is a Crown Colony which includes the Settlement of Singapore (including the Cocos Islands and Christmas Island), Penang (including the Province of Wellesley and the Dindings), Malacca and Labuan. The Malay States of Perak, Selangor, Nigri Sembilan and Pahang are also under British protection, the (ex officio) High Commissioner being Governor of the Straits Settlements. The Governor is also High Commissioner of the Bornean State of Brunei and Agent for the States of North Borneo and Sarawak. These various States and areas lie just north of the Equator well within the tropical belt.

The total area of the Straits Settlements with dependencies is 1,535 square miles. The total area of the Federated Malay States is 27,500 square miles. The population of the Straits Settlements in 1931 was 1,114,012, including the garrison, while the total population of the Federated Malay States for the same year was 1,713,096. These populations include Asiatics, Eurasians, Europeans, Americans, etc. In the Straits Settlements in 1931 there were 79,025 immigrants from China and 19,692 from Southern India. Precise death rates and birth rates are not available. In the Malay States, in 1931, there were 57,457 births and 32,871 deaths.

The public revenue in the Straits Settlements for 1931 amounted to £3,103,-512 and expenditures amounted to £5,460,299. In the Malay States the revenue for the same year was £6,107,344 and the expenditures amounted to £7,252,388. In 1931 the shipping entered and cleared at ports in the Straits Settlements was 43,640,442 tons, while in the Malay States the shipping arriving and departing amounted to 7,791,757 tons, exclusive of native tonnage which amounted for 1931 to 24,122 tons.

The chief articles of commerce from the Straits Settlements and the Federated Malay States include rubber, coconuts and palm oil, tin and tin-ore. For 1931 the exports from the Straits Settlements amounted to £46,835,000 and from the Malay States £14,493,325 (including re-exports), while the imports were, respectively, £52,897,000 and £12,390,046. Imports included rice, wheat flour, live animals for food, milk, sugar, tobacco, cotton yarn and manufactures, motor cars, oils, etc.

The educational system in the Straits Settlements consists of a total of 338 schools with an enrollment of 55,528 students. In 1929 Raffles College was opened for arts and science courses. There is also the King Edward VII College of Medicine. Instruction is in Malay in the vernacular schools and in English for all nationalities in Government and aided schools. In the Malay States, in 1931, there were 48 English schools (35 for boys and 13 for girls) with over 18,000 enrollment. In addition there were 1,191 vernacular schools with an enrollment of 69,946. There are also many Chinese schools, 118 of which had a total enrollment of 9,536 in 1931. The total expenditures for education (excluding buildings) in 1931 was £391,783.

Among the important public health problems in the Straits Settlements and in the Federated Malay States, according to Dr. C. J. Wilson who has kindly supplied us with direct information, are those of malaria, typhus fever (which is increasing), hookworm disease, syphilis, smallpox, amebiasis, bacillary dysentery, cholera, typhoid fevers, tropical ulcer, beriberi, trachoma and the respiratory infections, including the common cold, influenza, the pneumonias and tuberculosis. Additional data regarding health conditions in the Straits Settlements and the Malay States may be found in the *Tropical Diseases Bulletin* (Supplements), Vols. 28, 29 and 30 for 1931, 1932 and 1933.

According to "World Weather Records" data on climatic conditions for Christmas Island indicate a pressure at station level (corrected) of mean 8.3 (1000 mb plus). The mean temperature for the ten year period 1921 to 1930 was 299.7° absolute and the average precipitation in millimeters for this period was 1709.

TABLE 50

STRAITS SETTLEMENT AND FEDERATED MALAY STATES

Reported by: Dr. C. J. Wilson, Director *Period:* Questionnaire dated November, 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+			+	+
Benign tertian	+	General		+	+
Quartan	+	General		+	+
Subtertian	+	General		+	+
Blackwater Fever	+	General	R	?	−
Piroplasmosis	+	Canine			
Leishmaniasis	−(?)				
Relapsing Fever	−(?)				
Rat-Bite Fever	+		1–2	+	−
Yellow Fever	−				
Dengue Fever	+	General	C	+	−
Pappataci Fever	?				
Plague	+	Ports	0	+	−
Typhus Fever	+	General	200	+	+
Trypanosomiasis	−				
Oroya Fever	−				
Undulant Fever	[1]				
Leprosy	+	General	400[2]		+
Syphilis	+	General	1,000		+
Yaws	+	Malay chiefly			−
Granuloma Inguinale	+		R		−
Smallpox	+		0		+
Amebiasis	+	General	C		+
Balantidium Dysentery	?				
Bacillary Dysentery	+	General	C		+
Cholera	+	Rivers of Malay	0		+
Typhoid Fever	+	General	C		+
Para-Typhoid Infection	+	General	C		+
Sprue	+		R		−
Hill Diarrhea	−				−
Ascariasis	+	General	C		+
Hookworm Disease	+	General	C		+
Giardia Enteritis	?				
Trichomonas Infection	?				
Tropical Liver	?				
Infantile Biliary Cirrhosis	?				
Schistosomiasis	−				−
Filariasis	+	Restricted areas	?	+	+
Juxta-Articular Nodules	?				
Elephantiasis	+		R		−
Chyluria	?				
Dracontiasis	−				−
Paragonimiasis	?				
Clonorchiasis	?				
Fasciolopsis	?				
Cestodes	+		R		−
Trichuris	+	General	C		+
Trichinelliasis	?				
Climatic Bubo	?				
Rhinosporidiosis	?				
Goundou	−				−

TABLE 50

STRAITS SETTLEMENT AND FEDERATED MALAY STATES—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Ainhum	−				−
Big Heel	−				−
Myiasis	−				−
Leech Infection	?				
Leucodermia	+				
Cheloid	−				−
Ulcus Tropicum	+	General	C		+
Albinism	−				−
Septic Sore	?				
Pemphigus Contagiosus	?				
Ulcerating Dermatitis	?				
Madura Foot	+				
Other Mycetoma	+				
Blastomycosis	?				
Mossy Foot	−				−
Pityriasis Nigra	+				
Pityriasis Versicolor	+				
Dhobie's Itch	+				
Seborrhoea	+				
Pinta	+				
Tinea Imbricata	+				
Trichosporosis	?				
Trichomycosis	?				
Acarine Dermatomycosis	?				
Epidemic Dropsy	−				−
Peripheral Neuritis	+				
Beriberi	+	Chinese and Malays	R		+
Pellagra	+		R		
Scurvy	−				−
General Malnutrition or Undernutrition	+				
Heat Stroke	−				−
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	−				−
Diphtheria	+	General	100		+
Measles	+	General	C		−
German Measles	+				
Varicella	+	General	C		−
Epidemic Meningitis	+		R		+
Infantile Paralysis	+				
Epidemic Encephalitis	+				
Syphilis of Central Nervous System	+				
Influenza	+		C		+
Common Cold	+		C		+
The Pneumonias	+	General	C		+
Cholelithiasis	+				
Urinary Calculus	+				
Nephritis	+				
Diabetes	+				
Pernicious Anemia	+				
Osteomyelitis	+				

TABLE 50

STRAITS SETTLEMENT AND FEDERATED MALAY STATES—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Tuberculosis	+	General	C		+
Malignancy (all forms)	+	General	C		
Trachoma	+	General	C		+
Weil's Disease	+				
Tsutsugamushi Disease	+				
Rabies	+				+
Unusual Skin Disease	+				
Thyroid Disease (Goiter)	−				−
Rheumatic Fever	+		R		−
Arthritis (Nonspecific)	+				
Rickets	+		R		−
Dental Caries	+		C		+
Toxemias of Pregnancy	+		C		+
Cardio-Vascular Diseases	+				

Reported by: Annual Report of the Medical Department *Period:* 1931

I. TROPICAL DISEASES

Malaria	+	Especially Federated Malay States	26,798[3]	+	+
Benign tertian	+		6,240	+	+
Quartan	+		1,031	+	+
Subtertian	+		12,375	+	+
Blackwater Fever	+		39		+
Leishmaniasis	+				
Kala-azar	+	Straits	3	+	
Espundia	+		0		
Relapsing Fever	+	Federated Malay States	1	+	
Yellow Fever	+		0		
Dengue Fever	+		167	+	
Pappataci Fever	+		0		
Plague	+		0	+	
Typhus Fever	+	Rubber and oil, Palm Est.	220	+	+
Trypanosomiasis	+		0		
Undulant Fever	+	Straits	9	+	
Leprosy	+	General	2,804		+
Syphilis	+		108,202		+
Yaws	+	Straits and Perak	7,899		+
Smallpox	+	Sporadic. Provinces of Wellesley and Perak	190		
Amebiasis	+		1,273		
Bacillary Dysentery	+		1,565[4]		
Cholera	+	Pulau and Jerejak	6		
Typhoid Fever	+		576		
Para-Typhoid Infection	+		42		
Sprue	+		81		
Ascariasis	+	General	2,014		
Hookworm Disease	+	General	2,245		+
Schistosomiasis	+		0		
Filariasis	+		0		
Elephantiasis	+		41		

TABLE 50

STRAITS SETTLEMENT AND FEDERATED MALAY STATES—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Chyluria	+		6		
Dracontiasi	+			+	
D. medinensis	+		9	+	
Clonorchiasis	+			+	
C. sinensis	+	Straits	1[5]	+	
Cestodes	+		R[6]	+	
Tænia saginata	+			+	
Tænia solium	+			+	
Trichuris	+				
T. trichiura	+		3		
Trichinelliasis					
T. spiralis	+		2	+	
Rhinosporidiosis	+		2		
Myiasis	+		20	+	
Tinea Imbricata	+		222[7]		
Acarine Dermatomycosis	+		702[8]		
Epidemic Dropsy	+		0		
Beriberi	+		2,724		+
Pellagra	+	Chiefly Straits	8		
Scurvy	+		13		
Heat Stroke	+		1		
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+		0		
Diphtheria	+		199		+
Measles	+	Mostly Fed. Malay States	113		+
German Measles	+	Fed. Malay States	5		
Varicella	+		244		+
Epidemic Meningitis	+		17		
Infantile Paralysis	+		4		
Epidemic Encephalitis	+		26		
Influenza	+	Fed. Malay States; Epidemic in Straits	7,359	+	+
Common Cold	+		404		
The Pneumonias	+		5,159[5]		+
Cholelithiasis	+		23		
Urinary Calculus	+		116		
Nephritis	+		1,486		+
Diabetes	+		275		
Pernicious Anemia	+		39		
Osteomyelitis	+		129[9]		
Tuberculosis	+		5,345		+
Pulmonary	+		5,001[10]		+
Bone	+		194		+
Skin	+		4		
Malignancy (all forms)	+		770		+
Trachoma	+		192		+
Weil's Disease	+		27		
Tsutsugamushi Disease	+		8		
Rabies	+		3		
Thyroid Disease (Goiter)	+		17		
Rheumatic Fever	+		122		

TABLE 50

STRAITS SETTLEMENT AND FEDERATED MALAY STATES—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Arthritis (Nonspecific)	+		667		+
Rickets	+		7		
Dental Caries	+		577[11]		+
Toxemias of Pregnancy	+		79		
Cardio-Vascular Diseases	+				+
Hypertension	+		151		
Valvular Lesions	+		504		+
Aneurysm	+		42		
Myocarditis	+		454		+

[1] No report.
[2] See paper by G. A. Ryrie, *Intern. J. Leprosy* 2: 77–80, 1934 on "Leprosy in Malaya." At Kuala Lumpur it is stated that there were 996 patients in the Sungei Buloh Settlement at the beginning of 1932 and 1,082 patients at the end, the admissions being 353. Work at other institutions is also described.
[3] 178,355 cases treated according to League of Nations Health Organization.
[4] Other dysenteries, 513.
[5] Deaths.
[6] 8 cases of taenia.
[7] Taenia.
[8] Scabies.
[9] Osteitis.
[10] Including laryngeal.
[11] Also diseases of the gums.

BURMA

The area of Burma, which includes Burma proper, the Shan States and unadministered territory, is 262,732 square miles. The total population in 1931 was 14,667,146. Rangoon, the capital, has a population of 400,415 and Mandalay, the next largest town, a population of 147,932. The religions include Buddhists, Animists, Hindus, Mohammedans, Christians and others. The Burmans belong to the Tibetan group. In 1931 the census showed 4,127,172 persons engaging in agriculture as a principal occupation.

In 1931–32 there were 7,303 schools listed with 525,013 students. There were 202,393 students in unrecognized schools. Higher education is under control of the University, the Anglo-Vernacular schools and English schools are under the Government and vernacular education is under the control of Local Bodies. A Medical College was opened in 1929 and a Teachers' Training College was begun in 1931. There are also a Forest School, an Agricultural College and Research Institute at Mandalay and a Technical Institute and Veterinary School at Insein.

In 1930–31 there was an area of reserved forests of 29,834 square miles. During this period 309,279 tons of teak wood were produced. There were also turned out 2436.31 tons of tin, 939.86 tons of tungsten ore, 5,900,400

ounces of silver and 243,914,568 gallons of petroleum. There was a total of 947 factories of all kinds in 1931.

Among the diseases of public health importance, according to the Annual Report of Hospitals and Dispensaries of 1932, are malaria, leishmaniasis, plague, leprosy, syphilis, smallpox, bacillary dysentery, typhoid fever, ascariasis, beriberi, influenza, the pneumonias, nephritis and tuberculosis. Further information is available in Table 51.

At Prospect, Burma, the mean pressure (29 inches plus) over a ten year period, 1929–30, was 0.956. The mean temperature for the same period was 70.0°F. and the average precipitation was 58.90 inches.

TABLE 51

BURMA

Reported by: Annual Report on Hospitals and Dispensaries *Period:* 1932[1]

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+		383,114	+	+
Leishmaniasis	+			+	
Kala-azar	+		160	+	+
Espundia	−				−
Relapsing Fever	+		62	+	+
Plague	+		291	+	+
Leprosy	+		2,766		+
Syphilis	+	General	30,524		+
Smallpox	+		2,064		+
Bacillary Dysentery	+		30,232[2]		+
Cholera	+		94		
Typhoid Fever	+		1,481[3]		
Ascariasis	+		196,097		+
Hookworm Disease	+		945[4]		
Elephantiasis	+		7[5]		
Beriberi	+		1,564		+
Scurvy	+		35		

II. Diseases Usually Considered as of Temperate Climates

Influenza	+		24,705		+
The Pneumonias	+		5,585		+
Nephritis	+		3,848		+
Diabetes	+		682		
Pernicious Anemia	?[6]				
Tuberculosis	+		6,963		+
Pulmonary	+		5,191[7]		+
Malignancy (all forms)	+		1,460		+
Trachoma	+		43[8]		
Rheumatic Fever	+		30,673		+
Rickets	+		250		

[1] See Appendix.
[2] All dysenteries.
[3] Listed as enteric fever.

TABLE 51

BURMA—*Concluded*

[4] 2,306 cases worms other than ascariasis and hookworm.
[5] Operative cases.
[6] 31,725 anemias listed.
[7] 1,772 cases of other tuberculosis.
[8] Operative cases.

JOHORE

Johore is one of the Unfederated Malay States and has an area of 7,678 square miles with a population, in 1931, of 505,309. The Chinese numbered 214,401, the Malays 235,019 and the Indians 51,077. In 1931 there were 19,250 births and 10,840 deaths. For educational purposes there were, in 1931, 113 vernacular schools and 6 English schools. The revenue, in 1931, amounted to $12,102,704 and the expenditures amounted to $14,778,518. The imports, in 1931, amounted to $29,449,254 and the exports amounted to $34,995,441. The chief imports were animals, provisions, drinks, tobacco, raw materials and manufactured articles. The main export was rubber.

According to the Medical Report for 1932 the following diseases were present and of interest to this survey: malaria, dengue fever, leprosy, typhus fever, syphilis, yaws (5,279 cases), amebiasis, balantidium dysentery, bacillary dysentery (1037 cases), ascariasis, hookworm disease, tropical ulcer (10,684), acarine dermatomycosis (10,980 cases), beriberi (1,360 cases), scurvy and the respiratory infections, including tuberculosis. Further information may be found in Table 52. Additional information concerning health conditions in Johore may also be found in the *Tropical Diseases Bulletin* (Supplements), Vols. 30 and 31 for 1933 and 1934.

No data are available to us concerning weather conditions in Johore.

TABLE 52

JOHORE

Reported by: Medical Report *Period:* 1932

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General	16,528	+	+
Benign tertian	+		2,502	+	+
Quartan	+		199	+	+
Subtertian	+		1,576	+	+
Dengue Fever	+	Muar	15	+	
Plague	+		0		
Typhus Fever	+		3	+	
Leprosy	+		220		+
Syphilis	+	Muar, Batu Pahat, Segamat	199		+

TABLE 52

JOHORE—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Yaw	+		5,297		+
Smallpox	+		0		
Amebiasis	+		199		+
Balantidium Dysentery	+		16		+
Bacillary Dysentery	+		1,037[1]		+
Cholera	+		0		
Typhoid Fever	+	Outbreak	159[2]		+
Ascariasis	+		3,415		
Hookworm Disease	+		4,170		+
Giardia Enteritis	+		26		
Trichomonas Infection	+		111		
Filariasis	+		?[3]	+	
Clonorchiasis	+			+	
C. sinensis	+		16	+	
Cestodes	+		147[4]	+	
Tænia saginata	+		3	+	
Tænia solium	+		2	+	
Trichuris	+		2,300		
Ulcus Tropicum	+	Muar, Batu Pahat, Segamat	10,684[5]		+
Acarine Dermatomycosis	+		10,980[6]		+
Beriberi	+		1,360		+
Scurvy	+	Muar	60		
Heat Stroke	+	Muar	54[7]		
II. Diseases Usually Considered as of Temperate Climates					
Diphtheria	+		44		
Measles	+		64[8]		
Varicella	+		144		
Epidemic Meningitis	+		10[8]		
Infantile Paralysis	+		1		
Influenza	+		7,089		+
Common Cold	+	Batu Pahat	809		+
The Pneumonias	+		724		+
Nephritis	+		76[8]		
Diabetes	+		194[8]		
Tuberculosis	+		1,058		+
Pulmonary	+		1,054		+
Malignancy (all forms)	+		10[8]		
Dental Caries	+		1,577[9]		+
Toxemias of Pregnancy	+		7		
Cardio-Vascular Diseases	+		186[8,10]		

[1] "Dysentery."
[2] 3813 deaths due to "fever unspecified."
[3] 39 microscopical examinations for filaria.
[4] Taenia.
[5] "Ulcers."
[6] Scabies.
[7] Sunstroke.
[8] Deaths.
[9] Number of children from 7762 examinations.
[10] Deaths due to "heart disease."

KEDAH AND PERLIS

These two States are not included in the Federated Malay States and there are three others which are not included, i.e., Johore, Kelantan and Trengganu, which are discussed in this section of the Survey. Kedah is on the west coast of the Peninsula and has an area of 3,646 square miles. The population in 1931 was 429,645, of whom nearly three-fourths were Malays; there were also 78,381 Chinese, 51,027 Indians and other races numbering nearly 15,000. The capital is Alor Star. A road connects the capital with Perlis and a railway passes through the State from the Federated Malay States to Siam. The revenue for 1931–32 amounted to $5,180,244 and the expenditures amounted to $5,722,757. Rice, rubber, coconuts and tapioca are the chief products. The imports in 1931–32 amounted to $7,106,622 and the exports to $11,922,837.

Among the important public health problems in Kedah and Perlis, according to the Report of the Medical and Health Departments in 1933, are malaria, leprosy, yaws, amebiasis, hookworm disease, tropical ulcer, influenza and tuberculosis. Many other diseases were present during 1933 and the data from the report mentioned above are tabulated in Table 53. Further information may be found in the *Tropical Diseases Bulletin* (Supplements), Vols. 30 and 31 for 1933 and 1934.

Perlis is on the west coast of the Peninsula and has an area of about 316 square miles. In 1931 the Census showed a population of 49,297. Most of the population were Malays, with over 6,000 Chinese, about 1,000 Indians and 1,000 of other races. The principal products are rice, tin, coconuts and guano deposits. The revenue in 1930–31 amounted to $349,189 and the expenditures amounted to $471,011.

No data are avilable in "World Weather Records" for Kedah and Perlis.

TABLE 53

KEDAH AND PERLIS

Reported by: Report of the Medical and Health Departments *Period:* 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General	3,118	+	+
Benign tertian	+		1,312	+	+
Quartan	+		57	+	+
Subtertian	+		1,099	+	+
Blackwater Fever	+	Kedah	1		
Dengue Fever	+	Kedah	2	+	
Typhus Fever	+	Perlis	4[1]	+	
Leprosy	+		133		
Syphilis	+		549		+
Yaws	+		159[2]		+

TABLE 53

KEDAH AND PERLIS—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Smallpox	+		0		
Amebiasis	+		150		+
Bacillary Dysentery	+		70		
Cholera	+		0		
Typhoid Fever	+	Kedah	38[3]		
Para-Typhoid Infection	+	Kedah	1[3]		
Sprue	+	Kedah	2		
Ascariasis	+		432[4]		
Hookworm Disease	+		708		+
Filariasis	+	Kedah	5	+	
Climatic Bubo	+		62[5]		
Ulcus Tropicum	+		1,096[6]		
Tinea Imbricata	+	Kedah	13		
Acarine Dermatomycosis	+		99[7]		
Beriberi	+		43[8]		
II. Diseases Usually Considered as of Temperate Climates					
Diphtheria	+	Kedah	6		
Measles	+		81		
Varicella	+		64		
Epidemic Meningitis	+	Kedah	2[9]		
Infantile Paralysis	+	Perlis	1		
Influenza	+		1,086		+
Common Cold	+	Kedah	2		
The Pneumonias	+		256		+
Urinary Calculus	+	Kedah	3		
Nephritis	+		27		
Diabetes	+	Kedah	2		
Osteomyelitis	+	Kedah	3		
Tuberculosis	+		379		+
Pulmonary	+		377		+
Bone	+	Perlis	1		
Malignancy (all forms)	+	Kedah and Perlis	36[9]		
Trachoma	+	Kedah	23		
Rabies	+	Perlis	1[9,10]		
Thyroid Disease (Goiter)	+	Perlis	2		
Arthritis (Nonspecific)	+		47		
Rickets	+	Kedah	1		
Dental Caries	+		2,004		+
Cardio-Vascular Diseases	+		53		
Valvular Lesions	+		2		
Aneurysm	+	Kedah	27		
Myocarditis	+				

[1] Listed as "tropical typhus."
[2] 17,205 N.A.B. injections given.
[3] 4,140 deaths from "fever unspecified." 6 cases enteric at Perlis.
[4] 1 case "helminthiasis."
[5] Listed as "bubo."
[6] Listed as "ulcers."
[7] Scabies.
[8] 181 deaths recorded at Kedah as due to beriberi.
[9] Deaths.
[10] 9 persons bitten by rabid dogs or dogs suspected to be rabid.

KELANTAN

The State of Kelantan is one of the Unfederated Malay States having an area of 5,713 square miles and a population, in 1931, of 362,517, which includes over 17,000 Chinese. The capital, Kota Bharu, has a population of nearly 15,000. The Government maintains over 60 schools in the State. In 1931 the revenue of Kelantan amounted to $1,524,140 and the expenditures amounted to $1,961,124. The principal occupation is agriculture and nearly 300,000 acres are under cultivation. The chief products are pepper, tapioca, sugar-cane and maize. Cattle, buffaloes, sheep, goats and poultry are raised. Timber, resins, rattans and bamboos are grown. Silk-weaving, boat-building and brick-making are important industries. The chief exports are betel-nuts, fish, copra, para rubber and the imports include fish, rice, wheat and flour, milk, sugar, tobacco, petroleum, timber, cement, machinery, motors, drugs, benzine and various manufactured articles. In 1931 there were 122,-833 tons of shipping entered and cleared.

According to the Annual Report on the Medical Department for 1933, the following diseases of interest to this survey were present in Kelantan: malaria (16,945 cases), leprosy, syphilis, yaws (22,093), amœbiasis, bacillary dysentery, ascariasis (10,070 cases), hookworm disease, climatic bubo, tropical ulcer (14,481 cases), various skin diseases and respiratory infections, including tuberculosis. Further details concerning health conditions in Kelantan may be found in Table 54. Additional information may also be found in the *Tropical Diseases Bulletin* (Supplements), Vols. 30 and 31 for 1933 and 1934.

No data are available to this survey on weather conditions in Kelantan.

TABLE 54

KELANTAN

Reported by: Annual Report of the Medical Department *Period:* 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Widespread	16,945	+	+
Benign tertian	+		58	+	+
Quartan	+		19	+	+
Subtertian	+		322[1]	+	+
Blackwater Fever	+		4		
Yellow Fever	−				
Dengue Fever	−				
Plague	+		0		
Typhus Fever	+	Kota Bharu	2(?)	+	
Leprosy	+		54		+
Syphilis	+	Chiefly urban	423		
Yaws	+		22,093[2]		+
Smallpox	+		0		

TABLE 54

KELANTAN—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Amebiasis	+	Kota Bharu; Kuala Krai	106		
Balantidium Dysentery	+		0		
Bacillary Dysentery	+	Kuala Krai	6[3]		
Cholera	+		0		+
Typhoid Fever	+	Kota Bharu, sporadic	8[4]		
Para-Typhoid Infection	+		3		
Sprue	+		0		
Ascariasis	+	General	10,070[5]		+
Hookworm Disease	+	General	1,570[6]		+
Giardia Enteritis	+		1[7]		
Schistosomiasis	+		0		
Filariasis	+		0		
Cestodes	+		0		
Trichuris	+	Kota Bharu and Kuala Krai	684[6]		
Climatic Bubo	+		99[8]		
Leucodermia	+		C		
Ulcus Tropicum	+		14,481[9]		
Pityriasis Versicolor	+		C		
Tinea Imbricata	+		11[10]		
Acarine Dermatomycosis	+		76[11]		
Beriberi	+	Kuala Krai	3		
II. Diseases Usually Considered as of Temperate Climates					
Measles	+		22[12]		
Varicella	+	Kuala Krai	42		
Epidemic Meningitis	+		40		
Common Cold	+		146		
The Pneumonias	+	Indians and Chinese	143		
Urinary Calculus	+		1		
Nephritis	+		1		
Diabetes	+		4		
Tuberculosis	+	General	105		
Pulmonary	+		103		
Trachoma	+		0		
Rabies	+	Widespread (animal rabies)	1[13,14]		+
Thyroid Disease (Goiter)	+	Malay villages on river	C		
Arthritis (Nonspecific)	+		53		
Dental Caries	+	Malay adults	C		
Cardio-Vascular Diseases	+		2[14]		
Aneurysm	+		1		

[1] Malignant tertian. [2] Figure represents total number attendances at dispensaries. [3] 132 cases of "dysentery." [4] 3,155 deaths from fever unspecified [5] 2,052 cases "intestinal worms." [6] Of 4,130 stools examined 942 had ascaris ova, 1765 hookworm and 684 trichuris and 23 lamblia intestinalis (543 negative).

[7] Reported "lambliasis." See.[5] [8] Reported as "bubo." [9] Reported ulcers.

[10] Skin diseases not common among Temior, only 4 cases *Tinea circinata* seen (119 examined). Travelling dispensary lists 11,334 cases "skin diseases," majority of these being taenia of various kinds.

[11] Scabies. [12] Measles are common but usually not reported.

[13] 11 people bitten by dogs given Pasteur treatment. [14] Deaths.

TRENGGANU

Trengganu is one of the Unfederated Malay States and has an area of 5,500 square miles, with a population, in 1931, of 179,664. The capital, Kuala Trengganu, has a population of nearly 14,000. There are 20 vernacular schools, one Government English school and three Chinese schools. There are over 2,000 students and about 75 teachers. The revenue, in 1931, amounted to $983,675 and the expenditures amounted to $1,163,699. The imports in 1931 amounted to $3,028,906 and the exports totalled $3,689,970. The chief exports are dried fish, para rubber, tin ore, hematite, copra, arecanuts and manganese. Among the items imported are rice, tobacco, cotton and silk, sugar, petroleum and tinned milk.

According to the Annual Medical and Sanitary Report for 1933 the following diseases were present in Trengganu and are of interest to this survey: malaria, leprosy, syphilis, yaws, amebiasis, bacillary dysentery, ascariasis, hookworm disease, filariasis, climatic bubo, tropical ulcer and the respiratory infections, including tuberculosis. For further information see Table 55. Additional information may also be found concerning health conditions in Trengganu in the *Tropical Diseases Bulletin* (Supplements), Vols. 30 and 31 for 1933 and 1934.

No data are available in "World Weather Records" regarding conditions in Trengganu.

TABLE 55

TRENGGANU

Reported by: Annual Medical and Sanitary Report *Period:* 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Increases from coastline into interior	10,718	+[1]	+
Benign tertian	+		4+	+	+
Quartan	+		9+	+	+
Subtertian	+		25+	+	+
Dengue Fever	+(?)	Besut	1	+	
Plague	+		0		
Typhus Fever	+		0		
Leprosy	+		45		
Syphilis	+		25		
Yaws	+		4,789		+
Smallpox	+		0		
Amebiasis	+	Sporadic	87[2]		+
Bacillary Dysentery	+		119[3]		+
Cholera	+		0		
Typhoid Fever	+	Sporadic	1[4]		
Ascariasis	+	General	61[5]		
Hookworm Disease	+	General	73		

TABLE 55

TRENGGANU—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Filariasis	+	Paka district	R	+	
Elephantiasis	+	Imported. Chinese adults	1		
Clonorchiasis	+			+	
C. sinensis	+		R	+	
Cestodes	+		0		
Climatic Bubo	+		7[6]		
Ulcus Tropicum	+		12,290[7]		+
Tinea Imbricata	+		6,803[8]		+
Acarine Dermatomycosis	+		6,534[9]		+
Beriberi	+		782		+
General Malnutrition or Undernutrition	+		0		
Actinomycosis	+		2		
II. Diseases Usually Considered as of Temperate Climates					
Diphtheria	+		0		
Measles	+	Besut-Setiu epidemic	18		
Varicella	+	Outbreak Kuala Trengganue	38		
Epidemic Meningitis	+		0		
Influenza	+	Epidemic	2,278		+
The Pneumonias	+		17		
Urinary Calculus	+		2		
Nephritis	+		28		
Diabetes	+		3		
Tuberculosis	+				
Pulmonary	+		92[10]		+
Bone	+		2		
Malignancy (all forms)	+		4		
Weil's Disease	+		0		
Rabies	+		0		
Thyroid Disease (Goiter)	+	Localized Upper Ulu Trengganu river	R		
Rheumatic Fever	+		24[11]		
Dental Caries	+	General	10		
Toxemias of Pregnancy	+		1		
Cardio-Vascular Diseases	+				
Valvular Lesions	+		2		

[1] *A. rossi, A. kochi, A. hyrcanus, A. sinensis, A. barbirostris, A. vagus, A. karwari, A. labirostris.*

[2] 3 cases liver abscess.

[3] "Dysentery."

[4] 7 cases enteric fever; 1,695 cases fever unspecified.

[5] 8,561 cases "intestinal parasites." In survey 86 per cent Trengganu school children showed signs of worms. Anklylostoma, 32.15 per cent; ascaris, 53.2 per cent; trichuris 52.45 per cent. 90 per cent of the specimens examined in the out stations were positive.

[6] "Bubo."

[7] "Chronic ulcers."

[8] Taenia.

[9] Scabies.

[10] Pulmonary and laryngeal.

[11] Acute rheumatism.

HONG KONG

The Colony of Hong Kong has been under the administration of Great Britain since 1841. The latest census gives a total civil population of 849,751, of which 19,369 are non-Chinese. The birth-rate in 1930 was 9.7 and the death-rate was 14.2. There are 5 Government schools (including one secondary school) for Europeans and 15 Government schools for Chinese children. In addition there is one school for Indians and numerous schools receiving grants-in-aid. The University of Hong Kong, in 1931, had 268 students.

Hong Kong serves chiefly as a center for British commerce with China and Japan and as a military and naval station. The revenue for 1931 amounted to $33,146,724 and the expenditures to $31,160,774. The chief industries are sugar refining, ship-building and repairing, rope-making, tin refining, tobacco manufacturing, the manufacture of cement and knit goods. Principal articles of trade are sugar, flour, rice, liquor, tobacco, cotton, yarn and thread, cotton and woollen piece goods, silk, hemp, leather, tin, oils, light steel, peanuts, Chinese medicines, fish, tea, coal, cement, condensed milk and matches.

According to the reports by Dr. A. R. Wellington there are few tropical diseases of distinct public health importance. Among those regarded as such are malaria and amebiasis (sporadic). Syphilis is, of course, generally distributed throughout the colony. Cholera is occasionally introduced, as is schistosomiasis. Hookworm disease is present but is regarded as rare. Clonorchiasis is said to be common in the Cantonese.

Data concerning weather conditions in Hong Kong indicate a mean pressure at station level (corrected) for the ten year period 1921–1930, of 0.785. The mean temperature for this period was 72.1°F. and the average precipitation was 90.537 inches.

Further data concerning health conditions in Hong Kong are to be found in the *Tropical Diseases Bulletin* (Supplements) Vols. 28, 29 and 30 for 1931, 1932 and 1933.

TABLE 56

HONG KONG

Reported by: A. R. Wellington, Director

Period: Questionnaire dated November, 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Suburbs and new territory	1,400	+[1]	+
Benign tertian	+			+	+
Quartan	+		R	+	−
Subtertian	+			+	+

TABLE 56

HONG KONG—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Blackwater Fever	+		R		−
Piroplasmosis	−	In cattle			−
Leishmaniasis	−				−
Kala-azar	−				−
Oriental Sore	−				−
Espundia	−				−
Relapsing Fever	+	Imported	R		+
S. recurrentis	−				
S. duttoni	−				
S. venezuelense	−				−
S. berberum	−				−
Rat-Bite Fever	−				−
Yellow Fever	−				−
Dengue Fever	+	Sporadic		+	−
Pappataci Fever	−				−
Plague	+		0		[2]
Typhus Fever	−				−
Trypanosomiasis	−				−
African Human	−				−
T. gambiense	−				−
T. rhodesiense	−				−
South American	−				−
T. cruzi	−				−
Oroya Fever	−				−
Undulant Fever	−				−
Leprosy	+	Everywhere	500–1000		−
Syphilis	+	General	[3]		+
Yaws	−				−
Granuloma Inguinale	−				−
Smallpox	+	General			+
Amebiasis	+	Sporadic			+
Balantidium Dysentery	+				−
Bacillary Dysentery	+	Sporadic			−
Cholera	+	Sporadic	R		−
Typhoid Fever	+	General			+
Para-Typhoid Infection	+				+
Sprue	+				
Hill Diarrhea	−				−
Ascariasis	+				−
Hookworm Disease	+		R		−
Giardia Enteritis	−				−
Trichomonas Infection	−				−
Tropical Liver	+				−
Infantile Biliary Cirrhosis	+				−
Schistosomiasis	+			+	−
Urinary	−				−
Intestinal	−				−
Visceral	−				−
Far Eastern	+	Imported (?)		+	−
Filariasis	+			+[4]	−
F. bancrofti	+			+	−
Loa Loa	−				−
O. volvulus	−				−
F. perstans	−				−
F. demarquayi	−				−
F. ozzardi	−				−

TABLE 56

HONG KONG—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Juxta-Articular Nodules	−				−
Elephantiasis	+		R		−
Chyluria	+		R		−
Dracontiasis	?		R	?	−
D. medinensis	−				−
Paragonimiasis	−				−
Clonorchiasis	+			+	
C. sinensis	+	Common in Cantonese	10%	+	−
O. felineus	?				
Fasciolopsis	[5]				−
Cestodes	+				
Tænia solium	+				−
Dibothriocephalus latus	−				−
Hymenolepis nana	−				−
Sparganum mansoni	−				−
S. prolifer	−				−
Trichuris	+				−
Trichinelliasis	−				−
Climatic Bubo	+				−
Rhinosporidiosis	−				−
Goundou	−				−
Ainhum	−				−
Big Heel	−				−
Myiasis	+		R		−
Leech Infection	+		R		−
Leucodermia	+		R		−
Cheloid	+		R		−
Ulcus Tropicum	+		R		−
Albinism	+		R		−
Septic Sore	+				−
Pemphigus Contagiosus	−				−
Ulcerating Dermatitis	+		R		−
Madura Foot	−				−
Other Mycetoma	−				−
Blastomycosis	−				−
Mossy Foot	−				−
Pityriasis Nigra	−				−
Pityriasis Versicolor	−				−
Dhobie's Itch	+		C		−
Seborrhoea	+				−
Pinta	−				−
Tinea Imbricata	−				−
Trichosporosis	−				−
Acarine Dermatomycosis	+		C		−
Epidemic Dropsy	−				−
Peripheral Neuritis	+				−
Beriberi	+		C		−
Pellagra	+		R		−
Scurvy	+		R		−
General Malnutrition or Undernutrition	+		C		?
Heat Stroke	+		R		−

TABLE 56

HONG KONG—*Continued*

II. Diseases Usually Considered as of Temperate Climates

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Scarlet Fever	−				−
Diphtheria	+	Sporadic			−
Measles	+	Sporadic			−
German Measles	+	Sporadic			−
Varicella	+	Sporadic			−
Epidemic Meningitis	+	Sporadic			−
Infantile Paralysis	+		Uc		−
Epidemic Encephalitis	−				−
Syphilis of Central Nervous System	+				−
Influenza	+	Sporadic and epidemic			−
Common Cold	+		C		−
The Pneumonias	+				−
Cholelithiasis	+				−
Urinary Calculus	+				−
Nephritis	+				−
Diabetes	+				−
Pernicious Anemia	+				−
Osteomyelitis	+				−
Tuberculosis	+	Lower class Chinese	C		+
Pulmonary	+	Lower class Chinese			+
Bone	+	Lower class Chinese			−
Skin	+	Lower class Chinese			−
Malignancy (all forms)	+				−
Trachoma	+		C		+
Weil's Disease	−				−
Tsutsugamushi Disease	−				−
Rabies	+		R		−
Unusual Skin Disease	−				−
Thyroid Disease (Goiter)	+		R		−
Rheumatic Fever	+		Uc		−
Arthritis (Nonspecific)	?				−
Rickets	+				−
Dental Caries	+		C		−
Toxemias of Pregnancy	+		Uc		−
Cardio-Vascular Diseases	+				−
Hypertension	+				−
Valvular Lesions	+				−
Aneurysm	+				−
Myocarditis	+				−

Reported by: Medical and Sanitary Report *Period:* 1931

I. Tropical Diseases

Malaria	+		9,868[6]	+	+
Benign tertian	+		1,664	+	+
Quartan	+		484	+	+
Subtertian	+		1,453	+	+
Leishmaniasis	+				
Espundia	+		6		
Relapsing Fever	+		0		
Yellow Fever	+		0		

TABLE 56

HONG KONG—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Dengue Fever	+		76	+	
Plague	+[7]		2	+[8]	
Typhus Fever	+		0		
Leprosy	+	Colony and New Territory	400		+
Syphilis	+		1,460		+
Yaws	+		1		
Smallpox	+		18		
Amebiasis	+		209		+
Bacillary Dysentery	+		96[9]		+
Cholera	+		1		
Typhoid Fever	+	Sporadic	258		+
Para-Typhoid Infection	+		20		
Sprue	+		4		
Ascariasis	+		51[10]		
Hookworm Disease	+		61		
Filariasis	+			+	
Elephantiasis	+		5		
Clonorchiasis	+[11]			+	
Cestodes	+		2[12]		
Tinea Imbricata	+		328[13]		
Acarine Dermatomycosis	+		180[14]		
Beriberi	+		1,428		+
Scurvy	+		1		

II. Diseases Usually Considered as of Temperate Climates

Scarlet Fever	+		3		
Diphtheria	+	Endemic. Epidemic in 1931	851		+
Measles	+		27		
German Measles	+		10		
Epidemic Meningitis	+		25		
Infantile Paralysis	+		1		
Epidemic Encephalitis	+		1		
Influenza	+		1,160		+
Common Cold	+		16		
The Pneumonias	+		3,865[15]		+
Cholelithiasis	+		11		
Nephritis	+		1,574		+
Diabetes	+		12		
Pernicious Anemia	+		12		
Tuberculosis	+		20,000[16]		+
Pulmonary	+		2,417		+
Bone	+		125		+
Skin	+		1		
Malignancy (all forms)	+		227		+
Trachoma	+		59		+
Rabies	+		0		
Thyroid Disease (Goiter)	+		4		
Rheumatic Fever					
Arthritis (Nonspecific)	+		60		
Dental Caries	+		122[17]		
Toxemias of Pregnancy	+		18		

TABLE 56

HONG KONG—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Cardio-Vascular Diseases..	+		369[15,18]		+
Hypertension.....	+		9[19]		
Valvular Lesions.....	+		262		+
Aneurysm.....	+		1		
Myocarditis.....	+		106		+

[1] *A. minimus*, *A. jeyporiensis* and *A. maculatus*.
[2] None for several years.
[3] 30% of Chinese.
[4] *A. minimus*, *A. jeyporiensis* and *C. fatigans*.
[5] No records.
[6] Figures for general or non-notifiable diseases are only fraction of the whole. Malaria, dengue, filariasis, leprosy and pulmonary tuberculosis fall in this group.
[7] Not since 1929.
[8] *X. cheopis*, *X. Ctenocepalus*, *X. Leptopsylla* and *X. Ceratophyllus*.
[9] 439 cases of undefined dysentery.
[10] Estimated that 75% of Chinese harbor ascaris.
[11] 11% of 252 bodies examined were positive.
[12] Taenia.
[13] Recorded as tinea.
[14] Scabies.
[15] Deaths
[16] Estimated for every death there are 10 persons with tuberculosis
[17] Teeth or gums.
[18] Heart disease and heart failure.
[19] High incidence among Chinese.

FIJI ISLANDS

The administration of the Fiji Islands has been under the British flag since 1874. There are about 250 islands in this group, of which about 80 are inhabited. The total area is 7,083 miles, the largest island of the group being Viti Levu with an area of 4,053 square miles. The island of Rotuma was added to the colony in 1880. At the end of 1931 the total population was estimated at 185,573, of which 93,414 were Figians, 76,722 Indians, 5,058 Europeans, 1,441 Chinese, 3,446 half-castes and 5,492 of other races. The death-rate among the Figians was 22.22 and the birth-rate was 35.34. Among the Europeans the birth-rate was 17.20 and the death-rate was 9.09. The birth-rate among the Indians was 33.45 and the death-rate was 10.19. For all others the birth-rate was 33.47 and the death-rate was 13.68. The Methodist native churches numbered 84,287 members and the Roman Catholic Mission had 14,460 members. In 1931 the Government gave assistance to 154 schools and maintained a Teachers' Training School. In addition there are other schools for the different groups of people. The total revenue for 1931 was £565,393 and the expenditures amounted to £605,973. The imports for 1931 amounted to £904,676 and the exports to £997,106. The principal exports

were sugar, copra, bananas, molasses, trocas shells, cotton, canned pines, biscuits, rubber, hides, butter, turtle shell, soap and vegetables. The chief imports were drapery, bags and sacks, hardware, flour, oils, machinery, coal, timber, tobacco, meats, rice, spirits, fish, drugs, iron, stationery and tea. During 1931 there was a total of 1,263,772 tons of shipping entered and cleared.

Dr. A. H. B. Pearce has furnished us information regarding health conditions in the islands and among the important diseases he lists leprosy (between 2500 and 3000 cases), yaws, bacillary dysentery, typhoid fever, filariasis (bancrofti) and elephantiasis, tropical ulcer, epidemic dropsy, tuberculosis and trachoma. Hookworm disease is apparently quite prevalent but is diminishing. During 1931 mass treatment for ankylostomiasis was given to 28,551 individuals. This group of islands is practically free of malaria.

The data on weather conditions in Fiji indicate a mean pressure for the ten year period, 1921–30, (corrected) of 0.906. The mean temperature for this period was 76.9°F. and the average precipitation for the same period was 133.26 inches.

Further data concerning health conditions in Fiji are to be found in the *Tropical Diseases Bulletin* (Supplements), Vols. 28, 29 and 30 for 1931, 1932 and 1933.

TABLE 57

FIJI ISLANDS

Reported by: Dr. A. H. B. Pearce, Chief Medical Officer

Period: Questionnaire dated September, 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	−				−
Blackwater Fever	−				−
Piroplasmosis	−				−
Leishmaniasis	−				−
Relapsing Fever	−				−
Rat-Bite Fever	−				
Yellow Fever	−			+	−
Dengue Fever	+	Recent pandemic		+	−
Pappataci Fever	−				
Plague	−				
Typhus Fever	−				
Trypanosomiasis	−				
Oroya Fever	−				
Undulant Fever	+(?)	Previously. Dairy	10(?)	?[1]	−
Leprosy	+	Pacific Islanders, Indians	2,500–3,000		+
Syphilis	+	Imported	24		−
Yaws	+	Fijians	C[2]		+
Granuloma Inguinale	−				

TABLE 57

FIJI ISLANDS—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Tularemia	−				
Smallpox	−				−
Amebiasis	+				
Balantidium Dysentery	−				
Bacillary Dysentery	+[3]	General	1,176		+
Cholera	−				
Typhoid Fever	+	General	189		+
Para-Typhoid Infection	−				
Sprue	−				
Hill Diarrhea	−				
Ascariasis	+		?		−
Hookworm Disease	+		?		+
Giardia Enteritis	+		R		−
Trichomonas Infection	+		R		−
Tropical Liver	−				−
Infantile Biliary Cirrhosis	−				−
Schistosomiasis	−				−
Filariasis	+			+	+
F. bancrofti	+	General		+	+
Loa Loa	−				−
O. volvulus	−				−
F. perstans	−				−
F. demarquayi	−				−
F. ozzardi	−				−
Juxta-Articular Nodules	+	Fijians	R		−
Elephantiasis	+	Low and coastal areas		+(?)	+
Chyluria	+	Fijians	?[4]	+	−
Dracontiasis	−				−
Paragonimiasis	−				−
Clonorchiasis	−				−
Fasciolopsis	−				−
Cestodes	+				
Hymenolepis nana	+		R	?	−
Trichuris	+				
T. trichiura	+		?		−
Trichinelliasis	−				−
Climatic Bubo	−				−
Rhinosporidiosis	−				−
Goundou	−				−
Ainhum	−				−
Big Heel	−				−
Myiasis	−				−
Leech Infection	−				−
Leucodermia	+	Fijians and Indians	?		−
Cheloid	+		R		−
Ulcus Tropicum	+	Fijians	?		+
Albinism	+	Fijians			−
Septic Sore	+	Fijians, Indians			−
Pemphigus Contagiosus	+	Occasional			−
Ulcerating Dermatitis	−				−
Madura Foot	−				−
Other Mycetoma	−				−
Blastomycosis	−				−
Mossy Foot	−				−
Pityriasis Nigra	−(?)				−

TABLE 57

FIJI ISLANDS—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Pityriasis Versicolor	+	Fijians, Indians			−
Dhobie's Itch	+	Europeans (?), others			−
Seborrhoea	−				−
Pinta	−				−
Tinea Imbricata	+	Fijians, etc.	C		+
Trichosporosis	−				−
Trichomycosis	−				−
Acarine Dermatomycosis	−				−
Epidemic Dropsy	+	Indians, epidemic		+	+
Peripheral Neuritis	−				
Beriberi	+		R		−
Pellagra	+	Asylum	3–4		−
Scurvy	−				−
General Malnutrition or Undernutrition	+		R		
Heat Stroke	−				−
Tetanus	+		10		+

II. Diseases Usually Considered as of Temperate Climates

Scarlet Fever	−				−
Diphtheria	+	Europeans	21[5]		
Measles	+	General, endemic			−
German Measles	+	General			−
Varicella	+	General, endemic			−
Epidemic Meningitis	−				
Infantile Paralysis	+(?)		0		+
Epidemic Encephalitis	+	Imported	R		−
Syphilis of Central Nervous System	−				
Influenza	+	General, epidemic			−
Common Cold	+		R		−
The Pneumonias	+		137[5]		−
Cholelithiasis	+		R		−
Urinary Calculus	+		R		−
Nephritis	+		11[5]		−
Diabetes	+	Indians	29[5]		−
Pernicious Anemia	+		5[5]		−
Osteomyelitis	+		5[5]		−
Tuberculosis	+		280[5]		+
Pulmonary	+	Fijians and Indians	74[5]		
Bone	+	Fijians and Indians	5[5]		
Skin	+	Fijians and Indians			
Malignancy (all forms)	+	General	71[5]		
Trachoma	+(?)	Fijians, Indians and Chinese	?		+
Weil's Disease	−				−
Tsutsugamushi Disease	−				−
Rabies	−				−
Thyroid Disease (Goiter)	+	Sigatoka Valley Indians	?		−
Rheumatic Fever	+		91[5]		−
Arthritis (Nonspecific)	−				−
Rickets	−				−

TABLE 57

FIJI ISLANDS—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Dental Caries	?				
Toxemias of Pregnancy	+		3		−
Cardio-Vascular Diseases	+				
Hypertension	−				−
Valvular Lesions	+		7[5]		−
Aneurysm	+		2		−
Myocarditis	+		14		−

Reported by: Annual Medical and Health Report *Period:* 1932

I. Tropical Diseases

Malaria	+		2		
Dengue Fever	+		48	+	
Leprosy	+		502		+
Syphilis	+		25		
Yaws	+	General	23,679[6]		+
Amebiasis	+		9		
Bacillary Dysentery	+		444[7]		+
Typhoid Fever	+		136		
Para-Typhoid Infection	+		5		
Hookworm Disease	+		14,974		+
Filariasis	+	Chiefly natives	19	+	+
Elephantiasis	+		8		
Tinea Imbricata	+		0		
Acarine Dermatomycosis	+		11[8]		
Epidemic Dropsy	+	Suva, Navua and Nausori	67		
Peripheral Neuritis	+[9]		1		
General Malnutrition or Undernutrition	+		3		

II. Diseases Usually Considered as of Temperate Climates

Diphtheria	+		9		
Measles	+		1		
Varicella	+		13		
Influenza	+	Endemic	459		+
Common Cold	+		1		
The Pneumonias	+		85		
Urinary Calculus	+		1		
Nephritis	+		11		
Diabetes	+		18		
Pernicious Anemia	+		7		
Osteomyelitis	+		7		
Tuberculosis	+		286		+
Pulmonary	+		52		+
Malignancy (all forms)	+		28		
Trachoma	+		7		
Thyroid Disease (Goiter)	+		2		
Rheumatic Fever	+		6		
Arthritis (Nonspecific)	+		20		
Rickets	+		1		

TABLE 57

FIJI ISLANDS—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Cardio-Vascular Diseases..	+				
Hypertension.....	+		2		
Aneurysm.....	+		1		
Myocarditis.....	+		22		

[1] Abortion in some herds.
[2] 1927, 50–60% positive Kahn, Hospital admissions, 1931, 6.7% for Fijian Hospital.
[3] Amebic and bacillary dysenteries. [4] Filarial hydrocele and abscess.
[5] Figures refer to average hospital admissions for last three years.
[6] Samoan yaws census 44,126, but total population only 43,147.
[7] All dysenteries. [8] Scabies. [9] Multiple type.

BRITISH SOLOMON ISLANDS

The British Solomon Islands include about 15 major islands and numerous smaller islands. The Wilson group are also included in the Protectorate. The total area included in land and sea is about 375,000 square nautical miles. The population in 1931 included 93,415 natives, 497 Europeans and 193 aliens. Education is entirely the responsibility of the missions. The revenue for the year ending March 31, 1932 amounted to £56,744 and the expenditures amounted to £55,323. Among the chief products are coconuts, rubber, pineapples, bananas and sweet potatoes. Ivory, nuts, copra, trocas shells and timber are exported, the exports amounting in 1931–32 to £176,554 and the imports amounting to £157,491. The shipping cleared amounted to 62,387 tons in 1930–31.

Among the important health problems are malaria, leprosy, yaws and filariasis, according to Dr. H. B. Hetherington, Senior Medical Officer.

No data are available in the "World Weather Records" for these Islands.

Further data concerning health activities in the British Solomon Islands may be found in *Tropical Diseases Bulletin* (Supplements), Vols. 28, 29, 30 and 31 for 1931, 1932, 1933 and 1934.

TABLE 58

BRITISH SOLOMON ISLANDS

Reported by: Dr. H. B. Hetherington, Senior Medical Officer

Period: Questionnaire dated October, 1933

I. TROPICAL DISEASES

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria.....	+		0	+	+
Benign tertian.....	+	General		+	+
Quartan.....	+	Among natives	R	+	+
Subtertian.....	+	General		+	+

TABLE 58

BRITISH SOLOMON ISLANDS—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Blackwater Fever	+	Prevalent among non-natives	C		+
Piroplasmosis	−				−
Leishmaniasis	−				−
Kala-azar	−				−
Oriental Sore	−				−
Espundia	−				−
Relapsing Fever	−				−
S. recurrentis	−				−
S. duttoni	−				−
S. venezuelense	−				−
S. berberum	−				−
Rat-Bite Fever	−				−
Yellow Fever	−				−
Dengue Fever	+			+	−
Pappataci Fever	−				−
Plague	−				−
Typhus Fever	−				−
Trypanosomiasis	−				−
African Human	−				−
T. gambiense	−				−
T. rhodesiense	−				−
South American	−				−
T. cruzi	−				−
Oroya Fever	−				−
Undulant Fever	−				−
Leprosy	+	Natives mostly	500		+
Syphilis	[1]	General. Among natives			−
Yaws	+				+
Granuloma Inguinale	+		C		
Tularemia	−				−
Smallpox	−				−
Amebiasis	+		R		
Balantidium Dysentery	−				−
Bacillary Dysentery	+	Endemic and epidemic			
Cholera	−				−
Typhoid Fever	−				−
Para-Typhoid Infection	−				−
Sprue	−				−
Hill Diarrhea	−				−
Ascariasis	+	Native children			
Hookworm Disease	+	General, in natives			
Giardia Enteritis	−				−
Trichomonas Infection	−				−
Tropical Liver	−				−
Infantile Biliary Cirrhosis	−				−
Schistosomiasis	−				−
Filariasis	+	Natives	14%	+	+
Juxta-Articular Nodules	+	In yaws cases			
Elephantiasis	+		C		+
Chyluria	[1]				
Dracontiasis	−				−

TABLE 58

BRITISH SOLOMON ISLANDS—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Paragonimiasis	−				−
Clonorchiasis	−				−
Fasciolopsis	−				−
Cestodes	1				
Trichuris	+		C		
T. trichiura	+				
H. heptaticus	−				−
Trichinelliasis	−				−
Climatic Bubo	−				−
Rhinosporidiosis	−				−
Goundou	−				−
Ainhum	−				−
Big Heel	−				−
Myiasis	+		R		
Subcutaneous	+				
Blood sucking	+				
Intestinal	+				
Larva Migrans	+				
Leech Infection	−				
Leucodermia	+				
Cheloid	+				
Ulcus Tropicum	+		C		
Albinism	+	Savo	3		
Septic Sore	+				
Pemphigus Contagiosus	+				
Ulcerating Dermatitis	+				
Madura Foot	+		R		
Other Mycetoma	−				
Blastomycosis	−				
Mossy Foot	+		R		
Pityriasis Nigra	−				
Pityriasis Versicolor	+		C		
Dhobie's Itch	+		C		
Seborrhoea	?				
Pinta	−				
Tinea Imbricata	+		C		
Trichosporosis	?				
Trichomycosis	−				
Acarine Dermatomycosis	+				
Epidemic Dropsy	−				
Peripheral Neuritis	+				
Beriberi	+		R		
Pellagra	−?				
Scurvy	−?				
General Malnutrition or Undernutrition	+		R		
Heat Stroke	−				
Pyorrhoea alveolaris	+	Beetel-nut chewers			
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	−				−
Diphtheria	−				−
Measles	+	Epidemic			−
German Measles	−				−

TABLE 58

BRITISH SOLOMON ISLANDS—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Varicella	+	Epidemic			
Epidemic Meningitis	[2]				
Infantile Paralysis	+		R		
Epidemic Encephalitis	[2]				
Syphilis of Central Nervous System	[2]				
Influenza	+	Epidemic			
Common Cold	+	Epidemic			
The Pneumonias	+		C		
Cholelithiasis	+		R		
Urinary Calculus	+		R		
Nephritis	+		C		
Diabetes	−				−
Pernicious Anemia	−				−
Osteomyelitis	−				−
Tuberculosis	+		C		
Pulmonary	+		C		
Bone	+		R		−
Skin	+		R		−
Malignancy (all forms)	+		R		−
Trachoma	+		C		−
Weil's Disease	−				−
Tsutsugamushi Disease	−				−
Rabies	−				−
Unusual Skin Disease	?				
Thyroid Disease (Goiter)	+		R		−
Rheumatic Fever	+		R		−
Arthritis (Nonspecific)	+		C		
Rickets	+		R		−
Dental Caries	+				
Toxemias of Pregnancy	+		R		−
Cardio-Vascular Diseases	+		R		−
Hypertension	+		R		−
Valvular Lesions	+		R		−
Aneurysm	[2]				−
Myocarditis	+		R		−

Reported by: Annual Medical and Sanitary Report *Period:* 1932

I. Tropical Diseases

Malaria	+	Endemic	47	+	+
Benign tertian	+			+	+
Quartan	+			+	+
Subtertian	+		C	+	+
Blackwater Fever	+		1		
Leprosy	+	Spotted	500		+
Yaws	+	General in natives	4,177		+
Granuloma Inguinale	+		1		
Bacillary Dysentery	+		10		
Hookworm Disease	+		2,475[3]		+
Filariasis	+		1	+	
Elephantiasis	+		1		
Cheloid	+		1		
Tinea Imbricata	+		4		

TABLE 58

BRITISH SOLOMON ISLANDS—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Acarine Dermatomycosis..	+		2[4]		
Beriberi.....	+		1		
General Malnutrition or Undernutrition.....	+		1		
II. Diseases Usually Considered as of Temperate Climates					
Varicella.....	+	Epidemic, native	10		
Epidemic Meningitis.....	+		1[5]		
Infantile Paralysis.....	+		13		
Influenza.....	+		30		
The Pneumonias.....	+		5		
Urinary Calculus.....	+		1		
Nephritis.....	+		3		
Tuberculosis.....	+	General	27		+
Pulmonary.....	+		23		+
Bone.....	+		1		
Trachoma.....	+		8		
Arthritis (Nonspecific)....	+		4		

[1] Not reported.
[2] Not seen.
[3] Treatments.
[4] Scabies.
[5] Reported as meningitis.

GILBERT AND ELLICE ISLANDS COLONY

The Gilbert and Ellice Islands Colony group were proclaimed Protectorates in 1892 and annexed as a Colony in 1915 by Great Britain. The Ellice Islands have five principal islands with an area of the group of 14 square miles. Fanning Island has an area of 15 square miles. Washington Island has 6 square miles. The Ellice Islands have a population (1930) of 3,969. Fanning and Washington Islands together have a population (1927) of 517. Ocean Island, with a population in 1927 of 2,467, is headquarters for the Colony. This Island is rich in phosphate. Christmas Island was included in the Colony in 1919 and has a circumference of over 100 miles. In 1928 its population was only 23. The Gilbert Islands are on the equator and, in 1930, there was a population of 24,800. The area of these Island is 166 square miles. Schools are provided throughout the island group. The revenue of the Colony for 1929–30 amounted to £67,106 and the expenditures amounted to £59,324. The chief crops are pandamus fruit and coconuts. Phosphates and copra are the chief exports.

According to the health report for 1932 the diseases present in this group of islands include leprosy, yaws, ascariasis, hookworm disease, filariasis, elephantiasis and tuberculosis. Further information concerning health conditions

in this group of islands is to be found in the *Tropical Diseases Bulletin* (Supplements), Vols. 29 and 31, for 1932 and 1934.

No data on weather conditions are available in "World Weather Records."

TABLE 59

GILBERT AND ELLICE ISLANDS COLONY

Reported by: Medical and Sanitary Report *Period:* 1932

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Leprosy	+	General. Central leper station Hanikai, Taraway	32		+
Yaws	+	General	C		+
Smallpox	−				
Ascariasis	+	Ellice Islands	47%[1]		
Hookworm Disease	+	Gilbert Islands	9%[1]		+
Filariasis	+	Ellice Islands	C	+	+
Elephantiasis	+	Ellice Islands	C		+
Trichuris	+	Gilbert Islands	21%[1]		
Acarine Dermatomycosis	+	General	C[2]		

II. Diseases Usually Considered as of Temperate Climates

Varicella	+	Epidemic	R		
Influenza	+	Mild epidemics			
Tuberculosis	+	General	C[3]		+
Pulmonary	+	General	C		+
Bone	+		R		

[1] From survey made by Dr. S. M. Lambert.
[2] Scabies.
[3] Responsible for 25 per cent of the annual death rate.

COMMONWEALTH OF AUSTRALIA

Only the northern parts of Australia lies in the tropical belt, while the southern part extends several degrees away from the Tropic of Capricorn, but the country is of particular interest to our survey because of its unique development. Including Tasmania to the south, Australia has a total area of 2,974,581 square miles and an estimated population, in 1932, of 6,549,076. In 1931, there were 38,882 marriages, 118,509 births, 56,560 deaths and a surplus of births over deaths of 61,949. During the same year there were 40,414 arrivals and 52,475 departures. New South Wales has the largest population, having an estimated 2,528,195 in 1932. Victoria is second with a population of 1,805,298. The Northern Territory is sparsely settled with a population of only 4,505. The estimated revenue for 1932–33 was £65,986,000 and the expenditures were estimated at £67,287,000. The imports were estimated in 1931–32 at £44,729,825 and the total exports at £84,923,000

though the recorded value was somewhat greater than this. In 1930, over 40 per cent of the land in Australia was unoccupied or in use by the Government. The largest areas were under cultivation for wheat (over 18,000,000 acres) and hay (over 3,000,000 acres) and oats (over 1,000,000 acres). Other crops such as barley, maize, potatoes, sugar-cane, sugar-beets, grapes and other fruits are also grown. The total area under crops in 1930–31 was 25,163,816 acres and the total value of the crops during the period mentioned was £70,500,000.

In addition to agricultural crops the country also exports hides and skins, wool, tallow, coal, concentrates, copper, lead, tin and leather. Dairy products form an important industry. Australia imports all kinds of manufactured goods and, in addition, such items as tea, tobacco, spirits, petroleum spirits and kerosene. The oversea tonnage entered in 1930–31 amounted to 3,413,301 tons and that cleared amounted to 6,441,625 tons.

In New South Wales the Government maintains 3,240 schools which includes all types of educational institutions. In 1931, there were 387,881 students with 13,126 teachers. The Government spent during the year ending June, 1931, a total of £5,007,913 for educational purposes. In addition to the schools mentioned above there are over 750 private schools with nearly 100,000 students and over 4,000 teachers. The University of Sydney, established in 1850, has over 3,000 students and nearly 300 teachers and a Technical College which enrolls over 33,000 students.

Our information regarding health conditions in Australia are taken from the Australian Demography, Bulletin No. 50 and only deaths from various diseases are recorded. This reports shows that such diseases as malaria, typhus fever, leprosy, syphilis, amebiasis, bacillary dysentery, typhoid fever, hookworm disease, beriberi, the pneumonias and tuberculosis are present. Various other diseases, of less importance to this survey, are also recorded. Further information may be found in Table 60.

The following data are available concerning weather conditions in various parts of Australia:

LOCATION	PRESSURE (29 INCHES PLUS), MEAN	TEMPERATURE MEAN[1]	PRECIPITATION, MEAN[1]
		°C.	*inches*
Adelaide	1.630	63.2	20.97
Alice Springs	0.989	69.4	9.84
Brisbane	0.998	69.0	43.41
Darwin	0.816	82.4	53.46
Sydney	0.993	63.9	43.51

[1] Mean annual values from 1921–1930.

TABLE 60

COMMONWEALTH OF AUSTRALIA

Reported by: Summary of Australian Population and Vital Statistics, Australian Demography Bulletin No. 50, 1932 *Period:* 1932

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+		16[1]	+	+
Typhus Fever	+		5[1]	+	+
Leprosy	+		7[1]		
Syphilis	+		164[1]		+
Smallpox	+		1[1]		
Amebiasis	+		3[1]		
Bacillary Dysentery	+		44[1,2]		+
Typhoid Fever	+		76[1]		+
Para-Typhoid Infection	+		5[1]		
Hookworm Disease	+		6[1]		
Beriberi	+		3[1]		
Pellagra	+		1[1]		
Scurvy	+		0		
General Malnutrition or Undernutrition	+		15[1,3]		
Heat Stroke	+		87[1]		

II. Diseases Usually Considered as of Temperate Climates

Scarlet Fever	+		106[1]		+
Diphtheria	+		425[1]		+
Measles	+		35[1]		
Epidemic Meningitis	+		29[1]		+
Infantile Paralysis	+		96[1]		+
Epidemic Encephalitis	+		36[1]		+
Influenza	+		349[1]		+
The Pneumonias	+		3,654[1]		+
Cholelithiasis	+		170[1]		
Urinary Calculus	+		74[1]		
Nephritis	+		3,440[1]		+
Diabetes	+		999[1]		+
Pernicious Anemia	+		288[1]		
Osteomyelitis	+		99[1]		
Tuberculosis	+		3,004[1]		+
Pulmonary	+		2,661[1]		+
Bone	+		65[1]		+
Malignancy (all forms)	+		6,875[1]		+
Thyroid Disease (Goiter)	+		128[1]		
Rheumatic Fever	+		207[1]		+
Rickets	+		3[1]		
Toxemias of Pregnancy	+		117[1]		
Cardio-Vascular Diseases	+				+
Hypertension	+		2,156[1]		+
Valvular Lesions	+		2,163[1]		+
Aneurysm	+		217[1]		
Myocarditis			1,810[1]		+

[1] Deaths.

[2] 28 deaths due to undefined dysentery.

[3] Hunger or thirst.

Hydatid cysts present. 29 deaths in 1932. Next to Iceland, Australia ranks as having greatest incidence of this fatal disease (H. B. Ward). Important public health problem.

BAHAMAS

The Bahamas consist of twenty inhabited and many uninhabited islands off the coast of Florida. There is an area of 4,404 square miles, the principal islands being New Providence, Abaco, Harbour Island, Grand Bahama, Cat Island, Long Island, etc. The administration is under the British Government. Population in 1932 was estimated at 60,650. The birth rate in 1931 was 32 and the death rate was 18. In 1930 there were 10,308 students in Government-aided schools. The total revenue in 1931 amounted to £386,-374 and expenditures amounted to £422,707. Imports in 1931 amounted to £1,249,827 and exports amounted to £287,562. Principal imports were spirits and wines, iron and steel manufactures, oils, cotton goods and lumber. Chief exports were sisal, sponge, lumber, tomatoes, shells, etc. Total shipping entered and cleared amounted to 1,343,126 tons.

Information concerning the health conditions in the Bahamas has been furnished by Dr. J. M. Cruikshank, Chief Medical Officer, and among the diseases listed as of definite public health importance may be mentioned syphilis, granuloma inguinale, typhoid fever, climatic bubo, pellagra and tuberculosis. Malaria is found only in the southern islands. There are suggestive cases of undulant fever present. Hookworm disease is not present, though ascariasis is found in children. General malnutrition and undernutrition is rather widespread.

According to "World Weather Records" the average precipitation over a ten year period, 1921–1930, was 46.36 inches. No data are recorded regarding pressure or temperature.

Additional data regarding health conditions in the Bahamas may be found in the *Tropical Diseases Bulletin* (Supplements), Vols. 28, 29 and 30 for 1931, 1932 and 1933.

TABLE 61

BAHAMAS

Reported by: J. M. Cruikshank, Chief Medical Officer[1]

Period: Questionnaire dated August, 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Southern Islands	7	+	−
Benign tertian	+			+	
Quartan	−				−
Subtertian	−				−
Blackwater Fever	−				−
Piroplasmosis	−				−
Leishmaniasis	−			−	−
Kala-azar	−				−

TABLE 61

BAHAMAS—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Oriental Sore	−				−
Espundia	−				−
Relapsing Fever	−			−	−
S. recurrentis	−				−
S. duttoni	−				−
S. venezuelense	−				−
S. berberum	−				−
Rat-Bite Fever	−				−
Yellow Fever	−			+	−
Dengue Fever	+	Nassau; Small epidemic, 1922		+	−
Pappataci Fever	−			−	−
Plague	−			?	−
Typhus Fever	−			−	−
Trypanosomiasis	−			−	−
African Human	−			−	−
T. gambiense	−			−	−
T. rhodesiense	−			−	−
South American	−			−	−
T. cruzi	−			−	−
Oroya Fever	−			−	−
Undulant Fever	?				−
Leprosy	+	Scattered	20		−
Syphilis	+	General			+
Yaws	−				−
Granuloma Inguinale	+	General			+
Tularemia	−				−
Smallpox	−				−
Amebiasis	+				−
Balantidium Dysentery	+		R		−
Bacillary Dysentery	+		R		−
Cholera	−				−
Typhoid Fever	+	Chiefly Nassau	33		+
Para-Typhoid Infection	+		1		−
Sprue	+		R		
Hill Diarrhea	−				−
Ascariasis	+	Children	C		−
Hookworm Disease	−				−
Giardia Enteritis	+		2		−
Trichomonas Infection	+		2		−
Tropical Liver	−				−
Infantile Biliary Cirrhosis	−				−
Schistosomiasis	−				−
Urinary	−				−
Intestinal	−				−
Visceral	−				−
Far Eastern	−				−
Filariasis	−				−
F. bancrofti	−			+	−
Loa Loa	−			−	−
O. volvulus	−			−	−
F. perstans	−			−	−
F. demarquayi	−			−	−
F. ozzardi	−				−
Juxta-Articular Nodules	−				−

TABLE 61

BAHAMAS—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Elephantiasis	+		2		−
Chyluria	−				−
Dracontiasis	−				−
D. medinensis	−				−
Paragonimiasis	−				−
P. ringeri	−				−
P. westermanii	−				−
P. compactus	−				−
Clonorchiasis	−				−
C. sinensis	−				−
O. felineus	−				−
Fasciolopsis	−				−
F. hepatica	−				−
F. buskii	−				−
Cestodes	−				−
Tænia saginata	−				−
Tænia solium	−				−
Dibothriocephalus latus	−				−
Hymenolepis nana	−				−
Sparganum mansoni	−				−
S. prolifer	−				−
Trichuris	+				−
T. trichiura	+	Children	C		−
H. heptaticus	−				−
Trichinelliasis	−				−
T. spiralis	−				−
Climatic Bubo	+	General			+
Rhinosporidiosis	−				−
Goundou	−				−
Ainhum	+	Scattered	Uc		−
Big Heel	−				−
Myiasis	−				−
Subcutaneous	−				−
Blood sucking	−				−
Intestinal	−				−
Larva Migrans	−				−
Leech Infection	−				−
Leucodermia	+		R		−
Cheloid	+	Mostly in Negroes			−
Ulcus Tropicum	−				−
Albinism	+		R		−
Septic Sore	−				−
Pemphigus Contagiosus	+		4		−
Ulcerating Dermatitis	−				−
Madura Foot	+		R		−
Other Mycetoma	−				−
Blastomycosis	+		R		−
Mossy Foot	−				−
Pityriasis Nigra	−				−
Pityriasis Versicolor	−				−
Dhobie's Itch	+		C		−
Seborrhoea	−				−
Pinta	−				−
Tinea Imbricata	+				−
Trichosporosis	+				−

TABLE 61

BAHAMAS—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Trichomycosis	+				−
Acarine Dermatomycosis	+				−
Epidemic Dropsy	−				−
Peripheral Neuritis	−				−
Beriberi	+[2]		R		−
Pellagra	+	Mostly Nassau	C		+
Scurvy	+	Nassau	Uc		−
General malnutrition or Undernutrition	+	General			−
Heat Stroke	−				−
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	−				−
Diphtheria	+[3]		3		−
Measles	−				−
German Measles	−				−
Varicella	+		R		−
Epidemic Meningitis	−				−
Infantile Paralysis	−				−
Epidemic Encephalitis	−				−
Syphilis of Central Nervous system	+[4]				−
Influenza	+	Epidemic			+
Common Cold	+		R		−
The Pneumonias	+	Children			−
Cholelithiasis	+		R		−
Urinary Calculus	+		R		−
Nephritis	+		Uc		−
Diabetes	+		R		−
Pernicious Anemia	−				−
Osteomyelitis	+[5]				−
Tuberculosis	+	General	C		+
Pulmonary	+		C		+
Bone	+				−
Skin	−				−
Malignancy (all forms)	+		R		−
Trachoma	−				−
Weil's Disease	−				−
Tsutsugamushi Disease	−			−	−
Rabies	−				−
Unusual Skin Disease	−				−
Thyroid Disease (Goiter)	+		R		−
Rheumatic Fever	−				−
Arthritis (Nonspecific)	+		R		−
Rickets	+	Children everywhere			−
Dental Caries	+	General	C		+
Toxemias of Pregnancy	+		R		−
Cardio-Vascular Diseases	+[6]				−
Hypertension	−				−
Valvular Lesions	+				−
Aneurysm	+				−
Myocarditis	+				−

TABLE 61

BAHAMAS—*Concluded*

Reported by: Annual Medical and Sanitary Report *Period:* 1932

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Imported	Uc		
Dengue Fever	+	Epidemic in 1922	0		
Undulant Fever	+		9	+	
Leprosy	+		0		
Syphilis	+		125		+
Smallpox	[7]	Epidemic	0		
Amebiasis	+		4		
Bacillary Dysentery	+		10		
Typhoid Fever	+		29		+
Ascariasis	+		13[8]		
Trichuris	+		C		
Acarine Dermatomycosis	+		5[9]		
Pellagra	+		27		
Scurvy	+		1		

II. Diseases Usually Considered as of Temperate Climates

Diphtheria	+	Localized	2[10]		−
Varicella	+		6		−
Influenza	+		32		−
The Pneumonias	+		21		−
Nephritis	+		4		−
Pernicious Anemia	+		0		
Osteomyelitis	+		9[11]		
Tuberculosis	+		70		+
Pulmonary	+		44[12]		+
Bone	+		6		
Malignancy (all forms)	+		15		
Thyroid Disease (Goiter)	+		2		
Arthritis (Nonspecific)	+		15		
Dental Caries	+		1[13]		
Cardio-Vascular Diseases	+		52		+
Hypertension	+		1		
Valvular Lesions	+		23		
Aneurysm	+		1		
Myocarditis	+		20		

[1] See Appendix.
[2] Wet type.
[3] First since 1898.
[4] Mostly tabies, seldom paresis.
[5] Mostly syphilitic osteitis, some Staph.
[6] All of these are mostly syphilitic with the valvular lesion mostly aortic.
[7] Not since 1926.
[8] This represents number of cases treated in general hospital. Very common.
[9] Scabies.
[10] First cases in 35 years.
[11] Osteitis.
[12] Pulmonary and laryngeal.
[13] Only one treated.

BARBADOS

Barbados lies east of the Windward Islands in the Atlantic Ocean north of the equator about 58°W. longitude. It was occupied by the British in 1625 and is still under the administration of Great Britain. In 1931 the population was estimated at 173,674 according to the annual report of the Chief Medical Officer. The area of Barbados is 166 square miles. Of the total area of 106,470 acres about 67,682 are under cultivation. Sugar and cotton are the two main articles of production. In 1931, 34,422 tons of sugar and 7,790,451 gallons of molasses were exported. There were 122 sugar works and 3 rum distilleries in production. There were 251,098 gallons of rum produced in 1931. During the same year 336,899 pounds of cotton were exported. Fishing is a minor industry. The total revenue for 1931–32 amounted to £415,644 and the expenditures were £424,087. Imports were £1,488,969 and exports were £1,062,787. The principal imports were cotton goods, flour, fish, beef, pork, rice, coal, iron and steel, lumber and other building materials.

Information regarding health conditions in Barbados has been furnished by Dr. John F. C. Haslam, who also received the assistance of Sir Randall Phillips in completing data for this survey. Among the diseases of public health importance in Barbados, Dr. Haslam mentions syphilis, typhoid fever, tropical ulcer, pellagra, febrile jaundice, diarrhoea in infants, syphilis of the central nervous system and tuberculosis. Such conditions as ainhum and cheloid are common but sporadic. Yaws is common. Malaria has not been present since 1929. Filariasis (bancrofti) is present but apparently decreasing.

According to "World Weather Records" the mean precipitation in Barbados at the Botanic Station during the ten year period 1921 to 1930 was 44.13 inches. No data on temperature or pressure are given.

Further information concerning health conditions in Barbados may be found in *Tropical Diseases Bulletin* (Supplements), Vols. 28 and 30 for 1931 and 1933.

TABLE 62

BARBADOS

Reported by: John F. C. Haslam *Period:* Questionnaire dated December, 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	[1]	General	0[2]	[3]	—
Benign tertian	+				—
Quartan	+				—
Subtertian	+				—
Blackwater Fever	+		R		—
Piroplasmosis	+	In animals		+	—

TABLE 62

BARBADOS—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Leishmaniasis	−				−
Kala-azar	−				−
Oriental Sore	−				−
Espundia	−				−
Relapsing Fever	−				−
S. recurrentis	−				−
S. duttoni	−				−
S. venezuelense	−				−
S. berberum	−				−
Rat-Bite Fever	−				−
Yellow-Fever	+		0		−
Dengue Fever	+(?)	Sporadic	R	+	−
Pappataci Fever	−			−	−
Plague	−				−
Typhus Fever	−				−
Trypanosomiasis	−				−
African Human	−				−
T. gambiense	−				−
T. rhodesiense	−				−
South American	−				−
T. cruzi	−				−
Oroya Fever	−				−
Undulant Fever	+	Under investigation	R		−
Leprosy	+	Sporadic everywhere	85		−
Syphilis	+	General	C		+
Yaws	−				−
Granuloma Inguinale	+	General	C		−
Tularemia	[4]				−
Smallpox	+	Past epidemics	0		−
Amebiasis	+	Sporadic	R		−
Balantidium Dysentery	[4]				−
Bacillary Dysentery	+	Sporadic	R[5]		−
Cholera	[6]	Former epidemics			−
Typhoid Fever	+	General, endemic	100–250		−
Para-Typhoid Infection	+	General, endemic	R		−
Sprue	+	Sporadic	R		−
Hill Diarrhea	−				−
Ascariasis	+	General	C		−
Hookworm Disease	+	Localized	?		−
Giardia Enteritis	[4]				−
Trichomonas Infection	[4]				−
Tropical Liver	?				−
Infantile Biliary Cirrhosis	[4]				−
Schistosomiasis	−				−
Urinary	−				−
Intestinal	−				−
Visceral	−				−
Far Eastern	−				−
Filariasis	+		?	+	−
F. bancrofti	+	General	?	+	−
Loa Loa	[4]				
O. volvulus	[4]				
F. perstans	[4]				
F. demarquayi	[4]				
F. ozzardi	[4]				

TABLE 62

BARBADOS—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Juxta-Articular Nodules	−				−
Elephantiasis	+	General	?	+(?)	−
Chyluria	+	General	?	+(?)	−
Dracontiasis	−				−
D. medinensis	−				−
Paragonimiasis	−				−
P. ringeri	−				−
P. westermanii	−				−
P. compactus	−				−
Clonorchiasis	−				−
C. sinensis	−				−
O. felineus	−				−
Fasciolopsis	−				−
F. hepatica	−				−
F. buskii	−				−
Cestodes	+				−
Tænia saginata	+		Uc		−
Tænia solium	+		Uc		−
Dibothriocephalus latus	[4]				
Hymanolepis nana	[4]				
Sparganum mansoni	[4]				
S. prolifer	[4]				
Trichuris	+				
T. trichiura	+		C		−
H. heptaticus	[4]				
Trichinelliasis	−				−
T. spiralis	−				−
Climatic Bubo	?				
Rhinosphoridiosis	[4]				
Goundou	[4]				
Ainhum	+	Sporadic	C		−
Big Heel	−				−
Myiasis	+				−
Subcutaneous	[4]	Localized	0		−
Blood sucking	[4]				−
Intestinal	[4]				−
Larva Migrans	+	Local	0		−
Leech Infection	−				−
Leucodermia	+				−
Cheloid	+	Sporadic	C		−
Ulcus Tropicum	+		C[7]		+
Albinism	+				−
Septic Sore	?				−
Pemphigus Contagiosus	[4]				−
Ulcerating Dermatitis	[4]				−
Madura Foot	[4]				−
Other Mycetoma	[4]				−
Blastomycosis	[4]				−
Mossy Foot	[4]				−
Pityriasis Nigra	+		R		−
Pityriasis Versicolor	+		R		−
Dhobie's Itch	+				−
Seborrhoea	+				−
Pinta	+(?)		R		−
Tinea Imbricata	[4]				−

TABLE 62

BARBADOS—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Trichosporosis	[4]				–
Trichomycosis	[4]				–
Acarine Dermatomycosis	+		0[8]		–
Epidemic Dropsy	–				–
Peripheral Neuritis	+				–
Beriberi	?		R		–
Pellagra	+	Seasonal variation. General	30–40		+
Scurvy	–				–
General Malnutrition or Undernutrition	+		R		–
Heat Stroke	+		R		–
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	?		R		–
Diphtheria	+	General	5		–
Measles	+				–
German Measles	?				–
Varicella	+		R		–
Epidemic Meningitis	–				
Infantile Paralysis	+	General	61[9]		–
Epidemic Encephalitis	–				
Syphilis of Central Nervous System	+	General	C		+
Influenza	+	Epidemic	?		–
Common Cold	+				–
The Pneumonias	+				–
Cholelithiasis	+				–
Urinary Calculus	+				–
Nephritis	+				–
Diabetes	+				–
Pernicious Anemia	+		R		–
Osteomyelitis	+				–
Tuberculosis	+	General			+
Pulmonary	+		100–120[10]		+
Bone	+		R		–
Skin	+		R		–
Malignancy (all forms)	+		R		–
Trachoma	?				–
Weil's Disease	–[6, 11]				–
Tsutsugamushi Disease	–				–
Rabies	+		0		–
Unusual Skin Disease	+		R		–
Thyroid Disease (Goiter)	+	Not endemic			–
Rheumatic Fever	+		R		–
Arthritis (Nonspecific)	+		R		–
Rickets	?		R		–
Dental Caries	+				–
Toxemias of Pregnancy	+				–
Cardio-Vascular Diseases	+				–
Hypertension	+				–
Valvular Lesions	+				–
Aneurysm	+				–
Myocarditis	+				–

TABLE 62

BARBADOS—*Continued*

Reported by: Annual Report of the Chief Medical Officer *Period:* 1931

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+		0[10]	None since 1930	
Relapsing Fever	+[12]		0[10]		
Yellow Fever	+		0		
Plague	+		0		
Typhus Fever	+		0		
Undulant Fever	+		0[10]		
Leprosy	+		9[10]		
Syphilis	+		656[10,13]		+
Smallpox	+		0		
Amebiasis	+		1[10]		
Bacillary Dysentery	+		2[10,14]		
Cholera	+		0		
Typhoid Fever	+		73[10,15]		
Para-Typhoid Infection	+		0[10]		
Hookworm Disease	+		0[10]		
Giardia Enteritis	+		716[10,16]		
Chyluria	+		0[10]		
Cestodes	+		0[10]		
Pemphigus Contagiosus	+		0[10]		
Blastomycosis	+		14[10,17]		
Beriberi	+		0[10]		
Pellagra	+		178[10]		+
Scurvy	+		1[10]		

II. Diseases Usually Considered as of Temperate Climates

Scarlet Fever	+		0[10]		
Diphtheria	+	Localized	9		
Measles	+		0[10]		
Epidemic Meningitis	+		20[10]		+
Infantile Paralysis	+		0[10]		
Epidemic Encephalitis	+		0[10]		
Influenza	+		57[10]		
The Pneumonias	+		174[10]		+
Urinary Calculus	+		0[10]		
Nephritis	+		289[10]		
Diabetes	+		12[10]		
Pernicious Anemia	+		1[10]		
Tuberculosis	+		142[10]		+
Pulmonary	+		118[10]		+
Bone	+		4[10]		
Skin	+		1[10]		
Malignancy (all forms)	+		119[10]		+
Weil's Disease	+		0[10]		
Rabies	+		0[10]		
Thyroid Disease (Goiter)	+		0[10]		
Rheumatic Fever	+		1[10]		
Arthritis (Nonspecific)	+		10[10,18]		
Rickets	+		0[10]		

TABLE 62

BARBADOS—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Toxemias of Pregnancy....	+		3[10]		
Cardio-Vascular Diseases..	+				+
Hypertension.....	+		91[10]		
Valvular Lesions.....	+		21[10]		
Aneurysm.....	+		37[10]		
Myocarditis.....	+		93[10]		

[1] Not since 1929.
[2] Some hundreds in 1927–1929. Subtertian most common type.
[3] Not since 1930.
[4] No report.
[5] A diarrhea in infants is apparently bacillary in origin.
[6] Not since 1854.
[7] Varied types.
[8] Scabies.
[9] Formerly rare.
[10] Deaths.
[11] Another type of infectious jaundice present with fatalities.
[12] *S. obermeri* present.
[13] Venereal diseases.
[14] Unspecified or other dysenteries, 107 deaths.
[15] Enteric fever, 331 cases.
[16] All enteritis.
[17] Other mycoses.
[18] Rheumatism and arthritis.

BERMUDA

The Colony of Bermuda consists of a group of 360 small islands, of which some 20 are inhabited. The islands were first visited by the Spaniards in 1515, though they had previously been discovered by Juan de Bermudez. In 1609 a party of colonists under Sir George Somers were wrecked there and in 1684 Great Britain took over the government. In all there is an area of some 19.3 square miles, of which 2,759 acres are under cultivation. Bermuda is a popular winter resort for Americans and it is estimated that about 30,000 go there annually.

In 1932, according to the Medical Report, the population was 29,847, of which 12,861 were white and 16,986 were colored. The density of population per square mile was 1530.61. There were 895 births. Total deaths numbered 374. The birth rate was 28.61 and the death rate was 11.16. The infant mortality was 96.96 for all classes.

The total revenue for 1932 was £409,787 and the expenditures amounted to £405,421. The chief products are onions, potatoes, lily-bulbs and garden vegetables. In 1931 the imports amounted to £2,463,259 and the exports to £119,005. The principal imports were beef, bran, flour, clothing, cotton goods, electrical goods, hardware, oats, machinery, woollen goods, kerosene

oil, malt liquor, coal, fresh fruits and other food stuffs. In 1931 a total of 7,476,497 tons of shipping were entered and cleared.

Information regarding health conditions in Bermuda has been furnished by Dr. Henry Wilkinson. There has been no yellow fever in Bermuda since 1864 and no dengue fever since 1916. There are no pressing public health problems in Bermuda, although certain diseases are important (such as typhoid fever) from the peculiar standpoint of Bermuda as a vacation resort. The islands have yet to develop a modern water supply, most of the water at present being collected from the roofs of the houses during rains. A water supply development is now underway which is gradually increasing in importance and may be available for more general use when suitable controls are instituted.

According to "World Weather Records" the mean pressure in Bermuda during the ten year period 1921 to 1930 was 0.956 (corrected). The mean temperature during this period was 70.0°F. and the average precipitation was 58.90 inches.

Further data on health conditions in Bermuda may be found in the *Tropical Diseases Bulletin* (Supplements), Vols. 28, 29 and 30 for 1931, 1932 and 1933.

TABLE 63

BERMUDA

Reported by: Henry Wilkinson, Director
Period: Questionnaire dated September, 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	—				—
Benign tertian	—				—
Quartan	—				—
Subtertian	—				—
Blackwater Fever	—				—
Piroplasmosis	—				—
Leishmaniasis	—				—
Kala-azar	—				—
Oriental Sore	—				—
Espundia	—				—
Relapsing Fever	—				—
S. recurrentis	—				—
S. duttoni	—				—
S. venezuelense	—				—
S. berberum	—				—
Rat-Bite Fever	1		1	+	—
Yellow Fever	2			+	—
Dengue Fever	3			+	—
Pappataci Fever	—				—
Plague	—				—
Typhus Fever	—				—

TABLE 63

BERMUDA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Trypanosomiasis	−				−
African Human	−				−
T. gambiense	−				−
T. rhodesiense	−				−
South American	−				−
T. cruzi	−				−
Oroya Fever	−				−
Undulant Fever	[4]		3[5]	+	−
Leprosy	+		11		−
Syphilis	+	General	3,700		+
Yaws	−				−
Granuloma Inguinale	−				−
Tularemia	−				−
Smallpox	−				−
Amebiasis	−				−
Balantidium Dysentery	−				−
Bacillary Dysentery	−				−
Cholera	−				−
Typhoid Fever	+	Scattered	R	+	+
Para-Typhoid Infection	+		R		−
Sprue	−				−
Hill Diarrhea	−				−
Ascariasis	+		C		?
Hookworm Disease	−				−
Giardia Enteritis	−				−
Trichomonas Infection	−				−
Tropical Liver	−				−
Infantile Biliary Cirrhosis	−				−
Schistosomiasis	−				−
Urinary	−				−
Intestinal	−				−
Visceral	−				−
Far Eastern	−				−
Filariasis	−				−
F. bancrofti	−				−
Loa Loa	−				−
O. volvulus	−				−
F. perstans	−				−
F. demarquayi	−				−
F. ozzardi	−				−
Juxta-Articular Nodules	−				−
Elephantiasis	−				−
Chyluria	−				−
Dracontiasis	−				−
D. medinensis	−				−
Paragonimiasis	−				−
P. ringeri	−				−
P. westermanii	−				−
P. compactus	−				−
Clonorchiasis	−				−
C. sinensis	−				−
O. felineus	−				−
Fasciolopsis	−				−
F. hepatica	−				−
F. buskii	−				−

TABLE 63

BERMUDA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Cestodes	−				−
Tænia saginata	−				−
Tænia solium	−				−
Dibothriocephalus latus	−				−
Hymenolepis nana	−				−
Sparganum mansoni	−				−
S. prolifer	−				−
Trichuris	+				−
T. trichiura	+		C		−
H. heptaticus	−				−
Trichinelliasis	−				−
T. spiralis	−				−
Climatic Bubo	−				−
Rhinosporidiosis	−				−
Goundou	−				−
Ainhum	−				−
Big Heel	−				−
Myiasis	−				−
Subcutaneous	−				−
Blood Sucking	−				−
Intestinal	−				−
Larva Migrans	−				−
Leech Infection	−				−
Leucodermia	+		6(?)		−
Cheloid	+	Negroes	C		−
Ulcus Tropicum	−				−
Albinism	−(?)				−
Septic Sore	−				−
Pemphigus Contagiosus	−(?)				−
Ulcerating Dermatitis	−				−
Madura Foot	−				−
Other Mycetoma	−				−
Blastomycosis	−				−
Mossy Foot	−				−
Pityriasis Nigra	−				−
Pityriasis Versicolor	−				−
Dhobie's Itch	−				−
Seborrhoea	−				−
Pinta	−				−
Tinea Imbricata	−				−
Trichosporosis	−				−
Trichomycosis	−				−
Acarine Dermatomycosis	−				−
Epidemic Dropsy	−				−
Peripheral Neuritis	−				−
Beriberi	−				−
Pellagra	−				−
Scurvy	−				−
General Malnutrition or Undernutrition	+		R		−
Heat Stroke	−				−
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+	Scattered	78		+
Diphtheria	+	Scattered	299		+
Measles	+	Scattered	617		+

TABLE 63

BERMUDA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
German Measles	+		9		−
Varicella	+		252		−
Epidemic Meningitis	?		1		−
Infantile Paralysis	−				−
Epidemic Encephalitis	−				−
Syphilis of Central Nervous System	+		2[6]		−
Influenza	+	Epidemic			−
Common Cold	+				−
The Pneumonias	+		35[7]		−
Cholelithiasis	+				−
Urinary Calculus	+				−
Nephritis	+		58[6]		+
Diabetes	+		11[6]		−
Pernicious Anemia	+		3[6]		−
Osteomyelitis	+		?		−
Tuberculosis	+				+
Pulmonary	+		26[6]		+
Bone	+		1[6]		−
Skin	+		6		−
Malignancy (all forms)	+		48[6]		+
Trachoma	−				−
Weil's Disease	−				−
Tsutsugamushi Disease	−				−
Rabies	−				−
Unusual Skin Disease	−				−
Thyroid Disease (Goiter)	+		R		−
Rheumatic Fever	+(?)		1(?)		−
Arthritis (Nonspecific)	+		R		−
Rickets	+	Negroes	R		−
Dental Caries	+		C		+
Toxemias of Pregnancy	+		2[6]		−
Cardio-Vascular Diseases	+		C		+
Hypertension	+		C		+
Valvular Lesions	+[8]				−
Aneurysm	+		R		−
Myocarditis	+		C		+

Reported by: Medical Report on the Health and Sanitary Conditions *Period:* 1932

I. Tropical Diseases

Undulant Fever	+		3[9]	+	
Leprosy	+		11		
Syphilis	+		1[6]		−
Smallpox	+		1[10]		−
Bacillary Dysentery	+		5[11]		−
Typhoid Fever	+		7		−
Para-Typhoid Infection	+		1		−

II. Diseases Usually Considered as of Temperate Climates

Scarlet Fever	+		39		+
Diphtheria	+		30		
Measles	+		0		
German Measles	+		1		

TABLE 63

BERMUDA—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Varicella	+		61		−
Epidemic Meningitis	+		3[6]		
The Pneumonias	+		35		
Nephritis	+		22[6]		
Diabetes	+		2[6]		
Pernicious Anemia	+		2[6]		
Tuberculosis	+				
Pulmonary	+		11		
Skin	+		1[12]		
Malignancy (all forms)	+		9[6]		
Rickets	+		1[6]		
Dental Caries	+		[13]		+
Cardio-Vascular Diseases	+				
Hypertension	+		11[6]		
Valvular Lesions	+		5[6]		
Aneurysm	+		1[6]		
Myocarditis	+		36[6]		

[1] Not since 1923.
[2] Not since 1864.
[3] Not since 1916.
[4] Not since 1931.
[5] *B. abortus*.
[6] Deaths.
[7] Mostly bronchial type.
[8] Mitral insufficiency common and stenosis uncommon.
[9] *B. abortus* in 1931.
[10] In 1929.
[11] In 1930–1931.
[12] In 1931.
[13] 75% of children.

BRITISH GUIANA

The Colony of British Guiana has been under British rule since 1796 and comprises a territory of 89,480 square miles. The population in 1931 was estimated at 313,619 (excluding about 7,379 aborigines). The birth-rate was 31.4 and the death-rate was 21.8. The capital, Georgetown, has a population of 62,690. In 1931 there were 184 schools receiving Government aid with 41,429 students and 945 teachers. Secondary education is provided for both sexes.

The total revenue of British Guiana in 1931 amounted to £916,939 and the expenditures to £1,075,983. There were 180,366 acres under cultivation, the chief crops being sugar, rice, coconuts, coffee, cacao, rubber and limes. This territory is rich in gold and diamonds. Manganese, mica and bauxite are also found. Oil is also believed to exist.

In 1931 the imports into British Guiana amounted to £1,595,205 and the exports to £2,010,462. The chief imports were flour, cotton manufactures,

tobacco in various forms, machinery, manures, fish, coal, hardware, oils, beef and pork, lumber, beer and ale, spirits, boots and shoes and butter. The exports were sugar, rum, balata, charcoal, timber, rice, diamonds and gold. In 1931 a total of 1,523,930 tons of shipping entered and cleared.

Information regarding health conditions in British Guiana has been furnished by Dr. E. Cochrane and among the diseases listed as important from the public health point of view are malaria, blackwater fever, leprosy, syphilis, yaws, granuloma inguinale, amoebiasis, typhoid fever, hookworm disease, filariasis, elephantiasis, chyluria, tropical ulcer, tuberculosis and general malnutrition. For the period covered by the questionnaire submitted there are listed 2500 cases of malaria of the different types, 50 cases of blackwater fever, 600 cases of leprosy, over 1000 cases of filariasis of different forms except Loa Loa and 2,150 cases of nephritis. In regard to nephritis there were in 1931 a total of 487 deaths due to this cause. Enteric fever and bacillary dysentery are both rather common, there being 250 cases of the former reported during 1931 and 173 cases of the latter disease. During this year there were 383 cases of leprosy in the Leprosy Hospital Compound with an average hospital population of 260. A new ordinance passed during the year provides for diagnosis by a Leprosy Board and the removal of newborn children from leper parents. Leprosy is also notifiable. Of 193 patients under treatment, 142 were improved, 42 remained stationary and 9 became worse. During 1931, 60 lepers were discharged as "negative." Hookworm disease to a degree calling for treatment does not seem to be common.

According to "World Weather Records" the mean pressure for the ten year period, 1921–1930, (1000 mm. plus) (corrected) was 12.6. The mean temperature for the same period was 299.9° absolute and the average precipitation was 88.81 inches.

Further information concerning health conditions in Guiana is to be found in *Tropical Diseases Bulletin* (Supplements), Vols. 28 to 31 for 1931 to 1934.

TABLE 64

BRITISH GUIANA

Reported by: Surgeon-General, Dr. E. Cochrane

Period: Questionnaire dated[1] November, 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General	25,000[2]	+	+
Benign tertian	+	Coastal areas	C	+	+
Quartan	+	Interior, River banks		+	+
Subtertian	+	Interior mainly		+	+
Blackwater Fever	+	Fairly general	50		+
Piroplasmosis	−				−

TABLE 64

BRITISH GUIANA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Leishmaniasis	+				−
Kala-azar	−				−
Oriental Sore	+	Occasionally imported	0		−
Espundia	−				−
Relapsing Fever	−			+	−
S. recurrentis	−				−
S. duttoni	−				−
S. venezuelense	−				−
S. berberum	−				−
Rat-Bite Fever	−				−
Yellow Fever	[3]	Coast and river banks	4	+	+
Dengue Fever	+	Georgetown sporadic		+	−
Pappataci Fever	−			−	−
Plague	−			+	+
Typhus Fever	−				−
Trypanosomiasis	−			−	−
African Human	−				−
T. gambiense	−				−
T. rhodesiense	−				−
South American	−				−
T. cruzi	−				−
Oroya Fever	−				−
Undulant Fever	−				−
Leprosy	+	General	600		+
Syphilis	+	General	3,000		+
Yaws	+	Interior	200		+
Granuloma Inguinale	+	Urban	150		+
Tularemia	−				−
Smallpox	[4]	Sporadic			+
Amebiasis	+	General	630[2,5]		+
Balantidium Dysentery	+		R		−
Bacillary Dysentery	+	General			+
Cholera	[6]				+
Typhoid Fever	+	Rural	200		+
Para-Typhoid Infection	+	Rural	50		+
Sprue	+	Sporadic	?		−
Hill Diarrhea	−				−
Ascariasis	+	Rural	270[2]		+
Hookworm Disease	+	Rural	720[2]		+
Giardia Enteritis	−				
Trichomas Infection	+	Sporadic			−
Tropical Liver	?				−
Infantile Biliary Cirrhosis	−				−
Schistosomiasis	−				−
Filariasis	+	Georgetown	1,010	+	+
F. bancrofti	+			+	+
Loa Loa	−				
O. volvulus	+			+	+
F. perstans	+			+	+
F. demarquayi	+			+	+
F. ozzardi	+			+	+
Juxta-Articular Nodules	?				
Elephantiasis	+	Georgetown mainly	?	+(?)	+
Chyluria	+	Georgetown mainly	?	+(?)	+

TABLE 64

BRITISH GUIANA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Dracontiasis	+				
D. medinensis	+	Imported	R	+	−
Paragonimiasis	−				−
Clonorchiasis	−				−
Fasciolopsis					
F. hepatica	−				−
F. buskii	−				−
Cestodes	+				
Tænia saginata	+		R	+	−
Tænia solium	−			+	−
Dibothriocephalus	−				−
Hymenolepis nana	−				−
Sparganum mansoni	+		0	+(?)	−
S. prolifer	−				−
Trichuris	+				
T. trichiura	+	General	?		−
H. heptaticus	−				−
Trichinelliasis	+				
T. spiralis	+	Sporadic	R		−
Climatic Bubo	−				−
Rhinosporidiosis	−				−
Goundou	+	Unknown	?		−
Ainhum	+	Unknown	?		−
Big Heel	−				−
Subcutaneous	+		6	+	−
Blood sucking	−				
Intestinal	−				
Larva Migrans	−				
Leech Infection	+		R		−
Leucodermia	+	East Indians	?		−
Cheloid	+	Mostly in Negroes	?		−
Ulcus Tropicum	+	Rural	?		+
Albinism	+		R		
Septic Sore	+	General	?		−
Pemphigus Contagiosus	+	Poorer classes	?		−
Ulcerating Dermatitis	−				−
Madura Foot	+		R		−
Other Mycetoma	−				−
Blastomycosis	−				−
Mossy Foot	−				−
Pityriasis Nigra	−				−
Pityriasis Versicolor	+	General	?		−
Dhobie's Itch	+		R		−
Seborrhoea	+	General	?		−
Pinta	+		R		−
Tinea Imbricata	−				−
Trichosporosis	+	General	?		−
Trichomycosis	−				−
Acarine Dermatomycosis	+	General	150[2]		−
Epidemic Dropsy	−				−
Peripheral Neuritis	?				
Beriberi	?				
Pellagra	+	Urban	6		−
Scurvy	+	Sporadic. Interior	(1928) 36		−
General Malnutrition or Undernutrition	+	Adults and children	2,500		+
Heat Stroke	−				−

TABLE 64

BRITISH GUIANA—*Continued*

II. Diseases Usually Considered as of Temperate Climates

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Scarlet Fever	+	Urban	R		−
Diphtheria	+	General	35		−
Measles	+	Occasional general epidemic	2		+
German Measles	−				−
Varicella	+	General	50		+
Epidemic Meningitis	+	Georgetown. Sporadic	R		−
Infantile Paralysis	+	Georgetown. Sporadic	3		−
Epidemic Encephalitis	−				−
Syphilis of Central Nervous System	+		R		−
Influenza	+	General sporadic epidemic	?		−(?)
Common Cold	+	General	?		−
The Pneumonias	+	Rural East Indians	750[2]		+
Cholelithiasis	+	Male East Indians	10		−
Urinary Calculus	+		6		−
Nephritis	+	General	2,150[2]		+
Diabetes	+		100[2]		−
Pernicious Anemia	+		20		−
Osteomyelitis	+		50[2]		−
Tuberculosis	+				+
Pulmonary	+	[7]	400[2]		+
Bone	+		30		+
Skin	+		3		−
Malignancy (all forms)	+	Highest in females	125[2]		+
Trachoma	+		R		−
Weil's Disease	−				−
Tsutsugamushi Disease	−				−
Rabies	−				−
Unusual Skin Disease	−				−
Thyroid Disease (Goiter)	+		15		−
Rheumatic Fever	+		R		−
Arthritis (Nonspecific)	+	General. Laborers especially	300		−
Rickets	+		R		−
Dental Caries	+	General	?		+
Toxemias of Pregnancy	+	General	30[2]		−
Cardio-Vascular Diseases	+				+
Hypertension	+	General	200		+
Valvular Lesions	+		275		+
Aneurysm	+		40		+
Myocarditis	+	East Indians	C		+

Reported by: Report of the Surgeon-General *Period:* 1932

I. Tropical Diseases

Malaria	+		12,931[8]	+	+
Benign tertian	+			+	+
Quartan	+			+	
Subtertian	+			+	

TABLE 64

BRITISH GUIANA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Blackwater Fever	+		16		
Relapsing Fever	+		0		−
Yellow Fever	+		0	+	−
Dengue Fever	+		0	+	
Pappataci Fever				−	
Plague	+		0	+	
Typhus Fever	+		0		
Trypanosomiasis	+		0		
Undulant Fever	+		0		
Leprosy	+		37		
Syphilis	+		2,483[9]		+
Yaws	+		70		+
Smallpox	+		0		
Amebiasis	+		28		+
Bacillary Dysentery	+		3[10]		
Cholera	+		0		
Typhoid Fever	+		82		
Para-Typhoid Infection	+		0		
Sprue	+		0		
Ascariasis	+		423		
Hookworm Disease	+		252		
Schistosomiasis	+		0		
Filariasis	+		665	+	+
Elephantiasis	+		45		+
Chyluria	+		1		
Cestodes	+		0		
Trichuris	+				
T. trichiura	+		0		
Trichinelliasis	+		0		
Myiasis	+		5		
Tinea Imbricata	+		94[11]		
Acarine Dermatomycosis	+		113[12]		
Epidemic Dropsy	+		0		
Peripheral Neuritis	+		107[13]		
Beriberi	+		2		
Pellagra	+		0		
Scurvy	+		6		
Heat Stroke	+		0		

II. DISEASES USUALLY CONSIDERED AS OF TEMPERATE CLIMATES

Scarlet Fever	+		0		
Diphtheria	+		43		
Measles	+		4		
German Measles	+		0		
Varicella	+		49		
Epidemic Meningitis	+		0		
Infantile Paralysis	+		9		
Epidemic Encephalitis	+		0		
Influenza	+		206		+
Common Cold	+		822		+
The Pneumonias	+		508[14]		+
Cholelithiasis	+		70		
Urinary Calculus	+		7		
Nephritis	+		963		
Diabetes	+		124		

TABLE 64

BRITISH GUIANA—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Pernicious Anemia	+		59		
Osteomyelitis	+		94[15]		
Tuberculosis	+		729		+
Pulmonary	+		708[16]		+
Bone	+		12		
Skin	+		0		
Malignancy (all forms)	+		188		
Weil's Disease	+		0		
Rabies	+		0		
Thyroid Disease (Goiter)	+		2		
Arthritis (Nonspecific)	+		695		+
Rickets	+		0		
Dental Caries	+		?		
Toxemias of Pregnancy	+		1		
Cardio-Vascular Diseases	+		336[14]		+
Hypertension	+		96		
Valvular Lesions	+		95		
Aneurysm	+		33		
Myocarditis			274		

[1] Numbers, unless otherwise stated, mean annual average (study of 1922–1931 figures).
[2] All hospitals.
[3] Not since 1885.
[4] Not since 1904.
[5] All dysenteries.
[6] Not since 1856.
[7] Highest incidence, aboriginal Indians, Negro, Portuguese; lowest, East Indians and Chinese.
[8] Refer also to previous report of Dr. Cochrane.
[9] Excluding soft chancre.
[10] 127 cases undefined dysentery.
[11] Taenia.
[12] Scabies.
[13] Type not specified.
[14] Deaths.
[15] Osteitis.
[16] Including laryngeal.

BRITISH HONDURAS

British Honduras, a crown colony, is situated south of Yucatan and about 600 miles west of Jamaica. It has an area of 8,598 square miles and a population (1931) of 51,347. The birth rate in 1931 was 36.78 and the death rate was 36.72. In 1930 there were 78 primary schools with 7,834 students. The Government grant for education was 14,871 pounds. There were also four secondary schools under denominational administration.

In 1931–32 the revenue of Honduras amounted to $875,045 and the expenditures to $1,035,600. The imports for 1931–32 amounted to $4,435,358 and the exports to $2,911,066. The chief products of importation and exportation are provisions, beverages and tobacco, raw materials, manufactured articles

and miscellaneous. Mahogany, bananas, citrus fruits, cacao, plantains, etc., are the chief products. In 1931 a total of 327,271 tons of shipping entered the colony.

See Table 65 for details of health conditions in Honduras which have been taken from the health report for 1932.

There are no data on weather conditions in "World Weather Reports."

TABLE 65

BRITISH HONDURAS

Reported by: Public Health Report *Period:* 1932[1]

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General	498	+	+
Benign tertian	+	General. Particularly S[t]ann Creek	164	+	+
Quartan	+	Corozal and Orange Walk	9	+	
Subtertian	+	General	325	+	+
Blackwater Fever	+	Corozal, Orange Walk and Stann Creek	22		
Leishmaniasis	+	Stann Creek	1	+	
Espundia	+	Balize, Corozal, Toledo, Stann Creek	30		
Yellow Fever	[2]			+	
Trypanosomiasis	+		0		
Syphilis	+	Balize	41[3]		
Yaws	+				
Smallpox	+		0		
Amebiasis	+	Balize, Stann Creek, El Cayo	50		
Bacillary Dysentery	+	Balize, Corozal	64		
Typhoid Fever	+		0		
Ascariasis	+		32[4]		
Hookworm Disease	+	Country districts	38[5]		+
Filariasis	+		0		
Climatic Bubo	+	Balize, Stann Creek, El Cayo	15[6]		
Ainhum	+	Stann Creek	1		
Myiasis	+	El Cayo	1	+	
Ulcus Tropicum	+	Toledo	C		
Blastomycosis	+	Stann Creek	1		
Beriberi	+	Balize	2		
Pellagra	+	El Cayo	1		
Scurvy	?	Succotz	1		

II. Diseases Usually Considered as of Temperate Climates

Varicella	+	Outbreak at Benque Viejo			
Influenza	+	Balize, Corozal, Orange Walk	234		+
Common Cold	+	Balize	2		
The Pneumonias	+	Stann Creek, Balize	50		

TABLE 65

BRITISH HONDURAS—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Cholelithiasis	+	Stann Creek	1		
Nephritis	+	Balize	22		
Diabetes	+	Corozal	2[7]		
Pernicious Anemia	+	Balize, Corozal, Orange Walk	5		
Osteomyelitis	+	Balize, Stann Creek	5[8]		
Tuberculosis	+		45		+
Pulmonary	+	Balize, El Cayo, Stann Creek	28		+
Bone	+	Balize, Toldeo	5		
Malignancy (all forms)	+		30		
Thyroid Disease (Goiter)	+	El Cayo	1		
Rheumatic Fever	+	General	14[9]		
Arthritis (Nonspecific)	+	Toledo, Corozal, Stann Creek	11		
Dental Caries	+	Toledo, El Cayo, Stann Creek	15[10]		
Toxemias of Pregnancy	+	Corozal, El Cayo, Balize	4		
Cardio-Vascular Diseases	+		28		
Hypertension	+	Corozal	1		
Valvular Lesions	+	Corozal, Balize, Stann Creek	13		
Aneurysm	+	Stann Creek	1		
Myocarditis	+	Stann Creek, Balize, El Cayo	9		

[1] See Appendix.
[2] Not since 1921.
[3] Venereal diseases *very common* in all districts.
[4] "Helminthiasis" very common. (Infer ascariasis is meant.)
[5] Indication is that this is very common.
[6] Referred to as "non-specific bubo."
[7] Deaths.
[8] Osteitis.
[9] Acute rheumatism.
[10] Includes diseases of teeth and gums.

JAMAICA

Jamaica, discovered by Columbus in 1494, has been under British rule since 1655. Included under the Government of Jamaica are the Turks and Caicos Islands, Cayman Islands, Morant Cays and Pedro Cays. The area of Jamaica is 4,450 square miles and the Turks and Caicos Islands include 224 square miles. The population of Jamaica was estimated in 1931 to be 1,050,667, of which the majority were black. The capital is Kingston with a population of 73,039 in 1932. The birth rate for Jamaica during this year was 32.27, the death rate, 17.21, the illigitimate rate per 100 births, 71.71 and the infant mortality was 20.02.

There is no Established Church in Jamaica but many denominations are

present, including Roman Catholic. The exact number of members is unknown. In 1931 there were 655 public elementary schools with 134,012 students. Besides these there are two secondary schools and three training colleges for women, one for men and nine industrial schools. Government grants for education amounted, in 1931, to £158,240. The revenue of Jamaica, in 1931–32, amounted to £2,085,793, the expenditures, £2,135,767, the imports, £4,945,339 and the exports, £3,420,750. The principal imports include boots and shoes, motor cars, motor parts, cotton goods, fish, rice, flour, hardware, milk, gasoline, timber, cigarettes and coal. The exports include coconuts, logwood, sugar, coffee, rum, coco, ginger, cigars, pimento, oranges, copra and bananas. Nearly one million acres are under cultivation and livestock raising is also an important industry.

The Turks and Caicos Islands are a Dependency under the Government of Jamaica. There are at least thirty small cays having an area of 165 square miles. Eight of these are inhabited, the seat of Government being Grand Turk, which is 7 miles long and 2 miles wide.

According to the Annual Report of the Medical Department for 1932 the following diseases are among those present in Jamaica: malaria, black-water fever, leprosy, syphilis, yaws (33,338 reported in 1932), granuloma inguinale, amebiasis, typhoid fever, hookworm disease, tropical ulcer, beriberi, pellagra, general malnutrition and undernutrition and the respiratory diseases, including tuberculosis (1932 cases reported in 1932). During recent years a Yaws Commission has been at work in Jamaica and several noteworthy facts have been brought to light regarding this disease. The report mentioned above states "The incidence of infection was found to be high, being 65 per cent of the unselected cases examined; while nearly 80 per cent of persons over 20 years of age had suffered from yaws. Infection occurred in 76 per cent of patients before the age of 10 years and 91 per cent of the patients contracted the disease before adolescence. The disease is less common among the better class of people, though a family free from yaws may live in close proximity to an infected family." Further details concerning health conditions in Jamaica may be found in Table 66. Additional information is available in the *Tropical Diseases Bulletin* (Supplements), Vols. 28 to 31 for 1931 to 1934, respectively.

No data concerning weather conditions in Jamaica are available in "World Weather Records."

TABLE 66

JAMAICA

Reported by: Annual Report of the Medical Department *Period:* 1932[1]

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General, endemic	7,769[2]	+	+
Benign tertian	+		3,482	+	+
Quartan	+		35	+	+
Subtertian	+		2,357	+	+
Blackwater Fever	+		19		+
Leprosy	+	General	23		+
Syphilis	+		5,265		+
Yaws	+	General	33,338		+
Granuloma Inguinale	+		7		
Smallpox	+		0		
Amebiasis	+		67		+
Bacillary Dysentery	+	General	8[3]		
Typhoid Fever	+	Epidemic in St. Thomas, Westmoreland	926		+
Para-Typhoid Infection	+	St. James, Manchester, St. Catherine	3[4]		
Ascariasis	+		42		
Hookworm Disease	+	Manchester, St. James, St. Thomas	17,910		+
Juxta-Articular Nodules	+		7		
Trichuris	+		107		
Goundou	+		2		
Ulcus Tropicum	+		C		
Acarine Dermatomycosis	+		C[5]		
Beriberi	+		1		
Pellagra	+		8		
General Malnutrition or Undernutrition	+		C		

II. Diseases Usually Considered as of Temperate Climates

Scarlet Fever	+	St. James	2		
Diphtheria	+	Kingston and scattered	30		
Measles	+	Epidemic	165		+
Varicella	+	General, epidemic	388		+
Epidemic Meningitis	+	Scattered	9		
Infantile Paralysis	+	Portland and Kingston	2[6]		
Epidemic Encephalitis	+	St. James, Hanover, St. Andrew	4		
Influenza	+		557		+
The Pneumonias	+		391		+
Cholelithiasis	+		2		
Urinary Calculus	+		4		
Nephritis	+		109		
Diabetes	+		74		
Pernicious Anemia	+		2		
Osteomyelitis	+		49[7]		

TABLE 66

JAMAICA—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Tuberculosis	+	Kingston especially	1,932		+
Pulmonary	+	General	1,307		+
Bone	+		42		+
Skin	+		6		
Malignancy (all forms)	+		263		+
Thyroid Disease (Goiter)	+		1		
Rheumatic Fever	+		3[8]		
Arthritis (Nonspecific)	+		887		+
Rickets	+		1		
Dental Caries	+		28[9]		
Cardio-Vascular Diseases	+				+
Hypertension	+		1		
Valvular Lesions	+		27		
Aneurysm	+		6		
Myocarditis	+		47		

[1] See Appendix.
[2] Outbreak malignant tertian at Runaway Bay, Savana la Mar, and St. Elizabeth.
[3] 64 cases dysentery.
[4] 90 cases undefined.
[5] Scabies.
[6] Also 19 cases "poliomyelitis" (others called "acute").
[7] "Acute infective osteomyelitis and periostitis."
[8] Also 887 cases "acute rheumatism."
[9] Diseases of teeth or gums. Caries said to be very common among children.

CAYMAN ISLANDS

The Cayman Islands form a Dependency of Jamaica and consist of Grand Cayman, Little Cayman and Cayman Brac. These Islands are situated in the Caribbean Sea, about 200 miles northwest of Jamaica. The population of the Islands, in 1931, was estimated at 5,987. Grand Cayman is 17 miles long and 4 to 7 miles in width, Little Cayman is 9 miles long and a little over a mile in width, while Cayman Brac is 11 miles long and a little over a mile wide. The principal industries are coconut planting and turtle fishing. In 1930 there were 11 Government primary schools and 6 private schools with a total of 926 students. The revenue in 1931 was £6,210 and the expenditures amounted to £7,290. The exports include green turtles, thatch rope, hides, turtle shell, cattle and ponies. The total imports in 1930 amounted to £41,762 and the exports to £11,450. Total shipping registered at Georgetown during 1931 amounted to 4,600 tons.

Malaria is endemic in the Cayman Islands. The general health conditions seem to be splendid since few diseases are reported (See Table 67). Our reports agree with that contained in the *Tropical Diseases Bulletin* (Supplements), Vol. 31, 1934, which states that "The health of the people of the Cayman Islands has been exceptionally good."

No data are included in "World Weather Records" for the Cayman Islands.

TABLE 67

CAYMAN ISLANDS

Reported by: Medical Report *Period:* 1932

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Endemic	R	+	+[1]
Typhoid Fever	+		6		
Ascariasis	+	General in poorer class	C		

II. Diseases Usually Considered as of Temperate Climates

Tuberculosis	+		R		
Pulmonary	+		1		

[1] Hurricane caused food and water contamination. Anticipate an increase.

ANTIGUA

The Island of Antigua has an area of 108 square miles and its dependencies, Barbuda and Redonda, have areas of 62 square miles and 1 square mile, respectively. Antigua is the seat of government and the principal town is St. John with a population of 6,997. The birth-rate in Antigua in 1931 was 30.48 and the death-rate was 36.02. Over seventy-five per cent of the births were illegitimate. In 1931 there were 23 elementary schools. The revenue of the colony in 1930–31 was £73,730 and the expenditures amounted to £91,351. The imports in 1931 amounted to £155,256 and the exports amounted to £46,576. The principal products are sugar and cotton.

Among the diseases of public health importance, according to the Annual Medical and Sanitary Report, are malaria, leprosy, syphilis, bacillary dysentery, filariasis and influenza. Further information is contained in Table 68.

No data on weather conditions are available in "World Weather Records."

TABLE 68

ANTIGUA

Reported by: Annual Medical and Sanitary Report *Period:* 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Widespread	2,511	+	+
Benign tertian	+	South and central districts	10	+	+

TABLE 68

ANTIGUA—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Quartan	+	Freetown and south districts	16	+	+
Subtertian	+		370	+	+
Blackwater Fever	−				−
Leprosy	+		31		+
Syphilis	+		254		+
Smallpox	+		1[1]		−
Bacillary Dysentery	+		174[2]		+
Cholera	−				−
Typhoid Fever	+	Sporadic	6		−
Ascariasis	+		1		−
Filariasis	+		36	+	−
Elephantiasis	+		2		−
Cestodes	+		3	+	−
Pellagra	+		3		−
General Malnutrition or Undernutrition	+	Infants	11		−
II. Diseases Usually Considered as of Temperate Climates					
Measles	+	Small High School outbreak			
Influenza	+		1,873		+
The Pneumonias	+		72		
Nephritis	+		29		
Diabetes	+		3		
Tuberculosis	+		34		+
Pulmonary	+		28		+
Bone	+		4		
Malignancy (all forms)	+		22		
Trachoma	+		4		
Rabies	+		0		
Toxemias of Pregnancy	+		3[3]		
Cardio-Vascular Diseases	+		26		+
Valvular Lesions	+		3		
Aneurysm	+		2		
Myocarditis	+		2		

[1] Referred to as "alastrim."
[2] Referred to as "dysentery."
[3] Under "obstetrical" heading were listed 3 cases toxaemia and 2 cases eclampsia.

DOMINICA

The Island of Dominica, in 1931, had a population of 43,098. The chief town is Roseau with slightly over 7,000 inhabitants. The revenue of Dominica for 1930–31 amounted to £94,390 and the expenditures amounted to £104,504. There was an imperial grant of £17,000 and over £13,000 from the Colonial Development Fund. The imports, in 1931, amounted to £167,799 and the exports amounted to £68,938. The chief products consist of limes, lime juice, citrate of lime, bay oil, lime oils, orange oil, coco, coconuts, copra and fruit.

According to the Annual Medical and Sanitary Report for 1932 the following diseases, of interest to this survey, were present: malaria, leprosy, syphilis, yaws, balantidium dysentery, bacillary dysentery, typhoid fever, ascariasis, hookworm disease, filariasis, climatic bubo, tropical ulcer, septic sore and respiratory diseases including tuberculosis. Further information may be found in Table 69. Also additional information concerning health conditions in Dominica is available in the *Tropical Diseases Bulletin* (Supplements), Vols. 30 and 31 for 1933 and 1934.

No data are available in "World Weather Records" for Dominica.

TABLE 69

DOMINICA

Reported by: Annual Medical and Sanitary Report *Period:* 1932

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Widespread. Localized epidemics	3,000+	+	+
Subtertian	+	Soufrière epidemic	200	+	+
Leprosy	+	Scattered	32		+
Syphilis	+		79[1]		+
Yaws	+		2,400		+
Amebiasis	+		9		
Bacillary Dysentery	+		194[2]		+
Typhoid Fever	+		8[3]		
Ascariasis	+	General	49[4]		+
Hookworm Disease	+	General	4		+
Filariasis	+		2	+	
Cestodes	+		2[5]	+	
Climatic Bubo	+		10[6]		
Ulcus Tropicum	+		285[7]		
Septic Sore	+		C		
Acarine Dermatomycosis	+		1[8]		
Pellagra	+		4[9]		
General Malnutrition or Undernutrition	+		11[10]		

II. Diseases Usually Considered as of Temperate Climates

Varicella	+	Roseau, Soufrière, Grandbay	51		
Infantile Paralysis	+	Leeward Coast and Grandbay	16		
Influenza	+		12[9]		
Common Cold	+		3		
The Pneumonias	+		33		
Urinary Calculus	+		1		
Nephritis	+		32		
Diabetes	+		3		
Osteomyelitis	+		1		
Tuberculosis	+		129		+
Pulmonary	+		123		+
Bone	+		2		

TABLE 69

DOMINICA—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malignancy (all forms)....	+		19		
Trachoma.....	+		1		
Rheumatic Fever.....	+		1[11]		
Arthritis (Nonspecific)....	+		8		
Rickets.....	+		R		
Dental Caries.....	+		61[12]		
Toxemias of Pregnancy....	+		4		
Cardio-Vascular Diseases..	+				
Hypertension.....	+		1		
Valvular Lesions.....	+		17		
Aneurysm.....	+		2		
Myocarditis.....	+		7		

[1] 1,700 injections given for syphilis.
[2] Figure includes amebic, bacillary and undefined.
[3] Enteric.
[4] 55 deaths from intestinal parasites.
[5] Taenia.
[6] "Non-specific."
[7] Listed "ulcers." "Cases of tropical ulcer formed a large percentage of cases of the skin and connective tissues."
[8] Scabies.
[9] Deaths.
[10] 31 deaths from malnutrition and marasmus.
[11] 3 cases of acute rheumatism.
[12] Includes diseases of teeth and gums.

MONTSERRAT

The area of Montserrat is 32.5 square miles. The population in 1931 was estimated at 12,250. The chief town is Plymouth with a population of 1,700 according to the census of 1931. The revenue of Montserrat in 1930–31 was £28,376 and the expenditures amounted to £31,196. During 1931 the imports amounted to £42,544 and the exports to £33,841. The exports consist of cotton, lint, sugar, lime-juice, bay oil, cattle, cottonseed meal, papain, onions and tomatoes. Nearly 3,500 acres were devoted to cotton in 1931.

Among the diseases of public health importance, according to Dr. N. J. Linnington Margetson who has kindly supplied us with data, are yaws, filariasis and syphilis, "with occasional fevers of the typhoid or paratyphoid type." He states that no regular system of notification exists, except in cases of epidemics.

No data concerning weather conditions are available in "World Weather Records" for Montserrat.

TABLE 70

MONTSERRAT

Reported by: N. J. Linnington Margetson, M.D.
Period: Questionnaire dated November, 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Imported to country villages by laborers from Dominica	0	–	–
Benign tertian	+		7	–	–
Quartan	–				–
Subtertian	–				–
Blackwater Fever	–				–
Piroplasmosis	–				–
Leishmaniasis	–				–
Relapsing Fever	–				–
S. recurrentis	–				
S. duttoni	–				
S. venezuelense	–				
S. berberum	–				
Rat-Bite Fever	–				–
Yellow Fever	–				–
Dengue Fever	–				–
Pappataci Fever	–				–
Plague	–				–
Typhus Fever	–				–
Trypanosomiasis	–				–
Oroya Fever	–				–
Undulant Fever	–				–
Leprosy	+		1		–
Syphilis	+		10%		+
Yaws	+				+
Granuloma Inguinale	+		R		–
Tularemia	–				–
Smallpox	–				–
Amebiasis	+	Regular outbreaks	R		–
Balantidium Dysentery	–				–
Bacillary Dysentery	+		R		–
Cholera	–				–
Typhoid Fever	+	Country. Sporadic			–
Para-Typhoid Infection	+	Country. Sporadic			–
Sprue	–				–
Hill Diarrhea	–				–
Ascariasis	+	Children	C		–
Hookworm Disease	+		R		–
Giardia Enteritis	–				–
Trichomonas Infection	–				–
Tropical Liver	–				–
Infantile Biliary Cirrhosis	–				–
Schistosomiasis	–				–
Urinary	–				–
Intestinal	–				–
Visceral	–				–
Far Eastern	–				–

TABLE 70

MONTSERRAT—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Filariasis	+	General	50	+	+
F. bancrofti	+			+	+
Loa Loa	−				−
O. volvulus	−				−
F. perstans	−				−
F. demarquayi	−				−
F. ozzardi	−				−
Juxta-Articular Nodules	−				−
Elephantiasis	+		30		
Chyluria	+		R		
Dracontiasis	−				−
D. medinensis	−				−
Paragonimiasis	−				−
Clonorchiasis	−				−
Fasciolopsis	−				−
Cestodes	+				
Tænia saginata					
Tænia solium	+	Only among Syrian population	5		−
Trichuris	−				−
Trichinelliasis	−				−
Climatic Bubo	+		R		
Rhinosporidiosis	−				−
Goundou	−				−
Pemphigus Contagiosus	−				−
Ulcerating Dermatitis	−				−
Madura Foot	−				−
Blastomycosis	−				−
Mossy Foot	−				−
Pityriasis Nigra	−				−
Pityriasis Versicolor	+		C		−
Seborrhoea	+				
Pinta	−				−
Tinea Imbricata	+				
Trichosporosis	−				−
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	−				−
Diphtheria	−				−
Measles	−				−
German Measles	−				−
Varicella	+		R		
Epidemic Meningitis	−				−
Infantile Paralysis	−				−
Epidemic Encephalitis	−				−
Syphilis of Central Nervous System	+		R		−
Influenza	+	November to March	0		
Common Cold	+	November to March	C		
The Pneumonias	+		R		
Cholelithiasis	+		R		
Urinary Calculus	+		0		
Nephritis	+		R		

TABLE 70

MONTSERRAT—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Diabetes	+		6		
Pernicious Anemia	+		R		
Osteomyelitis	+		R		
Tuberculosis	+				
Pulmonary	+	General	25		+
Bone	+		R		
Skin	−				−
Malignancy (all forms)	+		R		
Trachoma	+		R		
Weil's Disease	−				−
Tsutsugamushi	−				−
Rabies	−				−
Unusual Skin Disease	+				
Thyroid Disease (Goiter)	+		R		
Rheumatic Fever	+		R		
Arthritis (Nonspecific)	+				
Rickets	+		R		
Dental Caries	+		C		+
Toxemias of Pregnancy	+		R		
Cardio-Vascular Diseases	+				
Hypertension	+				
Valvular Lesions	+				
Aneurysm	+		R		
Myocarditis	+		C		

Reported by: Annual Medical and Sanitary Report *Period:* 1932

I. TROPICAL DISEASES

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Happy Hill	7	(?)	
Benign tertian	+		7	(?)	
Syphilis	+		14		+
Yaws	+	Windward side			+
Amebiasis	+		1		
Typhoid Fever	+	Sporadic; country district	8[1]		
Para-Typhoid Infection	+				
Ascariasis	+	Children	C		
Filariasis	+	Glendon Hospital	5	+	
Elephantiasis	+				
Cestodes	+				
Tænia solium	+		R		
Ainhum	+		1		
Tinea Imbricata	+		1		
Acarine Dermatomycosis	+		C		
Peripheral Neuritis	+				
General Malnutrition or Undernutrition	+		R		

TABLE 70

MONTSERRAT—*Concluded*

II. Diseases Usually Considered as of Temperate Climates

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Varicella	+	Epidemic	R		
Epidemic Meningitis	+		2[2]		
Influenza	+		4[3]		
The Pneumonias	+		2		
Urinary Calculus	+		1		
Nephritis	+		3[4]		
Diabetes	+		1[4]		
Osteomyelitis	+		1		
Tuberculosis	+	St. Anthony; St. Peter	15[5]		
Pulmonary	+				
Malignancy (all forms)	+		7[5]		
Arthritis (Nonspecific)	+		3		
Cardio-Vascular Diseases	+		15[5]		
Valvular Lesions	+		2[5]		
Myocarditis	+		4		

[1] Includes para-typhoid.
[2] "Meningitis."
[3] Epidemic of "gastric influenza."
[4] 13 deaths due to "renal diseases."
[5] Deaths.

BRITISH VIRGIN ISLANDS

Some thirty islands located between the Greater and Lesser Antilles constitute what are known as the British Virgin Islands. The total area of these islands is 58 square miles and the population is small, numbering slightly over 5,000 in the last census available to us. The principal islands are Tortola, Virgin Gorda, Jost Van Dykes and Anegada. Road Town is the capital with a population of only several hundred. Sugar cane is the chief crop and commerce is carried on with livestock and poultry. The total revenue from April to December, 1931, was £4,048, the expenditures £5,398; the imports for 1931 amounted to £8,967 and the exports, £8,424. The shipping in 1931 amounted to 15,041 tons.

According to the report on health for 1933 there was a sharp outbreak of malaria with 65 cases. Practically no other illness of importance is reported for the year, in so far as our survey is concerned.

TABLE 71

BRITISH VIRGIN ISLANDS

Reported by: Report on the Health and on the Hospital *Period:* 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Sharp outbreak	65	+	+
Typhoid Fever	+		1		−
General Malnutrition or Undernutrition	+		2		−

II. Diseases Usually Considered as of Temperate Climates

Measles	+		2		−
The Pneumonias	+		3		−

GRENADA

The area of Grenada is 133 square miles and the population, as estimated in 1931, was 78,662. The births during this year were 2,379 and the deaths were 1,335. There were 60 elementary schools receiving support from the Government with 13,250 students. There is one school for boys for secondary education and two such schools for girls. In 1931 the revenue amounted to £141,739 and the expenditures amounted to £195,183. The total imports during this same year amounted to £269,618 and the exports to £281,260. The principal exports from Grenada are coco, nutmegs, mace, cotton, cotton seed, lime oil, etc. There are between 30,000 and 40,000 acres under cultivation. Sugar production is said to be decreasing. Rum is produced locally.

Among the diseases present in Grenada, according to the health report for 1932, are malaria, leprosy, syphilis, yaws, amebiasis, hookworm disease, filariasis and respiratory diseases, including tuberculosis. See accompanying charts for further information. Further details concerning health conditions in Grenada may also be found in the *Tropical Diseases Bulletin* (Supplements), Vols. 28 to 31 for 1931 to 1934.

"World Weather Records" report that at Richmond Hill, Grenada, the mean pressure (29 inches plus) over a ten year period, 1921–30, was 0.385. The mean temperature for this same period was 79.4°F. and the mean precipitation was 68.09 inches.

TABLE 72

GRENADA

Reported by: Report on the Medical and Sanitary Department *Period:* 1932

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	St. Andrew, St. Patrick endemic. Spotted, narrow coast strip	6,603	+	+
Benign tertian	+		47	+	+
Quartan	+		62	+	+
Subtertian	+		1,579	+	+
Relapsing Fever	+		0		–
Yellow Fever	+		0	+	–
Plague	+		0		
Typhus Fever	+		0		
Leprosy	+		14		–
Syphilis	+		262		
Yaws	+		1,464		+
Smallpox	+		0		
Amebiasis	+		5[1]		–
Bacillary Dysentery	+		0		
Cholera	+		0		
Typhoid Fever	+		66[2]		+
Para-Typhoid Infection	+		?[2]		
Ascariasis	+		12,534		+
Hookworm Disease	+		1,688[3]		+
Filariasis	+		1	+	
General Malnutrition or Undernutrition	+		0		

II. Diseases Usually Considered as of Temperate Climates

Varicella	+	Small localized outbreaks			
Influenza	+	St. George, St. Andrew, Carriacou	508		+
The Pneumonias	+		28		
Nephritis	+		23		
Diabetes	+		8		
Pernicious Anemia					
Osteomyelitis	+		5		
Tuberculosis	+		37		+
Pulmonary	+		36		+
Bone	+		1		
Malignancy (all forms)	+		23		
Thyroid Disease (Goiter)	+		1		
Arthritis (Nonspecific)	+		4		
Dental Caries	+		1,143[4]		+
Toxemias of Pregnancy	+		1[5]		
Cardio-Vascular Diseases	+		23		
Hypertension	+		3		
Valvular Lesions	+		7		
Aneurysm	+		3		
Myocarditis	+		10		

TABLE 72

GRENADA—*Concluded*

[1] The response to emetine treatment is the basis of diagnosis, which in most cases is amoebic. Claim there are few bacillary dysenteries.
[2] Referred to as enteric fever. Includes para-typhoid.
[3] Diagnosis is purely clinical.
[4] Referred to as "dental defects" and figure is incidence in examination of 27,423 school children.
[5] 9 cases of eclampsia listed under "diseases of generative system."

SAINT LUCIA

Saint Lucia is one of the Windward Islands in the West Atlantic and has an area of 233 square miles with a population, in 1931, of 59,676. The chief town is Castries. The births in 1931 numbered 1,911 and the deaths 1,215. In 1931 there were 50 schools, of which 43 were Catholic. In all there were 9,750 students. The government expenditure for education was £5,097. Primary education is free and obligatory. Secondary education is given by two schools which receive aid from the government. The revenue for 1931, including an imperial grant and a grant from the Colonial Development Fund, amounted to £98,902. The expenditures amounted to £103,893, including a repayment to the Colonial Development Fund of over £16,000. The imports were valued at £143,349 in 1931 and the exports at £131,924. Sugar, cacao, lime juice, molasses and syrup, lime oil, bay oil, bay rum, honey, hides, logwood, fuel, rum, coconuts, copra and fruits are the principal products.

According to the health report for 1932 the following diseases were among those present: malaria, leprosy, syphilis, yaws, ascariasis, hookworm disease, schistosomiasis mansoni, filariasis, dracontiasis, climatic bubo and respiratory infections, including the pneumonias and tuberculosis. See Table 73 for further information. Additional information regarding Saint Lucia may also be found in the *Tropical Diseases Bulletin* (Supplements), Vols. 28 to 31 for 1931 to 1934.

No records are available in "World Weather Records" on the climate of Saint Lucia.

TABLE 73

SAINT LUCIA

Reported by: Public Health Report *Period*: 1932

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+		2,247	+	+
Benign tertian	+		C	+	+
Quartan	+	District 5	C	+	+
Blackwater Fever	+		0		−

TABLE 73

SAINT LUCIA—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Leishmaniasis	+				
Kala-azar	+		0		−
Espundia	+				
Dengue Fever	+		0		−
Pappataci Fever	+		0		−
Trypanosomiasis	+		0		−
Leprosy	+	Leper Asylum	25		−
Syphilis	+		787		+
Yaws	+		1,422		+
Amebiasis	+		0		
Bacillary Dysentery	+		?[1]		
Typhoid Fever	+	District 1, 2, 3	5		
Para-Typhoid Infection	+		0		
Ascariasis	+	General	C[2,3]		
Hookworm Disease	+	District 1, 2, 3, 5	36		
Schistosomiasis	+	Soufrière	2[4]		
Urinary	+				
Filariasis	+		2		
Elephantiasis	+		1		
Dracontiasis	+		?		
Cestodes	+				
Trichuris	+		?		
Trichinelliasis	+		?		
Climatic Bubo	+		16[5]		
Epidemic Dropsy	+		1		
II. Diseases Usually Considered as of Temperate Climates					
German Measles	+		0		−
Varicella	+		0		−
Influenza	+		1		−
The Pneumonias	+		29		−
Cholelithiasis	+		1		−
Nephritis	+		13		−
Diabetes	+		1		−
Pernicious Anemia	+		1		−
Osteomyelitis	+		6		−
Tuberculosis	+				+
Pulmonary	+	General except district 5	54		+
Bone	+		0		−
Malignancy (all forms)	+		25		−
Thyroid Disease (Goiter)	+		0		−
Rheumatic Fever	+		2[6]		−
Dental Caries	+		73[7]		+
Toxemias of Pregnancy	+		1		−
Cardio-Vascular Diseases	+				−
Valvular Lesions	+		9		−
Myocarditis	+		20		−

[1] 4 cases of undefined dysentery.
[2] The reported incidence of "helminthic diseases is 7,024, ascaris being the greatest.
[3] 14 cases of "nematoda" other than ankylostoma.
[4] Referred to as "*Schistosoma mansoni*."
[5] Referred to as "non-specific bubo."
[6] Acute rheumatism.
[7] Includes teeth and gums.

SAINT VINCENT

The Island of Saint Vincent, one of the Windward Islands, has an area of 150.3 square miles. The population, in 1931, was 47,961. Kingstown, with a population of 4,269, is the capital. In 1931 the births were 1,971 and the deaths numbered 1,018. During the same year there were 36 primary schools with 8,838 students and a secondary school for boys with 59 students and one for girls with 75 students. The Government grant for education was £6,240.

The revenue in 1931 amounted to £102,803 and the expenditures amounted to £117,211. The imports during the year mentioned above amounted to £177,492 and the exports amounted to £113,165. The total shipping for 1931 was 1,280,309 tons. Among the chief products are arrowroot, cotton, copra, sugar, rum, molasses, coco, peanuts, cassava and spices. The cotton grown is the well-known Sea Island cotton, perhaps the best in the world. Of this product 456,089 pounds were exported in 1931. About 20,000 acres are under cultivation in Saint Vincent.

Among the diseases of public health importance in Saint Vincent, according to the Annual Medical and Sanitary Report for 1932, are malaria, leprosy, syphilis, yaws, ascariasis, hookworm disease, filariasis, climatic bubo, influenza, tuberculosis and rheumatic fever (of which there were 45 cases). Further information will be found in Table 74.

No data are available on weather conditions in "World Weather Records."

TABLE 74

SAINT VINCENT

Reported by: Annual Medical and Sanitary Report *Period:* 1932

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General. Epidemic District 2 South	942	+	+
Subtertian	+		33	+	−
Blackwater Fever	+		0		−
Leishmaniasis	+				−
Kala-azar	+		0		−
Espundia	+		0		−
Relapsing Fever	+		0		−
Yellow Fever	+		0		−
Dengue Fever	+		0		−
Pappataci Fever	+		0		−
Plague	+		0		−
Typhus Fever	+		0		−
Trypanosomiasis	+		0		−
Undulant Fever	+		0		−
Leprosy	+	Leper asylum	19		−

TABLE 74

SAINT VINCENT—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Syphilis	+	General	834		+
Yaws	+	General	22,170		+
Smallpox	+		0		−
Amebiasis	+		0		−
Bacillary Dysentery	+		0		−
Cholera	+		0		−
Typhoid Fever	+		11[1]		+
Para-Typhoid Infection	+		6		−
Sprue	+		0		−
Ascariasis	+	General	6,873		−
Hookworm Disease	+	South 3; Districts 1, 2	545		+
Schistosomiasis	+		0		−
Filariasis	+	Districts 1, 2; South 3	7	+	−
Elephantiasis	+		1		−
Chyluria	+		0		−
Dracontiasis	+		0		−
Cestodes	+		0		−
Trichuris	+		0		−
Trichinelliasis	+		0		−
Climatic Bubo	+		20[2]		−
Myiasis	+		0		−
Tinea Imbricata	+		23[3]		−
Acarine Dermatomycosis	+		1[4]		−
Epidemic Dropsy	+		0		−
Beriberi	+		0		−
Pellagra	+		0		−
Scurvy	+		0		−
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+		0		−
Diphtheria	+	District 1	1[5]		−
Measles	+	District 5	1		−
German Measles	+		0		−
Varicella	+	District 1, 2 north	13		−
Epidemic Meningitis	+		0		−
Infantile Paralysis	+		1		−
Epidemic Encephalitis	+		0		−
Influenza	+	General except district 2 north	371		+
Common Cold	+	Prisons and Asylums	C		+
The Pneumonias	+	General	43		−
Cholelithiasis	+		0		−
Urinary Calculus	+		0		−
Nephritis	+		28[5]		−
Diabetes	+	Districts 1, 2	5[5]		−
Tuberculosis	+		83		+
Pulmonary	+		73		+
Bone	+		9		−
Malignancy (all forms)	+		20[5]		−
Trachoma	+		0		−
Weil's Disease	+		0		−
Rabies	+		0		−
Thyroid Disease (Goiter)	+		0		−
Rheumatic Fever	+	Districts 1, 2, 5	45[6]		−

TABLE 74

SAINT VINCENT—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Rickets	+		0		—
Dental Caries	+		1		—
Cardio-Vascular Diseases	+		42		—
Hypertension	+	Districts 2, 3	8[5]		—
Valvular Lesions	+	General	23[5]		—
Aneurysm	+	Districts 1, 3	2[5]		—
Myocarditis	+	General	9[5]		—

[1] 20 cases of "enteric fever."
[2] "Non-specific bubo."
[3] Listed as Tinea.
[4] Scabies.
[5] Deaths.
[6] Also five cases of acute rheumatism.

TRINIDAD AND TOBAGO

Trinidad was first occupied by the British in 1797 and was ceded formally to Great Britain in 1802. The area of Trinidad is 1,862 square miles and that of Tobago is 114 square miles. According to the census of 1931 the population numbered 412,783. The white population includes English, French, Spanish and Portuguese. A large part of the population is composed of natives of African descent and East Indians with a relatively few Chinese. Births in 1931 were 12,366 and deaths were 8,264. In 1931 there were 290 elementary schools and intermediate schools, of which 44 were supported by the Government and 246 were assisted. There are three colleges for boys and various affiliated schools for secondary education and higher learning. The total revenue in 1931 was £1,641,144 and the expenditures amounted to £2,065,233. The imports amounted to £3,917,439 during the same year and the exports amounted to £4,643,859. The principal exports were asphalt, bitters, coco, coconuts, copra, crude oil, fuel, molasses, petrol spirit, kerosene, rum and sugar. The chief imports were manufactured goods of various types, foodstuffs, automobiles and parts, implements and tools, machinery, wood and timber. During 1931 there were 7,711,172 tons of shipping entered and cleared.

According to the Public Health Report for 1932 malaria was quite prevalent and other diseases of public health importance include amebiasis, hookworm disease and tuberculosis. Syphilis seems also to be of importance and yaws is present and 14,030 treatments were administered for this infection. See Table 75 for detailed information. The reader is also referred to the *Tropical Diseases Bulletin* (Supplements), Vols. 28 to 31 for 1931 to 1934 for detailed information regarding health conditions in Trinidad and Tobago.

"World Weather Records" report that the mean temperature at Trinidad for the ten year period 1921–30 was 79.9°F. and the mean total precipitation for the same period was 59.72 inches.

TABLE 75

TRINIDAD AND TOBAGO

Reported by: Public Health Report *Period:* 1932

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Widespread	2,883	+	+
Benign tertian	+	Guaracara and Cedros district	2,311	+	+
Quartan	+		32	+	+
Subtertian	+		135	+	+
Blackwater Fever	+		5		
Leishmaniasis	+				−
Kala-azar	+		0		−
Yellow Fever	[1]				−
Dengue Fever	+		0		−
Pappataci Fever	+		0		−
Plague	[2]				−
Typhus Fever	+		0		−
Trypanosomiasis	+		0		−
Leprosy	+		9		−
Syphilis	+		966		+
Yaws	+	General	44[3]		+
Smallpox	[4]				−
Amebiasis	+	Slight outbreak at Diego Martin	123		+
Bacillary Dysentery	+		15		−
Cholera	+		0		−
Typhoid Fever	+	Sporadic Maracos Valley rural districts	268		+
Para-Typhoid Infection	+		1		−
Sprue	+		2		−
Ascariasis	+		16		−
Hookworm Disease	+	Widespread rural districts	1,700[5]		+
Schistosomiasis	+		0		−
Filariasis	+		7	+	−
Elephantiasis	+		18		−
Chyluria	+		0		−
Dracontiasis	+		0		−
Cestodes	+		0		−
Trichuris	+		0		−
Trichinelliasis	+		0		−
Climatic Bubo	+		76[6]		−
Myiasis	+		18		−
Acarine Dermatomycosis	+		22[7]		−
Epidemic Dropsy	+		0		−
Beriberi	+		0		−
Pellagra	+		4		−
Scurvy	+		2		−
Heat Stroke	+		1[8]		−

TABLE 75

TRINIDAD AND TOBAGO—*Concluded*

II. Diseases Usually Considered as of Temperate Climates

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Scarlet Fever	+		0		−
Diphtheria	+	Port of Spain, St. Joseph and rural districts	103		+
German Measles	+		0		−
Varicella	+	General; outbreak Cedros and Tacarigua Orphanage	168		+
Epidemic Meningitis	+	Guaracara	2[9]		−
Infantile Paralysis	+	St. Andrew and Manzanilla	2		−
Epidemic Encephalitis	+		1		−
Influenza	+		59		+
Common Cold	+		2		−
The Pneumonias	+	General	336		+
Cholelithiasis	+		3		−
Urinary Calculus	+		19		−
Nephritis	+		340		−
Diabetes	+		61		−
Pernicious Anemia	+		17		−
Osteomyelitis	+		55[10]		−
Tuberculosis	+	General	541		+
Pulmonary	+		436		+
Bone	+		34		+
Malignancy (all forms)	+		161		+
Weil's Disease	+		0		−
Rabies	+		1[11]		−
Thyroid Disease (Goiter)	+		4		−
Rheumatic Fever	+		93[12]		−
Arthritis (Nonspecific)	+		95		−
Rickets	+		0		−
Dental Caries	+		81[13]		−
Toxemias of Pregnancy	+		64		−
Cardio-Vascular Diseases	+		549		+
Hypertension	+		52		−
Valvular Lesions	+		278		+
Aneurysm	+		29		−
Myocarditis	+		190		+

[1] Not since 1914.
[2] Not since 1912.
[3] 14,030 injections for yaws given.
[4] Not since 1926.
[5] There was an infection rate of 76.31% among 5,492 persons examined.
[6] Referred to as "nonspecific bubo."
[7] Scabies.
[8] Sunstroke.
[9] Deaths.
[10] Osteitis.
[11] Five deaths of acute ascending myelitis (paralytic rabies) occurred in southern part of Trinidad, caused by modified form of virus of rabies, spread by the blood-sucking vampire bat (*Desmodus rufus*). Live stock is affected by a similar disease.
[12] Referred to as "acute rheumatism."
[13] Includes diseases of gums.

PART FOUR

THE REPUBLIC OF FRANCE, THE NETHERLANDS AND OTHER COUNTRIES

SYRIA AND LEBANON

Since 1920 Syria and Lebanon have been under Mandate of France, an arrangement which was confirmed by the League of Nations in 1922 under the Declaration of London of that year. This territory is bounded by the Mediterranean on the west, by Palestine on the south, by Iraq on the east and by Turkey on the north. The country lies north of the tropical belt but harbors many of the so-called tropical diseases. The area subject to French Mandate is estimated at about 60,000 square miles. Since 1925, when the territory comprised five *états*, Damascus and Aleppo were united to form the Republic of Syria; the other territories are Latakia, Republic of Lebanon and Jebel Druze. Syria has a population of 1,696,638, Lebanon has 862,618, Latakia has 286,920 and Jebel Druze has 51,780. The entire population is composed mainly of Moslems of whom there are 1,514,755. Various religions are present. In the Mandate there were, in 1931, 680 public schools with 64,306 students, 1,061 private schools with 81,185 students and 621 foreign schools having 55,736 students. The Syrian University was established in Damascus in 1923 and this institution has faculties of medicine, law, pharmacy, dentistry and arts. In Beirut there are a school of arts and crafts, a French university and an American university, both of the latter two having schools of medicine.

The revenue of Syria, estimated for 1932, amounted to 17,057,489 Syrian pounds and the expenditures amounted to the same figure. The imports amounted to 57,518,000 Syrian pounds and the exports to 20,892,000 Syrian pounds. The chief imports are textiles, metals, animal produce, colonial produce, chemicals and allied products. The chief exports were animal produce, fruit, vegetables and textiles. Syria is mainly an agricultural and cattle breeding country. Wheat, barley, maize, olives, silk cocoons, cotton, various fruits and vegetables are grown. The country is rather poor in minerals. Northern Lebanon has been worked for iron and at Majerba the ore is rich. Lignite is present in South Lebanon. Most of the industries are on a very small scale, flour, oil, soap and silk thread being the most important.

From collected reprints and from reports sent to us by Dr. E. H. Hudson and Dr. E. L. Turner we note the following diseases, of interest to this

survey, present in Syria: malaria, leishmaniasis, dengue fever, plague, typhus fever, undulant fever, leprosy, syphilis, amebic dysentery, bacillary dysentery, the typhoid fevers, ascariasis, hookworm disease, elephantiasis (filariasis noted as "rare"), various skin diseases and the respiratory infections, including tuberculosis, etc. Further information may be found in Table 76, which include the materials kindly supplied by Drs. Hudson and Turner.

At Beirut, over a ten year period from 1921–30, there was a mean pressure (700 mm. plus) of 59.83 and at the same station the mean temperature was 21.50°C. and the mean precipitation was 32.82 inches.

TABLE 76

SYRIA AND LEBANON

Reported by: Dr. E. H. Hudson and Dr. E. L. Turner

Period: Questionnaries dated 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Coastal plain, Turkish border	C[1]	+	+
Benign tertian	+	Coastal plain	C	+	+
Quartan	+	North central Syria	R	+	+
Subtertian	+	Northwestern Syria, North coastal areas	C	+	+
Blackwater Fever	+	Beirut River; Alexandretta	R		
Piroplasmosis	+	Widespread in animals		+	
Leishmaniasis	+	General	C	+	+
Kala-azar	+	Tripoli region, Aleppo, Turkish border	R	+	+
Oriental Sore	+	General	C[2]	+	+
Espundia	−				
Relapsing Fever	+	General	R	+	
S. recurrentis	+	Imported by troops during Great War			
S. duttoni	+	Imported by troops during Great War			
S. venezuelense	+	Imported by troops during Great War			
S. berberum	+	Imported by troops during Great War			
Rat-Bite Fever	−				−
Yellow Fever	−			+	
Dengue Fever	+	General	C	+	−
Pappataci Fever	+	General	C	+	+
Plague	+	Sporadic. Endemic in ports	36[3]	+	+
Typhus Fever	+	Endemic, sporadic	R	+	+
Trypanosomiasis	[4]	Imported French Senegalese soldier	1		
Undulant Fever	+	Endemic	6–8	+	

TABLE 76

SYRIA AND LEBANON—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Leprosy	+	Endemic	R		
Syphilis	+	General	868[5]		+
Yaws	−				−
Granuloma Inguinale	+	Imported	R		
Tularemia	−				
Smallpox	+	Endemic	2[6]		−
Amebiasis	+	General	235[7]		+
Balantidium Dysentery	+	Endemic	R		
Bacillary Dysentery	+	General	C		+
Cholera	+	Imported	?		+
Typhoid Fever	+	General	C[8]		+
Para-Typhoid Infection	+	General	C[8]		+
Sprue	−				−
Hill Diarrhea	−				−
Ascariasis	+	General	25% Pop.[9]		+
Hookworm Disease	+	Widespread certain areas	30% Pop.[10]		+
Giardia Enteritis	+	Widespread, especially foreigners	2% Pop.[11]		
Trichomonas Infection	+	General			
Tropical Liver	?				
Infantile Biliary Cirrhosis	−				
Schistosomiasis	+	Almost always imported	R		−
Urinary	+	Almost always imported	R		
Intestinal	+	Almost always imported	R		
Visceral	−				
Far Eastern	−				−
Filariasis	+	Endemic in Beirut	R	+	−
F. bancrofti	+	Endemic in Beirut	R	+	
Juxta-Articular Nodules	+	General, especially Bedouin peasants	R		
Elephantiasis	+	Probably widespread	R	+(?)	
Chyluria	+		R		
Dracontiasis	+	Imported in Senegalese soldiers	R		
D. medinensis	+	Imported			
Paragonimiasis	−				
Fasciolopsis	−				
Cestodes	+	General		+	−
Tænia saginata	+	General	61[9]	+	+
Tænia solium	+	Probably imported	R	+	
Dibothriocephalus latus	−				−
Hymenolepis nana	+	General	[12]		
Sparganum mansoni	−				−
S. prolifer	−				−
Trichuris	+	General	30% Pop.		
T. trichiura	+	General	30% Pop.		
H. heptaticus	−				
Trichinelliasis	−				−

TABLE 76

SYRIA AND LEBANON—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Climatic Bubo					–
Rhinosporidiosis	–				–
Goundou	–				–
Ainhum	–				–
Big Heel	–				–
Myiasis	+?		R	+	
Subcutaneous	+	Common in cattle	R	+	
Blood sucking	–				–
Intestinal	+	Horses and cattle		+	
Leech Infection	+	Many sections of country	R		+
Leucodermia	+	Sporadic; Bedouin peasants	R		+
Cheloid	+	Sporadic	R		
Ulcus Tropicum	+	Sporadic			
Albinism	+	Certain Lebanon villages[13]			
Pemphigus Contagiosus	+	Sporadic	R		
Ulcerating Dermatitis	+	Sporadic	R		
Madura Foot	–				–
Other Mycetoma	+		R		
Blastomycosis	–				–
Mossy Foot	–				–
Pityriasis Nigra	+	Sporadic	R		
Pityriasis Versicolor	+	General	C		
Dhobie's Itch	+	General	C		
Seborrhoea	+	General	C		
Pinta	–				–
Tinea Imbricata	–				–
Trichosporosis	+	General	C		
Trichomycosis	+	General	C[14]		
Acarine Dermatomycosis	+	General	C[15]		
Epidemic Dropsy	–				–
Peripheral Neuritis	+	Sporadic	R		
Beriberi	+	Imported in Senegalese soldiers	R		
Pellagra	+	Scattered	R		
Scurvy	+		0		
General Malnutrition or Undernutrition	+	Widespread; infants; children; Bedouins	C		
Heat Stroke	+	Coastal and desert regions	R		
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+	Europeans and American students	R		
Diphtheria	+	General	R		+
Measles	+	General. Endemic; epidemic			+
German Measles	+	General	C		+
Varicella	+		R		
Epidemic Meningitis	+	Towns	2[7]		
Infantile Paralysis	+	General, endemic			

TABLE 76

SYRIA AND LEBANON—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Epidemic Encephalitis	+	Endemic			
Syphilis of Central Nervous System	+	General	C		
Influenza	+	General. Endemic; epidemic	C[16]		+
Common Cold	+	General. Endemic			+(?)
The Pneumonias	+	General. Endemic	C[17]		+
Cholelithiasis	+	General	R		
Urinary Calculus	+	Widespread in certain districts	C[18]		+
Nephritis	+	General	27[7]		
Diabetes	+	General	7[7]		
Pernicious Anemia	−(?)				−
Osteomyelitis	+	Sporadic; general	9[7]		
Tuberculosis	+	General			+
Pulmonary	+	General	67[7]		+
Bone	+	General			+
Skin	+	General			
Malignancy (all forms)	+	General	7–19[7]		
Trachoma	+	General	C[19]		+
Weil's Disease	+		R		
Tsutsugamushi Disease	−				−
Rabies	+	Sporadic	R		
Unusual Skin Disease	−				−
Thyroid Disease (Goiter)	+	General	3[7]		
Rheumatic Fever	+	General	3[7]		
Arthritis (Nonspecific)	+	General	12[7]		
Rickets	+	General in cities	32[7]		+
Dental Caries	+	General			
Toxemias of Pregnancy	+		R		
Cardio-Vascular Diseases	+	General			
Hypertension	+	Widespread among Bedouins	R		
Valvular Lesions	+	General	14[7]		
Aneurysm	+	General	31[7]		
Myocarditis	+	General			

Reported by: Collected Reprints *Period:* 1929 and 1931[20]

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Aleppo and Euphrates	27[21]	+	+
Benign tertian	+	Euphrates	10	+	+
Subtertian	+	Euphrates	5	+	+
Leishmaniasis	+	Euphrates	0		
Kala-azar	−	Euphrates			
Espundia	+	Euphrates	0		

TABLE 76

SYRIA AND LEBANON—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Plague	+	Euphrates. Epidemic in north; sporadic	C	+	+
Typhus Fever	+	Euphrates	0		
Undulant Fever	+	Euphrates	0		
Leprosy	+	Euphrates	0		
Syphilis	+	Euphrates, general	319		+
Smallpox	+	Euphrates	1		
Amebiasis	+	Aleppo; Euphrates; widespread[21]	152		+
Cholera	+	Euphrates	0		
Typhoid Fever	+	Euphrates (town)	4		
Para-Typhoid Infection	+	Euphrates (town)	2		
Ascariasis	+	Aleppo; Euphrates	207		
Hookworm Disease	+	Aleppo; Euphrates; widespread[21]	30		
Schistosomiasis	−				−
Filariasis	+	Euphrates	0		
Cestodes	+	Aleppo	2[22]	+	
Tænia saginata	+	Euphrates	42	+	
Hymenolepis nana	+	Euphrates	8		
Trichinelliasis	+	Euphrates	0		
Tinea Imbricata	+	Aleppo	1[23]		
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+				
Diphtheria	+	Euphrates	0		
Measles	+	Euphrates			
Varicella	+	Euphrates	0		
Epidemic Meningitis	+	Euphrates	2		
Infantile Paralysis	+	Euphrates	0		
Epidemic Encephalitis	+	Euphrates	0		
Influenza	+	Euphrates	92		+
Common Cold	+	Euphrates	73		
The Pneumonias	+	Euphrates	73		
Urinary Calculus	+	Euphrates	17		
Nephritis	+	Euphrates	16		
Diabetes	+	Euphrates	6		
Tuberculosis	+	Euphrates	168		+
Pulmonary	+	Euphrates	48		+
Trachoma	+	Aleppo; Euphrates	18[24]		+
Rickets	+	Euphrates	26		
Dental Caries	+	Aleppo	31		
Cardio-Vascular Diseases	+	Aleppo	0		
Hypertension	+	Euphrates	R		
Aneurysm	+	Euphrates	0		
Myocarditis	+	Euphrates	R		

Hydatid disease present. Widespread in cattle and sheep, few in humans. Vector present, considered public health problem.

Nyctalopia nightblindness, present in Bedouin peasants. Few cases.

[1] 91 cases in 4,000 outpatients.

[2] 4 cases in 3,000 outpatients.

[3] Cases in Beirut in 1932.

[4] Not since 1932.

TABLE 76

SYRIA AND LEBANON—*Concluded*

[5] In 4,000 outpatients.
[6] In 6,000 outpatients.
[7] In 3,000 outpatients.
[8] In 3,000 outpatients. 17 cases typhoid and paratyphoid.
[9] 247 cases in 3,456 patients.
[10] 226 cases in 5,706 patients.
[11] Hospitalized dysentery cases.
[12] Hospital cases, 1.5%.
[13] In villages where there has been considerable interfamilial mixing.
[14] 12 in 2,000 outpatients. Ringworm.
[15] 5 in 2,000 outpatients. Scabies.
[16] 100 in 3,000 outpatients.
[17] 96 in 3,000 outpatients.
[18] 25 in 3,000 outpatients.
[19] 191 in 3,000 outpatients.
[20] 1929 data = "School Health Survey in Aleppo" (150 pupils). 1931 data = "Analysis 2,000 consecutive cases at Deir-Ez-Zor."
[21] Said to be very common.
[22] Tapeworm.
[23] "Tinea imbricata versicolor."
[24] Also 93 trichiasis cases.

MOROCCO

For purposes of government Morocco is divided into three zones, the French Zone, the Spanish Zone and the Tangier Zone. The country is essentially an absolute monarchy under the administration of a Sultan but by treaty each zone maintains a slightly different form of government, although the largest part of the country is under the French Protectorate. The French Zone comprises approximately 200,000 square miles, while the Spanish Zone has only slightly over 13,000 square miles and the Tangier Zone is limited to about 225 square miles. A census of the French Zone, in 1931, puts the population at about 5,000,000, composed of 4,230,000 natives, 120,000 native Jews and 150,000 foreigners. The Spanish Zone has a population of about 1,000,000 and the Tangier Zone has approximately 51,000 people. Most of the native population are illiterate. There are many Koranic schools of a very elementary nature and higher schools attached to mosques. The Government maintains many primary and secondary schools under the French system and the Italians and Spanish both maintain schools. The educational pattern is rather complicated with so many different interests involved. The revenue of the French Zone (estimated in 1933) amounted to 842,205,000 francs and the expenditures to 916,000,455 francs. In the French Zone the chief industry is agriculture. About 23,800,000 acres are under cultivation exclusive of forests. The chief crops are cereals (wheat and barley), beans, chickpeas, fenugreek and legumens, canary-seed, cumin and coriander, linseed, olives, wines and other fruits, almonds, oats and maize. The forests include cork, cedar, arar, argan, oak and various conifers. There are also orange, lemon and date trees. Cattle, sheep, goats, pigs, horses, mules, asses and camels are also

raised in numbers. Minerals, such as phosphate, lead and manganese, are of importance and prospecting for other minerals is active. The Spanish Zone is supposed to be rich in mineral wealth but agriculture is also potentially important in this area. The principal industry in the Tangier area is the manufacture of cigarettes. The imports into the French Zone, in 1931, amounted to 2,083,292,004 francs and the exports to 766,042,382 francs. The chief imports were sugar, tea, wheat flour, timber and wine and the principal exports included livestock, wool, eggs, hides and skins and wheat. The imports into the Spanish Zone, in 1929, amounted to 131,141,613 kilos with a value of 91,687,021 pesetas and the exports amounted to 24,100,813 pesetas. The imports into the Tangier Zone, in 1931, amounted to 93,229,-030 francs and the exports to 22,276,775 francs.

According to the "Statistiques Médicales Annuelles" for 1931 the following diseases of interest to this survey were present in Morocco: malaria, relapsing fever, plague, typhus fever, undulant fever, leprosy, syphilis, smallpox, amebiasis (34,518 cases), bacillary dysentery, typhoid fever, para-typhoid infection, rheumatic fever and the respiratory diseases, including influenza and tuberculosis (5,504 cases). Further details may be found in Table 77.

No data are available to us concerning weather conditions in Morocco.

TABLE 77

MOROCCO

Reported by: Direction de la Santé et de l'Hygiène Publique *Period:* 1931

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+		343	+	+
Piroplasmosis	+		0		
Relapsing Fever	+	Fèz; Casablanca	2	+	
Yellow Fever	+		0		
Plague	+	Region of Chaouia	41	+	+
Typhus Fever	+	Rural	403	+	+
Trypanosomiasis	+		0		
Undulant Fever	+	Chiadma; d'Oudjda	3	+	
Leprosy	+	Chiefly Fèz	225		+
Syphilis	+		70		+
Smallpox	+	General	727		+
Amebiasis	+	General and especially in Fèz	34,518		+
Bacillary Dysentery	+	Fèz chiefly	200		+
Cholera	+		0		
Typhoid Fever	+	General	425		+
Para-Tyhoid Infection	+		60		+
General Malnutrition or Undernutrition	+		2[1]		

TABLE 77

MOROCCO—*Concluded*

II. Diseases Usually Considered as of Temperate Climates

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Scarlet Fever	+	Rabat; Casablanca; scattered	58		+
Diphtheria	+	General	273		+
German Measles	+	General	1,649[2]		+
Epidemic Meningitis	+	Scattered	20		+
Infantile Paralysis	+	Casablanca; d'Oued-Zem	3		
Epidemic Encephalitis	+	Doukkala rural	2		
Influenza	+		71		+
Diabetes	+		44		
Tuberculosis	+	General	5,504		+
Pulmonary	+		913		+
Malignancy (all forms)	+		148		+
Rabies	+		5		
Rheumatic Fever	+		24[3]		
Cardio-Vascular Diseases	+		388[4]		+

[1] Avitaminosis.
[2] Includes measles (rougeole et rubeole).
[3] "Rhumatisme articulaire aigu."
[4] Ailments of the heart, arteries, veins and other illnesses of the circulatory system.

MADAGASCAR

In 1896 Madagascar became a French possession and the island and its dependencies were declared a French colony. Situated south-east of the coast of Africa and separated by the Mozambique Channel from the mainland, Madagascar has an area of 241,094 square miles. There is a population of 3,701,770 (census of 1931), including the people of Mayotte and Comoro islands. Most of the people are of the Malagasy races or tribes, the most important and intelligent being the Hova tribes. Both the Protestant and Catholic religions exist and there are numerous missionary organizations at work. Education is compulsory and free from 8 to 14 years of age. There are more than 1,000 official schools for European and native children with 112,000 students and 2,000 teachers. There are also 600 private schools with 67,000 students and 1,144 teachers. The French language is taught.

In 1932 the budget of Madagascar balanced at 267,600,000 francs. In 1931 the imports amounted to 507,322,279 francs and the exports to 361,-349,497 francs. The principal crops are rice, sugar, coffee, manioc, cotton, cacao, vanilla, tobacco, butter beans, lima beans, cloves, mulberry trees and rubber trees. There are valuable woods in the forests and caoutchouc, gums, resins and plants for various industries are plentiful. Cattle breed-

ing and agriculture are the chief interests of the people. In addition a number are employed in silk and cotton weaving, metal work and the making of Panama and other straw hats. The imports include cotton, machinery, iron and steel, cement, flour, oil, clothing and automobiles. The exports include graphite, mica, rafia fiber, rice, tapioca, coffee, manioc, hides, sugar and animal wax. In 1931 over 3,000,000 tons of shipping entered and cleared the ports of Madagascar.

According to the "Annales de Médecine et de Pharmacie Coloniales" for 1934, the following diseases of interest to our survey were among those present in Madagascar: malaria (104,986 cases), blackwater fever (366 cases), plague (3,647 cases), leprosy (1,068 cases), syphilis, amebiasis (7,701 cases), tropical ulcer, beriberi and various diseases usually considered as of temperate climates, including influenza, the pneumonias and tuberculosis. Further details may be found in Table 78.

The mean pressure (600 mm. plus) over a period of ten years, 1921–1930, was 49.3. The mean temperature for this same period (at Antananarivo) was 19.2°C. and the mean annual precipitation was 1274.00 millimeters.

TABLE 78

MADAGASCAR

Reported by: Annales de Mèdecine et de Pharmacie Coloniales (1934) *Period:* 1932

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General; endemic	104,986[1]	+[1]	+
Benign tertian	+		247[2]	+	+
Subtertian	+		1,195[2]	+	+
Blackwater Fever	+		366[3]		+
Plague	+	Endemic; epidemic	3,647	+	+
Leprosy	+		1,068		+
Syphilis	+		196,244[4]		+
Yaws	−?[5]				
Smallpox	+		0		
Amebiasis	+		7,701[6]		+
Typhoid Fever	+		37		+
Schistosomiasis	?[7]				
Ulcus Tropicum	+		198[8]		+
Beriberi	+		25[9]		+

II. Diseases Usually Considered as of Temperate Climates

Scarlet Fever	+				
Diphtheria	+		43		+
Measles	+		5,314		+
Varicella	+		348		+
Epidemic Meningitis	+	Isolated	11		
Influenza	+	Epidemic	104,386		+
The Pneumonias	+		14,474		+
Tuberculosis	+		4,925[10]		+
Rabies	+		2[11,12]		

TABLE 78

MADAGASCAR—*Concluded*

[1] Figure represents "consultations"; 606,443 so-called cases of malaria but figure of no value. Vectors: *A. costalis, A. pharoensis, A. squamosus, A. mauritianus.*
[2] Figure found from 1,463 positive bloods. [3] Figure questionable; too large?
[4] 286,720 V.D. patients and 80 out of 100 have syphilis.
[5] Report comments that Madagascar did not mention yaws.
[6] No doubt more cases. [7] No case was treated in hospitals.
[8] Figure for military natives only. "Ulcère phagédénique."
[9] Figure represents hospitalizations.
[10] Figure does not give idea of actual number.
[11] 147 cases treated. [12] Deaths.

REUNION

Reunion, situated about 420 miles east of Madagascar, has belonged to France since 1643. Its area is 970 square miles and, in 1931, the population was 197,933, of whom the vast majority are French. There are small numbers of British Indians, natives of Madagascar, Africans and Chinese (2,242). The chief towns are St. Denis (population of 26,807), St. Pierre, St. Paul and St. Louis. There are public and private schools. In 1932 there were 23,579 students attending all schools.

The chief products of Reunion are sugar, rum, manioc, tapioca, vanilla and essences. There are 150,000 acres of forests. The chief imports are rice, grain, cotton goods, etc., and the total value of the imports, in 1931, was 160,185,366 francs, while the exports amounted to 121,605,870 francs.

According to the "Annales de Médecine et de Pharmacie Coloniales" for 1934 the following diseases were, in 1932, present in Reunion: malaria, blackwater fever, leprosy, syphilis, amebiasis, typhoid fever and possibly schistosomiasis. Further details may be found in Table 79.

No data concerning weather conditions are available to us regarding Reunion.

TABLE 79

REUNION

Reported by: Annales de Médecine et de Pharmacie Coloniales (1934) *Period:* 1932

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Creole population	130–150[1,2]	+	+
Blackwater Fever	+		R		
Leprosy	+		20		
Syphilis	+		20[3]		+
Smallpox	+		0		
Amebiasis	+		5[3]		
Typhoid Fever	+		C		
Ascariasis	+		?[4]		
Hookworm Disease	+		?[4]		
Schistosomiasis	+(?)[5]				

TABLE 79

REUNION—*Concluded*

II. Diseases Usually Considered as of Temperate Climates

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Scarlet Fever	+				
Measles	+		R		
Varicella	+		C		
Influenza	+		R		
The Pneumonias	+				
Tuberculosis	+		3[6]		

[1] Deaths.
[2] Number of deaths per month.
[3] Figure represents hospital cases only; "numerous" other cases.
[4] Report says coast of Somali is only colony where, except for taenia, intestinal worms are very rare and where hookworm has not been established. No specific mention is made of Reunion.
[5] Except for French India, bilharziasis continues to be manifest slightly throughout (colonies) by disseminated cases from time to time and small outbreaks at times. No specific mention of Reunion.
[6] Figure represents hospital cases; disease is frequent.

WEST AFRICA AND THE SAHARA

In French West Africa are included the colonies of Sénégal, Guinea, Ivory Coast, Dahomey, French Sudan, Mauritania, Niger and Dakar and Dependencies. These colonies and dependencies have a total area of 1,799,039 square miles and a population, in 1931, of 14,575,973, of which all but some 21,000 are natives. In 1932 Haute-Volta ceased to be a colony and its area and population were distributed to Niger, the French Sudan and to the Ivory Coast colony. In 1930–31, there were 310 preparatory schools with 27,522 students, 170 elementary schools with 11,479 students, 88 urban schools with 4,158 students, 8 higher primary schools and 10 technical schools. In addition there are nearly 200 evening schools for adults with nearly 10,000 students and several other special schools, including 76 private schools with over 7,000 students. The expenditure for education was 26,000,000 francs. The total budgets of revenue and expenditures, for 1932, for the entire area balanced at 811,470,582 francs.

The chief agricultural products are ground-nuts, coco and cotton. The imports into French West Africa are chiefly foods, textiles, machinery and beverages. The exports are chiefly fruits, oils, rubber, cotton, coco and woods. For all the colonies and dependencies in this area, for 1931, the imports amounted to 707,858,471 francs and the exports amounted to 651,272,975 francs. In 1931, there were over 10,000 vessels of nearly 10,000,000 tons entering and clearing the ports of this area.

Detailed information concerning the social-economic background of each

one of these colonies is available in "The Statesman's Year-Book" and the reader is referred to this splendid reference work.

According to the "Annales de Médecine et de Pharmacie Coloniales" for 1934, in 1932 the following diseases were present in French West Africa of special interest to this survey: malaria (67,203 cases), blackwater fever, relapsing fever, yellow fever, plague, trypanosomiasis (2,803 cases), leprosy (many thousands), syphilis, yaws (nearly 90,000 cases), amebiasis (nearly 25,000 cases), ascariasis, schistosomiasis (several thousand cases), filariasis, tropical ulcer (vast numbers of cases) and various diseases usually considered as of temperate climates, such as scarlet fever and diphtheria, and including respiratory diseases such as influenza, the pneumonias and tuberculosis. Further details, according to specific colonies, may be found in Table 80.

No data are available to this survey concerning weather conditions in French West Africa.

TABLE 80

WEST AFRICA AND THE SAHARA[1,2]

Reported by: Annales de Médecine et de Pharmacie Coloniales (1934) *Period:* 1932

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General all colonies; H; Europeans J	78,698[3]	+	+
Subtertian	+	H	C	+	+
Blackwater Fever	+	General except G, E, H and J	39		+
Relapsing Fever	+	H	R	+	
Yellow Fever	+	Endemic; epidemic J	42[4]	+	+
Dengue Fever	+	D and J	2	+	
Plague	+	A epidemic. Present H	268	+	+
Trypanosomiasis	+	General except B	2,803[5]	+	+
Leprosy	+	General except B.[6] Present J	11–1200		+
Syphilis	+	General J	102,685		+
Yaws	+	C, G, E, F and J	88,209		+
Smallpox	+	General[7]	1,852		+
Amebiasis	+	General	24,509[8]		+
Typhoid Fever	+	H	6		
Ascariasis	+	J	17,359[9]		+
Hookworm Disease	+				
Schistosomiasis	+	General except J	4,693	+	+
Urinary	+	A	110	+	+
Filariasis	+	General except G, and A	11,834[10]	+	+
Ulcus Tropicum	+	General except G and C	187,879[11]		

TABLE 80

WEST AFRICA AND THE SAHARA—*Concluded*

II. Diseases Usually Considered as of Temperate Climates

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Scarlet Fever	+	General	5		
Diphtheria	+	Only in D (native) and H (endemic)	62		
Measles	+	General, epidemic	4,302[12]		+
Varicella	+	General	1,909[13]		+
Epidemic Meningitis	+	D isolated and J	19		
Influenza	+	General	11,801[14]		+
The Pneumonias	+	General	16,272[15]		+
Tuberculosis	+	General	1,257[16]		+
Trachoma	+	General C, F and J	5,262[17]		+
Rabies	+	General and J	9[18]	+	
Thyroid Disease (Goiter)	+	G and J	14,617[19]		+

[1] Including Sénégal, Mauritania, Sudan, Niger, Ivory Coast, Dahomey, Guinea, Daker and Dependencies and Haute-Volta.

[2] Legend: Sénégal = A; Mauritania = B; Sudan = C; Niger = D; Ivory Coast = E; Dahomey = F; Guinea = G; Daker and Dependencies = H and Haute-Volta = J.

[3] 173 Europeans and 11,322 in Haute-Volta of this figure. Common among natives.

[4] Some other native cases; also doubtful cases.

[5] Figure too low.

[6] Sudan and Ivory Coast especially. Daker only 8 cases.

[7] General except Mauritania; scattered; epidemic Niger and Dahomey. Daker, 0; Haute-Volta, 16.

[8] No figures for Mauritania; in Niger, 1 renal and 1 vesical amebiasis cases have been seen. Daker, 17 deaths; Haute-Volta, 8,183 cases.

[9] "Intestinal parasites." 7,000 in Haute-Volta, others elsewhere.

[10] Guinea worms.

[11] "Ulcère phagédénique."

[12] No figures but "some cases" for Sènègal and Mauritania. Niger epidemic, 1882; Dakar, common: Haute-Volta, severe epidemic, 2,420.

[13] No figures but "some cases" for Sénégal and Mauritania. Daker, few; Haute-Volta, 441; elsewhere, 1,468.

[14] Grave epidemic Guinea, 8,781, Dakar, few; Haute-Volta, 3,020; Sudan, 181. No figures for other colonies.

[15] Sudan and Niger, 677; Haute-Volta, epidemic, 15,595; Ivory Coast, "cases common." No figures for other colonies.

[16] Dakar, 95 deaths; Haute-Volta, 302 cases; no figures for Mauritania and Dahomen; elsewhere, 860.

[17] No figures for other colonies.

[18] Total treated, 122. 1 death.

[19] Other colonies have normal number of cases; Sudan, 77; Ivory Coast, 50. No figures for rest.

FRENCH EQUATORIAL AFRICA (FRENCH CONGO)

The area of the French Congo is around 912,049 square miles. In 1931, the population was 3,192,282. Among these there were 3,300 Europeans. The general budget of French Equatorial Africa amounted to 86,875,000 francs in 1932. The largest budget was that of Middle Congo, 23,600,000 francs; the other three local budgets were each slightly over 17,000,000 francs. In the colony, in 1932, there were 67 native schools with 5,352 students and

36 European teachers. Also there were two schools for European students and 81 private schools with 5,864 students. The schools are under religious missions.

There has been comparatively little development of this area. There are about 300,000 square miles of tropical forest containing much valuable timber. Wild rubber is most important. Palm oil is produced and coffee, coco and cotton are cultivated. Cattle are raised in the Chad colony. Ivory is exported and minerals, such as copper, zinc and lead, are found. The imports for 1931 for the entire French Congo amounted to 224,926,537 francs and the exports to 119,152,370 francs. In 1929 nearly 2,000,000 tons of shipping entered and cleared the ports.

According to the "Rapport sur le Fonctionnement de l'Institut Pasteur" the following diseases of interest to our survey were listed in 1932: malaria (905 cases), relapsing fever, trypanosomiasis (14,073 new cases), leprosy (115 cases), bacillary dysentery, typhoid fever, ascariasis, hookworm disease, schistosomiasis, filariasis (253 individuals having microfilaria in the blood—not clinical cases) and tuberculosis. We are indebted to Dr. Fulconis for more detailed information and the diseases in his report include malaria (10,400 cases), blackwater fever (30 cases), relapsing fever (260 cases of two types), trypanosomiasis (73,721 cases), leprosy (9,000 cases), syphilis, yaws (40,000 cases), amebic dysentery (700 cases), many skin diseases, beriberi (200 cases) and various diseases usually considered as of temperate climates, including influenza. Additional information has also been kindly supplied by the French Colonial Minister. Further details are found in Table 81.

There are no data available in "World Weather Records" concerning weather conditions in the French Congo.

TABLE 81

FRENCH EQUATORIAL AFRICA

Reported by: Dr. Fulconis *Period:* Questionnaire dated January, 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General	10,400[1]	+	+
Benign tertian	+	General, Gabon	C	+	+
Quartan	+	General		+	+
Subtertian	+	General, Chad	C	+	+
Blackwater Fever	+	General	30		+
Piroplasmosis	−			+	−
Leishmaniasis	−			+	−
Relapsing Fever	+			+	
S. recurrentis	+	Chad	100	+	
S. duttoni	+	Gabon, Moyen Congo, l'Oubangui	160	+	

TABLE 81

FRENCH EQUATORIAL AFRICA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
S. venezuelense	−				−
S. berberum	−				−
Rat-Bite Fever	−				−
Yellow Fever	−				−
Dengue Fever	+		R	+	
Pappataci Fever	−				−
Plague	−				−
Typhus Fever	−				−
Trypanosomiasis	+	Everywhere up to 12th meredian parallel North	73,721	+	+
African Human	+				
T. gambiense	+			+	+
T. rhodesiense	−			+	−
Oroya Fever	−				−
Undulant Fever	−				−
Leprosy	+	Gabon, Oubangui, Chad	9,000		+
Syphilis	+	General	3,000[2]		+
Yaws	+	Forests and meadows up to 12th parallel N.	40,000[3]		+
Granuloma Inguinale	+				
Tularemia	−				−
Smallpox	+	Epidemics on travelled roads, Chad	80		+
Amebiasis	+	General	700[4]		+
Balantidium Dysentery	+	General	?[4]		
Bacillary Dysentery	+	General	?[4]		
Cholera	−	General			−
Typhoid Fever	+		R		−
Para-Typhoid Infection	+		R		−
Sprue	−				−
Hill Diarrhea	−				−
Ascariasis	+	General			−
Hookworm Disease	+	General			−
Giardia Enteritis	+	General			−
Trichomonas Infection	+	General			−
Tropical Liver	+	General			−
Infantile Biliary Cirrhosis	−				−
Schistosomiasis	+			+	
Urinary	+	Chad, by the sea, slow water courses		+	+
Intestinal	+		?[5]	+	
Visceral	−				−
Far Eastern	−				−
Filariasis	+		R	+	−
F. bancrofti	+		R	+	
Loa Loa	+		R	+	
O. volvulus	+		R	+	
F. perstans	+		R	+	
F. demarquayi	+		R	+	
F. ozzardi	−				−
Elephantiasis	+	General			
Chyluria	+				

TABLE 81

FRENCH EQUATORIAL AFRICA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Dracontiasis	+			+	
D. medinensis	+	Sahelienne		+	−
Paragonimiasis	+		R	+	−
Clonorchiasis	+		R	+	−
Fasciolopsis	+		R	+	−
Cestodes	+			+	−
Tænia saginata	+		R		−
Tænia solium	+		R		−
Dibothriocephalus latus	+	General	R		
Hymenolepis nana	+		R		
Sparganum mansoni	+		R		
S. prolifer	+		R		
Trichuris	+		R		−
H. heptaticus	−				−
Climatic Bubo	+				
Rhinosporidiosis	−				−
Goundou	+	Yaws regions	R		
Ainhum	+	Sahelienne region	R		−
Big Heel	−				−
Myiasis	+		R		−
Leucodermia	+				−
Cheloid	+	Black races at site of tattoo marks	C		−
Ulcus Tropicum	+	General	C	+	+
Albinism	+				−
Pemphigus Contagiosus	+		?[6]		−
Ulcerating Dermatitis	+		?[6]		−
Madura Foot	+		?[6]		−
Other Mycetoma	+		?[6]		−
Blastomycosis	+		?[6]		−
Mossy Foot	+		?[6]		−
Pityriasis Nigra	+		?[6]		−
Pityriasis Versicolor	+		?[6]		−
Dhobie's Itch	?				
Seborrhoea	+				
Pinta	?				
Tinea Imbricata	+	Isolated	R		−
Trichosporosis	+		?[7]		
Trichomycosis	+		?[8]		−
Epidemic Dropsy	−				−
Peripheral Neuritis	+		R[9]		
Beriberi	+	Forests of Gabon and R.R. yards, Congo Ocean	200		
Pellagra	−				−
Scurvy	+				
General Malnutrition or Undernutrition	−				−
Heat Stroke	+				

II. Diseases Usually Considered as of Temperate Climates

Scarlet Fever	−				−
Diphtheria	−				−
Measles	+				−

TABLE 81

FRENCH EQUATORIAL AFRICA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Varicella	+	General			−
Epidemic Meningitis	+	Regions of Moyo Kebbi; Chad, etc.[10]			
Infantile Paralysis	+				
Epidemic Encephalitis	−				−
Syphilis of Central Nervous System	+		R		
Influenza	+	Epidemic	100		
The Pneumonias	+	Natives	C		
Cholelithiasis	+	Europeans			
Urinary Calculus	+				
Nephritis	+				
Diabetes	+				
Pernicious Anemia	+				
Osteomyelitis	+				
Tuberculosis	+	Throughout Chad, on coast and in centers			
Pulmonary	+				
Bone	+				
Skin	+				
Malignancy (all forms)	+		R		
Trachoma	+	Chad; above 13th parallel North			
Tsutsugamushi Disease	−				−
Rabies	+	General	R		
Unusual Skin Disease	+				
Thyroid Disease (Goiter)	+	Oubangui Chari, Moyen Congo			
Rheumatic Fever	+				
Arthritis (Nonspecific)	+				
Rickets	−				
Dental Caries	+				
Toxemias of Pregnancy	+				
Cardio-Vascular Diseases	+				

BRAZZAVILLE, FRENCH EQUATORIAL AFRICA

Reported by: Rapport sur le Fonctionnement de l'Institut Pasteur *Period:* 1932[11]

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+		905	+	+
Benign tertian	+		2	+	+
Quartan	+		9	+	+
Subtertian	+		81	+	+
Relapsing Fever	+			+	
S. duttoni	+		2	+	

TABLE 81

BRAZZAVILLE, FRENCH EQUATORIAL AFRICA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Trypanosomiasis	+		14,073[12]	+	+
Leprosy	+		115		+
Bacillary Dysentery	+		67		+
Typhoid Fever	+		1		
Ascariasis	+		4		
Hookworm Disease	+		17		
Schistosomiasis	+			+	+
Urinary	+		6	+	
Filariasis	+		253[13]	+	+
Cestodes	+		4[14]	+	
Trichuris	+		10		
II. Diseases Usually Considered as of Temperate Climates					
Tuberculosis	+	Isolated	32		+
Rabies	+				

FRENCH EQUATORIAL AFRICA[15]

Reported by: Annales de Médecine et de Pharmacie Coloniales (1934) *Period:* 1932

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Endemic, general	24,231	+	+
Benign tertian	+	Cameroun	116	+	+
Subtertian	+	Cameroun	26	+	+
Blackwater Fever	+	Cameroun and all colonies	26		+
Relapsing fever	+	All colonies; epidemic Chad, Gabon, Cameroun	290	+	+
Yellow Fever	+	All colonies and Cameroun	?[16]	+	+
Trypanosomiasis	+	Widespread all colonies and Cameroun	12,890[17]	+	+
Leprosy	+	All colonies and Cameroun	11,004		+
Syphilis	+	General in Gabon and Cameroun	37,265[18,19]		+
Yaws	+	Forest regions and Cameroun plains and forest	16,453[20]		+
Smallpox	+	Chad and Ubangi Shari[21]	554		+
Amebiasis	+	General	1,783[22]		+
Bacillary Dysentery	+	General	R[23]		
Typhoid Fever	+		0		

TABLE 81

FRENCH EQUATORIAL AFRICA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Ascariasis	+	All colonies and Cameroun	11,490[24]		+
Hookworm Disease	+	All colonies and Cameroun	8,459		+
Schistosomiasis	+	All colonies and Cameroun	518[25]	+	+
Urinary	+			+	+
Intestinal	+	Cameroun at Mokolo and Bafia		+	+
Filariasis	+	All colonies and Cameroun	40,759[26]	+	+
F. bancrofti	−	Cameroun			
Loa Loa	+	Cameroun	28.7%	+	+
F. perstans	+	Cameroun	64.9%	+	+
Elephantiasis	+	All colonies	C[27]		
Dracontiasis	+	Cameroun, localized in North	52[28]	+	+
Cestodes	+	Ubangi Shari and Cameroun	646[29]	+	
Trichuris	+	Gabon[24] and Cameroun	4,027		
Ulcus Tropicum	+	All colonies and Cameroun	2,288[30]		
Beriberi	+	Gabon, Ubangi Shari	236[31]		+
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+	All colonies and Cameroun			
Diphtheria	+	Chad	4		
Measles	+	All colonies and Cameroun	R[32]		
Varicella	+	All colonies, Ubangi-Shari and Cameroun	413		+
Epidemic Meningitis	+	Chad epidemic, Mayo Kebbi, Cameroun epidemic and others	870[33]		+
Infantile Paralysis	+	Cameroun	R		
Influenza	+	All colonies and Cameroun	313[34]		+
The Pneumonias	+	All colonies and Cameroun	465[35]		+
Tuberculosis	+	All colonies, Libreville and Cameroun	365[36]		+
Malignancy (all forms)	+	Cameroun	26		
Trachoma	+	Chad, Cameroun, Arabs in the north	C		+
Weil's Disease	+	Cameroun, epidemic in region of Obala	79		
Rabies	+	Cameroun	1[37]	+	
Unusual Skin Disease	+	Ubangi-Shari, border Likouala, Cameroun	349[38]		+

TABLE 81

MOYEN CONGO (FRENCH)

Reported by: Annales de Médecine et de Pharmacie Coloniales (1934) *Period:* 1932

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Endemic, widespread	80[39]	+	+
Blackwater Fever	+		8		+
Relapsing Fever	+			+	
Yellow Fever	+		?[40]	+	
Dengue Fever	+	Brazzaville; Pointe Noire	2[41]	+	
Trypanosomiasis	+	General	5,278[42]	+	+
Leprosy	+		3000–4000		+
Syphilis	+	Natives	250[39]		+
Yaws	+		43[39]		
Smallpox	+		?[43]		
Amebiasis	+				
Bacillary Dysentery	+	Epidemics	344		+
Typhoid Fever	+	Brazzaville (natives)	1		
Hookworm Disease	+	General	25[44]		+
Schistosomiasis	+				
Filariasis	+		C[45]	+	+
Ulcus Tropicum	+		200[46]		
Beriberi	+	Laborers at Mayombe			

II. Diseases Usually Considered as of Temperate Climates

Scarlet fever	+				
Measles	+		6[47]		
Varicella	+		C[48]		
Influenza	+	Small outbreak	100		+
The Pneumonias	+		254[39]		+
Tuberculosis	+		79[49]		+
Pulmonary	+		35		+
Rabies	+		3[50]	+	
Thyroid Disease (Goiter)	+	Yanghere in Haute-Sangha			

[1] Includes "consultations."
[2] Natives hospitalized.
[3] "Consultants."
[4] Includes balantidium and bacillary dysenteries.
[5] More rare than urinary form.
[6] All diseases due to mycoses are seen.
[7] "All the diseases of hairy leather."
[8] The principal mycoses are seen.
[9] "Following intoxications."
[10] Cameroun; small sharp epidemics.
[11] All figures are for laboratory findings except the one for trypanosomiasis.
[12] New cases. This figure taken from the letter of the Inspector General of the Sanitary and Medical civil services.
[13] Number of positive examinations for microfilaria in the blood.
[14] Taenia.
[15] Including Gabon, Ubangi-Shari, Chad and Cameroun.
[16] Undergoing investigation.

TABLE 81

MOYEN CONGO (FRENCH)—*Concluded*

[17] New cases, 27,454 old cases seen and treated. Cameroun had 493 old cases that were positive, besides 4,270 of these.
[18] This figure is for "Consultants."
[19] 6,240 "consultants" in Gabon. No figures for other colonies.
[20] 52,945 "consultations" at Chad and Gabon.
[21] Epidemic in region of Moissala; number of cases not known. Gabon had 15 cases of alastrim.
[22] Figure is not indicative of number of cases. Gabon had 1,958 "consultants" and Chad 1,677 "consultations."
[23] In other words more rare than amebiasis.
[24] Figure is for Gabon and includes trichocephalus. Ubangi Shari reported 609 cases of diverse parasites; Chad reports 297 cases of parasites other than taenia and hookworm. At Cameroun, 110 cases "anguillule."
[25] Figure for Chad "consultants." No figures for other colonies.
[26] Guinea worm. Chad reports 19 hospital cases, 1,225 "consultants." This figure for Cameroun alone, "very common" in all colonies.
[27] Especially at Ubangi Shari; 123 cases from 583 examined.
[28] "*F. medine.*"
[29] Taenia.
[30] "Ulcère phagédénique." Hospital cases; Chad reports 3,698 "consultations"; Gabon 5,767 "consultants." Figure for Cameroun is hospital cases; 16,826 "consultants."
[31] Hospital cases.
[32] 5 cases at Ubangi Shari, 46 at Cameroun.
[33] 150 deaths.
[34] Hospital cases at Gabon. No figure for other colonies.
[35] Hospital cases. Chad reports 330 "consultations."
[36] Figure does not give true incidence. 50 "consultations" at Chad.
[37] Treated.
[38] Women.
[39] Hospital cases; many others.
[40] Undergoing investigation.
[41] Figure for Brazzaville; some cases at Pointe Noire.
[42] New cases; 24,490 old cases seen.
[43] Some doubtful cases.
[44] Intestinal parasites; hospital cases.
[45] Guinea worms.
[46] "Ulcère phagédénique"; hospital cases.
[47] Hospital cases.
[48] 47 hospital cases.
[49] Figure too low to represent true incidence.
[50] Persons treated.

THE FRENCH CAMEROUN

The French Cameroun was formerly the German Colony Kamerun and was taken from Germany by the French and British in 1916. The area which was placed under French administration amounts to 166,489 square miles, excluding the 107,270 square miles which is now French Equatorial Africa. The population in 1928 was estimated at 1,900,000. The territory placed under Mandate of France was in 1921 constituted an autonomous territory. The seat of government is Yaoundé. In 1930 there were 89 Government schools, 70 village schools, 12 professional schools and 6 schools for domestic training. There were 144 teachers and 6,244 students. In addition there are 51 private schools with 7,059 students. The budget for public education for 1931 was 1,872,454 francs. The total budget for the Cameroun in 1931

was 83,261,900 francs. The chief products are ground-nuts, palm oil, almonds, hides, timber, coco and ivory. Imports in 1931 amounted to 104,358,000 francs and exports to 82,133,000 francs. 542 vessels entered the two ports of Donala and Kibri in 1931.

Among the important health problems in the Cameroun are malaria, yellow fever, dengue fever, plague, trypanosomiasis, leprosy, syphilis, yaws, hookworm disease, the pneumonias and tuberculosis. See Table 82 for additional information.

No data are available in "World Weather Records" for the French Cameroun.

TABLE 82

CAMEROUN

Reported by: Dr. Millons *Period:* June, 1934

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+		20,571	+	+
Trypanosomiasis	+		53,427	+	+
Leprosy	+		1,423		+
Syphilis	+		38,300		+
Yaws	+		32,546		+
Amebiasis	+				
Balantidium Dysentery	+				
Bacillary Dysentery	+		1,558[1]		+

II. Diseases Usually Considered as of Temperate Climates

Tuberculosis	+		172		+
Trachoma	+		52		+

Reported by: Statistique Succinte du Service de Santé du Cameroun *Period:* 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General	60–70%	+	+
Benign tertian			C	+	+
Quartan			R		
Blackwater Fever	+	General	10		+
Leishmaniasis					
Kala-azar	?				
Oriental Sore	−				
Relapsing Fever	+	1924 and 1926	R		
Rat-Bite Fever	−				+
Yellow Fever	−			+	−

TABLE 82

CAMEROUN—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Dengue Fever	+	General	9	+	
Pappataci Fever	−				
Plague	−			+	+
Trypanosomiasis	+		110,000[2]	+	+
Undulant Fever	−				−
Leprosy	+	General	5,000		+
Syphilis	+	General	36,702		+
Yaws	+		36,077		+
Granuloma Inguinale	−				−
Tularemia	−				−
Smallpox	+		492		+
Amebiasis	+	General	1,861		+
Balantidium Dysentery	+	General	123		+
Bacillary Dysentery	+	Sporadic everywhere	281		+
Cholera	−				−
Typhoid Fever	−				−
Para-Typhoid Infection	−				−
Sprue	−				−
Hill Diarrhea	?				
Ascariasis	+		11,062		+
Hookworm Disease	+	General	7,773		+
Giardia Enteritis	−				−
Trichomonas Infection	+		263		−
Tropical Liver	−				−
Schistosomiasis	+			+	+
Urinary	+	Cameroun	3	+	+
Intestinal	+	General	97	+	+
Filariasis	+			+	+
F. bancrofti	[3]				
Loa Loa	+	General	[4]	+	+
O. volvulus	+		42	+	+
Juxta-Articular Nodules	?				
Elephantiasis	+	General	122		
Chyluria	[3]				
Dracontiasis	+				
Paragonimiasis	−				−
Clonorchiasis	−				−
Fasciolopsis	−				−
Cestodes	+	North	C	+	
Dibothriocephalus latus	[3]				
Hymenolepis nana	−				−
Sparganum mansoni	[3]				
Trichuris	[3]				
Trichinelliasis	[3]				
Climatic Bubo	+		R		
Rhinosporidiosis	−				−
Goundou	−				−
Ainhum	−		R		−
Big Heel	?				
Myiasis	+		R		
Subcutaneous	+		R		
Blood sucking	−				−
Intestinal	−				−
Larva Migrans	−				−
Leech Infection	[5]				

TABLE 82

CAMEROUN—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Cheloid	+		C		
Ulcus Tropicum	+	Rare in North and high plateaux	17,296		+
Albinism	+		R		
Pemphigus Contagiosus	−				−
Madura Foot	+		12		
Acarine Dermatomycosis	?				
Beriberi	+(?)		R		
Pellagra	−				
Scurvy	−				−
General Malnutrition or Undernutrition	?				−
Heat Stroke	−				−
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	−				−
Diphtheria	−				−
Measles	+	General	49		
Varicella	+	General	1,169		+
Epidemic Meningitis	+		496–777		+
Infantile Paralysis	+				
Epidemic Encephalitis	−				−
Syphilis of Central Nervous System	+		1		
Influenza	+	General	343		+
The Pneumonias	+		34,000		+
Cholelithiasis	[2]				
Urinary Calculus	−(?)		R		−
Nephritis	+		8,580		+
Diabetes	−				−
Pernicious Anemia	+		R		
Osteomyelitis	−				−
Tuberculosis	+				+
Pulmonary	+		191		+
Bone	+		40		+
Skin	[3]				
Malignancy (all forms)	+		26–39		+
Trachoma	+		22		
Rabies	−				−
Thyroid Disease (Goiter)	+		2,597		+
Rheumatic Fever	+		R		
Cardio-Vascular Diseases	+		1,796		+
Valvular Lesions	+		R		
Myocarditis	+		C		+

[1] Dysenteries.
[2] In ten years.
[3] Not reported.
[4] South, 60 per cent; North, 3 per cent.
[5] Unknown.

FRENCH INDO-CHINA

The area included in French Indo-China is about 285,000 square miles and, in 1931, there was a population of 21,652,000. The area includes five states, i.e., the Colony of Cochin-China, the Protectorate of Annam, Cambodia and Laos, and Kwang-Chau-Wan which is leased from China. The French system of education prevails in both public and private schools. In 1931 there were 5,164 native elementary schools with 330,000 students and 9,300 teachers, 14 high schools for 4,672 boys and 364 girls. The Indo-Chinese University of Hanoi had 472 students and the School of Medicine and Pharmacy had 80 students at the most recent report.

For 1933 the budget for income and expenditures balanced at 74,980,950 piastres. The country, in different areas, engages in fisheries, agriculture, mining and manufacturing. Sugar, rice, cinnamon and tea are produced in quantity. Coal, phosphates, zinc, tin, chrome, graphite and lead are found in considerable quantities. Through the Customs Union the imports for 1931 amounted to 1,290,000,000 francs. The exports for this year amounted to 1,123,000,000 francs, the chief export being rice, which amounted to 1,191,649 tons in 1932. Rubber is also exported as well as fish, coal, pepper, cattle and hides, corn, zinc and tin ore. The principal imports include cotton, silk, metal goods, kerosene and automobiles.

Interesting data regarding each of the individual states and protectorates may be found in the various government reports or in such excellent reference works as the "Statesman's Year-Book."

The diseases which are considered important public health problems in Indo-China, according to Inspector General of Public Hygiene and Sanitation, include malaria, blackwater fever, plague, leprosy, syphilis, smallpox, amebiasis, bacillary dysentery, cholera, the typhoid fevers, tropical ulcer, septic sore, beriberi, scurvy, scarlet fever (increasing), urinary calculus, nephritis, tuberculosis, trachoma and rabies. There were in excess of 20,000 cases of malaria in Indo-China during 1933.[1] Leprosy is widespread and it was estimated that 15,000 cases existed in 1933. The reader is referred to Table 83 for further information concerning the incidence and distribution of various diseases.

According to "World Weather Records" the mean pressure (700 mm. plus) over a ten year period, 1921–30, was 58.0. The mean temperature over the same period was 23.2°C. and the mean precipitation in millimeters was 3065.9

TABLE 83

FRENCH INDO-CHINA[2]

Reported by: Annals de Médecine et de Pharmacie Coloniales (1934) *Period:* 1932

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General, endemic	20,048[3]	+	+
Blackwater Fever	+	General	231		+
Relapsing Fever	+	Cochin-China and Annam	5	+	
Dengue Fever	+	General	106[4]	+	
Plague	+	Cochin-China, Cambodia, Annam endemic	71[5]	+	+
Typhus Fever	+	Tonkin, Cochin-China, Hué	3	+	
Leprosy	+	General	7,442		+
Syphilis	+	General	11,712		+
Yaws	+	General	201		
Smallpox	+	Widespread, epidemics in Union, sporadic in Annam	4,686[6]		+
Amebiasis	+	General, epidemic in Tonkin	2,826[7]		+
Bacillary Dysentery	+	Chiefly Cochin-China; epidemic in Tonkin	347[8]		+
Cholera	+	All Union; sporadic	472[9]		+
Typhoid Fever	+	All Union; Chiefly Cochin-China and Annam	619[10]		+
Ascariasis	+	General	1,802[11]		
Hookworm Disease	+	General	474		+
Schistosomiasis	?[12]				
Cestodes	+	General	342[13]	+	
Trichuris	+	General	R		
Ulcus Tropicum	+	General	2,209[14]		
Beriberi	+	Epidemic Tonkin; in Annam coolies; general	3,365		+

II. Diseases Usually Considered as of Temperate Climates

Scarlet Fever	+	Cochin-China; Tonkin, Laos, Kwang-Chow-Wan	14[15]		
Diphtheria	+	General	104		+
Measles	+	General Tonkin epidemics	1,726[16]		+
Varicella	+	Union	683[17]		+
Epidemic Meningitis	+	Isolated Tonkin, Co-Chin-China, Annam, Cambodia	137		+
Influenza	+	General	2,192		+
The Pneumonias	+	General	1,466[18]		+
Tuberculosis	+	General	5,089		+
Pulmonary	+	Cochin-China	2,089		+

TABLE 83

FRENCH INDO-CHINA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malignancy (all forms)	+	Cambodia, Tonkin, Annam, Cochin-China	2,207[4]		+
Rabies	+	General except Annam	19[19,20]	+	+
Thyroid Disease (Goiter)	+	General	76[4]		

Reported by: Inspection Générale de l'Hygiène et de la Santé Publique
Period: January, 1934

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General	20,000[21]	+	+
Benign tertian	+				
Quartan	+				
Subtertian	+				
Blackwater Fever	+	Laos and Tonkin	300[21]		+
Piroplasmosis	−				−
Leishmaniasis	+			+	−
Kala-azar	+		R	+	
Oriental Sore	?				
Espundia	?				
Relapsing Fever	+	Annam and Cochin-China	10[21]	+	−
S. recurrentis	?				
S. duttoni	?	Annam			
S. venezuelense	+	Cochin-China	R		−
S. berberum	?				
Rat-Bite Fever	−				−
Yellow Fever	−				−
Dengue Fever	+	General	C	+	−
Pappataci Fever	−				−
Plague	+	Cochin-China, Cambodia, Annam, Kouang-Tcheou-Wan	100	+	+
Typhus Fever	+	Cochin-China-Annam	R	+	−
Trypanosomiasis	−				−
African Human	−				−
T. gambiense	−				−
T. rhodesiense	−				−
South American	−				−
T. cruzi	−				−
Oroya Fever	−				−
Undulant Fever	−				−
Leprosy	+	General	15,000		+
Syphilis	+	General	10,000[21]		+
Yaws	+	General	400[21]		+
Granuloma Inguinale	+	Cochin-China	R		−

TABLE 83

FRENCH INDO-CHINA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Tularemia	+	Cochin-China	R		−
Smallpox	+	General	4,500		+
Amebiasis	+	General	3,000[21]		+
Balantidium Dysentery	+	General	?		
Bacillary Dysentery	+	General	500[21]		+
Cholera	+	General	700		+
Typhoid Fever	+	General	400[21]		+
Para-Typhoid Infection	+	General	200[21]		+
Sprue	+	Cochin-China	?		−
Hill Diarrhea	?				
Ascariasis	+	General	1,000[21]		−
Hookworm Disease	?				
Giardia Enteritis	+	General	C		−
Trichomonas Infection	+	General	C		−
Tropical Liver	+	General	500[21]		+
Infantile Biliary Cirrhosis	−				−
Schistosomiasis	+			+	
Urinary	?				
Intestinal	+		14[21]	+	−
Visceral	?				
Far Eastern	?				
Filariasis	+	Cochin-China and Tonkin		+	
F. bancrofti	+		2[21]	+	−
Loa Loa	−				−
O. volvulus	−				−
F. perstans	−				−
F. demarquayi	−				−
F. ozzardi	−				−
Juxta-Articular Nodules	+	Laos and Annam	R		−
Elephantiasis	−				−
Chyluria	−				−
Dracontiasis	+		R	+	−
D. medinensis	+	Tonkin and Cochin-China	10	+	−
Paragonimiasis	?				
P. ringeri	?				
P. westermanii	?				
P. compactus	?				
Clonorchiasis	+	General	C	+	−
C. sinensis	+	General	C	+	
O. felineus	?				
Fasciolopsis	+	General	C	+	−
F. hepatica	+	General	C	+	
F. buskii	?		?		
Cestodes	+	General		+	
Tænia saginata	+	General	C	+	−
Tænia solium	+	General	400[21]	+	−
Dibothriocephalus latus	+	General	C	+	−
Hymenolepis nana	?				
Sparganum mansoni	+	Tonkin	R		−
S. prolifer	?				
Trichuris	+	General	C		−
T. trichiura	+	General	C		−
H. heptaticus	+	General	C		−

TABLE 83

FRENCH INDO-CHINA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Trichinelliasis	+	Annam and Tonkin	R	+	−
T. spiralis	+				
Climatic Bubo	+	General	R		−
Rhino poridiosis	−				−
Goundou	−				−
Ainhum	−				−
Big Heel	?				
Myiasis	+	Cochin-China and Laos		+	
Subcutaneous	+	Cochin-China and Laos	R	+	−
Blood sucking	?				
Intestinal	?				
Larva Migrans	?				
Leech Infection	?				
Leucodermia	?				
Cheloid	+	General	20[21]		−
Ulcus Tropicum	+	General	2,500[21]		+
Albinism	+				
Septic Sore	+	General	C		+
Pemphigus Contagiosus	−				−
Ulcerating Dermatitis	?				
Madura Foot	+		3[21]		−
Other Mycetoma	?				
Blastomycosis	+	General	C		−
Mossy Foot	?				
Pityriasis Nigra	?				
Pityriasis Versicolor	+		10[21]		−
Dhobie's Itch	?				
Seborrhoea	+	General	C		−
Pinta	?				
Tinea Imbricata	+	Tonkin, Cochin-China and Laos	100[21]		−
Trichosporosis	+	Tonkin, Cochin-China and Laos	C		−
Trichomycosis	+	General	R		−
Acarine Dermatomycosis	+	General	C		+
Epidemic Dropsy	+	General	C		+
Peripheral Neuritis	?				
Beriberi	+	General	3,500[21]		+
Pellagra	?				
Scurvy	+	General	400[21]		+
General Malnutrition or Undernutrition	?				
Heat Stroke	+	General	20[21]		−
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+	General	10[21]		−
Diphtheria	+	General	40[21]		+
Measles	+	General	400[21]		+
German Measles	?				
Varicella	+	General	500[21]		−
Epidemic Meningitis	+	General	150[21]		+

TABLE 83

FRENCH INDO-CHINA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Infantile Paralysis	+	Cochin-China, Tonkin and Annam	20[21]		−
Epidemic Encephalitis	+	Tonkin and Cochin-China	R		−
Syphilis of Central Nervous System	+	General	R		−
Influenza	+	General	500[21]		−
Common Cold	+	General	3,500[21]		−
The Pneumonias	+	General	1,200[21]		+
Cholelithiasis	+	General	15[21]		−
Urinary Calculus	+	General	400[21]		+
Nephritis	+	General	2,700[21]		+
Diabetes	+	General	20[21]		−
Pernicious Anemia	+	General	130[21]		−
Osteomyelitis	+	General	500[21]		−
Tuberculosis	+	General			+
Pulmonary	+	General	4,300[21]		+
Bone	+	General	200[21]		+
Skin	+	General	150[21]		+
Malignancy (all forms)	?				
Trachoma	+	General	2,200[21]		+
Weil's Disease	−				−
Tsutsugamushi Disease	−				−
Rabies	+	General	C	+	+
Unusual Skin Disease	?				
Thyroid Disease (Goiter)	+	General	80[21]		−
Rheumatic Fever	+	General	1,400[21]		−
Arthritis (Nonspecific)	+	General	1,000[21]		−
Rickets	−				−
Dental Caries	+	General	C		−
Toxemias of Pregnancy	?				
Cardio-Vascular Diseases	+	General			−
Hypertension	+		C		
Valvular Lesions	+	General	150[21]		−
Aneurysm	+	General	20[21]		−
Myocarditis	+	General	100[21]		−

[1] On the basis of the amount of quinine imported and distributed in Indo-China and from the point of view of malarial endemicity, the Health Organization of the League of Nations has modestly estimated the number of cases of malaria in Indo-China at 1,766,720.

[2] Including Cochin-China, Cambodia, Annam, Tonkin, Laos and Kwang-Chow-Wan.

[3] Figure represents mostly hospital cases only. At Laos of 147 positive, 97 were *B. praecox*.

[4] Hospital cases.

[5] No cases at Tonkin and Laos.

[6] No statistics for Kwang-Chow-Wan.

[7] 95 hepatic cases. 4700 cases "diverse" dysentery at Cochin-China.

[8] Bacteriological confirmation at Tonkin not made.

[9] Annam had only choleriform diarrhoeic cases, 112.

[10] Many more cases at Annam; Cochin-China cases represent only hospital figures.

[11] Hospital statistics. "Ascaris and others" (except taenia and hookworm).

[12] Report notes that this disease was not mentioned in Indo-Chinese report.

[13] Taenia.

[14] "Ulcère phagédénique." Hospital cases.

TABLE 83

FRENCH INDO-CHINA—*Concluded*

[15] Figure is for Cochin-China; "some" cases for the others.
[16] "Some" cases for Kwang-Chow-Wan; numerous cases at Tonkin besides ones reported.
[17] Figure does not include Tonkin where there were numerous cases, or Kwang-Chow-Wan which had some cases.
[18] Also 549 cases of pulmonary congestion at Tonkin where the hospital cases showed 48 per 100 of deaths.
[19] Probably more deaths. 3,896 people treated. Animal rabies very common at Annam.
[20] Deaths.
[21] Numbers of Seekmen treated in the different hospitals. Consequently figures are only approximate.

FRENCH PACIFIC GROUP

In the French Pacific Group of possessions are New Caledonia and dependencies (including the Wallis Archipelago), New Hebrides and the French Establishments in Oceania (including several islands and groups of islands, the most important of which is Tahiti).

New Caledonia has an area of 8,548 square miles and, in 1926, the population was 57,502. In 1931 there were 27,777 natives. Primary instruction is both in public and private schools, the former receiving support from the local budget. There were, in 1932, 48 primary schools with 2,557 students and 67 native schools with 3,133 students. In 1931 the budget of income and expense was balanced at 37,861,212 francs. About 1,600 square miles are for agricultural purposes, the same area for pasture land and about 500 square miles for forests. The minerals in New Caledonia are extensive, including antimony, mercury, cinnabar, chrome, cobalt, nickel, iron, manganese, silver, gold, lead and copper. The imports, in 1931, amounted to 86,701,259 francs and the exports to 89,085,656 francs. Data concerning public health in New Caledonia are to be found in Table 84.

There are five dependencies of New Caledonia, the most important being the Wallis Archipelago, north-east of Fiji, having an area of 40 square miles and a population of around 4,500. These islands have been under French protection since 1842.

The New Hebrides are jointly administered by the British and French Governments. In 1925 there were 746 French and 322 English inhabitants. There are both French and English courts and a mixed court. The budget, in 1932, amounted to 6,659,000 francs. The exports, in 1931, amounted to 15,151,901 francs and the imports to 9,819,635 francs. The chief articles of export are maize, coffee, cotton, coco, vanilla and coconuts. Sulphur is plentiful in some areas. In 1931, over 125,000 tons of shipping entered and cleared. See Table 84 for information concerning health conditions.

The French Establishments in Oceania include the Society Islands (the most important being Tahiti and Moorea), Marquezas Islands, the Tuamotu group, Leeward Islands, Gambier, Tubuai and Rapa Islands. Tahiti has an

area of 600 square miles and, in 1931, there were 9,720 inhabitants. The chief town in Tahiti is Papeete, having a population of 7,061. In 1925 there were 63 primary schools with 3,750 students and 91 teachers. The islands are fertile and coconuts, sugar-cane, vanilla, bananas, oranges and other fruits as well as vegetables are grown. Pearls and mother-of-pearl are important products. The chief industries are copra, sugar and rum. In 1931 the imports amounted to 26,187,000 francs and the exports to 24,396,000 francs. The principal imports are wheat, flour, metal work and tissues. The export of phosphates is exceedingly important (172,059 tons in 1930). For data concerning health conditions in the French Pacific Group see Table 84. These show that such diseases as malaria, leprosy, syphilis, amebiasis, bacillary dysentery, typhoid fever, filariasis (common), elephantiasis, chyluria, tropical ulcer, influenza and tuberculosis are present.

No data are available concerning weather conditions in these islands.

TABLE 84

FRENCH PACIFIC GROUP[1]

Reported by: Annales de Médecine et de Pharmacie Coloniales (1934) *Period:* 1932

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	New Hebrides	112	+	+
Blackwater Fever	+	New Hebrides (natives)	R		
Leprosy	+	New Caledonia; Ocean Islands	868[2]		+
Syphilis	+	Ocean Islands	28		
Yaws	+	Ocean Islands	R		
Smallpox	+		0		
Amebiasis	+	Epidemic New Caledonia; New Hebrides	277		+
Bacillary Dysentery	+	Wallis Islands	127[3]		+
Typhoid Fever	+	New Caldeonia; sporadic in Ocean Islands	22[4]		
Para-Typhoid Infection	+	Ocean Islands (Europeans)	1		
Ascariasis	+		?[5]		
Hookworm Disease	+		?[5]		
Schistosomiasis	?[6]				
Filariasis	+		C	+	+
F. bancrofti	+		C	+	+
Elephantiasis	+		C		
Chyluria	+		C		
Ulcus Tropicum	+	Ocean Islands	1[7]		

TABLE 84

FRENCH PACIFIC GROUP—*Concluded*

II. Diseases Usually Considered as of Temperate Climates

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Scarlet Fever	+	New Caledonia	1		
Diphtheria	+	New Caledonia	1		
Measles	+	New Caldeonia	R		
Varicella	+	New Caldeonia; Ocean Islands; New Hebrides	R		
Epidemic Meningitis	+	New Hebrides (Europeans)	1		
Influenza	+	Epidemic, Wallis Is.			
Tuberculosis	+	Marguise and Gambier, Tahiti group (Papeete)	23		+

[1] Including Tahiti group, New Caledonia, New Hebrides, Ocean Islands and Wallis Islands.

[2] 1,292 suspects at New Caldeonia.

[3] 414 "consultants."

[4] 10 cases at Moorea identified as colon bacillus.

[5] No mention is made of this group specifically but report refers to the coast of Somalis as the only colony where, except for taenia, intestinal worms are very rare and where hookworm has not been established.

[6] Except for French India bilharziasis continues to be manifest slightly throughout (colonies) by disseminated cases from time to time and small outbreaks.

[7] "Ulcère phagédémique."

FRENCH ATLANTIC GROUP

The French Atlantic group includes Guadeloupe, Martinique, French Guinea and the St. Pierre group of islands. Special reports for Guadeloupe and Martinique have been received and therefore they are considered separately. However, they are also considered in the survey material under the French Atlantic Group, and data concerning health conditions pertaining to them appear in Table 85, as well as in Tables 86 and 87. We wish in these notes, therefore, only to offer brief comments concerning the social-economic background of French Guinea and St. Pierre and Miquelon.

The colony of French Guinea has an area of about 34,740 square miles and a population, in 1931, of 22,169. Cayenne is the chief town and has a population of 10,744. Primary education is free and in 1930–31 there were 3,263 students. The budget in 1931 balanced at 16,755,676 francs. There are only about 8,000 acres under cultivation but the country has rich forests. The crops consist of rice, maize, manioc, coco, coffee, sugar-cane, tobacco and gutta percha. Placer gold mining is the most important industry. Silver, iron and phosphate deposits are also worked. The imports, in 1931, amounted to 42,698,693 francs and the exports to 30,153,575 francs. Details concerning health conditions in French Guinea may be found in Table 85.

The area of the St. Pierre group of islands is 10 square miles and the population in 1926 was 3,040. The area of the Miquelon group of islands is 83 square miles and the population numbers only a few hundred (544). There are two public schools for boys and three for girls with 26 teachers and about 600 students. In addition there are nursery schools and private schools. These islands are mostly barren rock and the chief industry is cod-fishing. The imports in 1929 amounted to 221,654,882 francs and the exports to 203,256,103 francs. The imports consist of textiles, salt, wines, foodstuffs and meat and the exports of fish and fish products. Information concerning health conditions in St. Pierre and Miquelon may be found in Table 85.

No data are available concerning weather conditions in St. Pierre and Miquelon.

TABLE 85

FRENCH ATLANTIC GROUP[1]

Reported by: Annales de Médecine et de Pharmacie Coloniales (1934) *Period:* 1932

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Epidemic Martinique, Guadeloupe, Guyane	5,837	+	+
Blackwater Fever	+	Martinique,	0		
Leprosy	+	Guadeloupe, Guyane, Martinique	284[2]		+
Syphilis	+	All colonies	132[3]		+
Yaws	+	Guadeloupe chiefly; Guyane	505		+
Smallpox	+		0		
Amebiasis	+	Guadeloupe and Guyane	188		+
Bacillary Dysentery	+	Guadeloupe	442[4]		+
Typhoid Fever	+	Antilles	20[5]		
Ascariasis	+	Children in St. Pierre and Miquelon	C		
Hookworm Disease	+	All colonies	360[6]		
Schistosomiasis	+	Scattered cases in Antilles	461[7]	+	+
Ulcus Tropicum	+	Antilles and Guyane	C[8]		

II. Diseases Usually Considered as of Temperate Climates

Scarlet Fever	+	All colonies	2[9]		
Diphtheria	+	Martinique	6		
Measles	+	All colonies. Epidemic Martinique	28[9]		
Varicella	+	All colonies	R		
Influenza	+	All colonies	377[10]		+
Tuberculosis	+	Guadeloupe, Guyane, St. Pierre and Miquelon	354		+

TABLE 85

FRENCH ATLANTIC GROUP—*Concluded*

[1] Including Guadeloupe, Martinique, Guyane and Saint-Pierre and Miquelon.
[2] No doubt many more cases. No figure for Martinique.
[3] Hereditary syphilis only in Saint-Pierre and Miquelon. 223 consultations at Guadeloupe.
[4] Dysentery.
[5] No doubt more cases.
[6] Figure for Guadeloupe and Guyane only. In Martinique the disease is referred to as the "grande maladie sociale."
[7] Figure for Guadeloupe.
[8] "Ulcère phagédénique."
[9] Figure for Martinique. No statistics for others.
[10] Figure for Guadeloupe. No statistics for others.

GUADELOUPE

The colony of Guadeloupe and dependencies is located in the Lesser Antilles and is comprised of the two main islands, Basse-Terre and Grande-Terre, and five smaller island dependencies. The two main islands have an area of 1380 square kilometers (532 square miles) and the five dependencies have an area of 688 square miles. The colony is administrated by a Governor and an elected council. The population in 1932 was 267,407. There are 129 public and private elementary schools with 18,820 students enrolled in the public schools having 420 teachers and an enrollment of 1,308 students in the private schools. The capital is Basse-Terre with a population of 9,268.

In 1932 the revenue and expenditure of the government balanced at 66,220,864 francs. The chief products of the islands are sugar, bananas, vanilla, coffee, coco and rum. The imports in 1931 amounted to 231,313,100 francs. The islands are in direct communication with France through two navigation companies.

Among the important public health problems are malaria, leprosy, syphilis, ascariasis and tuberculosis. The Chief of the Public Health Service has informed us (see Table 86) that one tenth of the population has malaria and leprosy is widespread through the islands.

No data concerning climate are available in "World Weather Records."

TABLE 86

GUADELOUPE

Reported by: Chief of Public Health Service
Period: Questionnaire dated September, 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Endemic everywhere	[1]	+	+
Benign tertian	+	Endemic everywhere		+	+
Quartan	+	Endemic everywhere		+	+
Subtertian	+	Endemic everywhere		+	+

TABLE 86

GUADELOUPE—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Blackwater Fever	−				−
Piroplasmosis	−				−
Leishmaniasis	−				−
Kala-azar	−				−
Oriental Sore	−				−
Espundia	−				−
Relapsing Fever	−				−
S. recurrentis	−				−
S. dutton	−				−
S. venezuelense	−				−
S. berberum	−				−
Rat-Bite Fever	−				−
Yellow Fever	+	Imported from South America	0[2]	+	−
Dengue Fever	−				−
Pappataci Fever	−				−
Plague	−				−
Typhus Fever	−				−
Trypanosomiasis	−				−
African Human	−				−
T. gambiens	−				−
T. rhodesiense	−				−
Southb American	−				−
T. cruzi	−				−
Oroya Fever	−				−
Undulant Fever	−				−
Leprosy	+	General			+
Syphilis	+	General	C		+
Yaws	−				−
Granuloma Inguinale	+	General	10		−
Tularemia	−				−
Smallpox	−				−
Amebiasis	+	General, Grande Terre	R		−
Balantidium Dysentery	+	General, Grande Terre	3–4		−
Bacillary Dysentery	−				−
Cholera	−				−
Typhoid Fever	+	General	R		−
Para-Typhoid Infection	+	General	R		−
Sprue	−				−
Hill Diarrhea	−				−
Ascariasis	+	General	C		+
Hookworm Disease	−				−
Giardia Enteritis	−				−
Trichomonas Infection	−				−
Tropical Liver	−				−
Infantile Biliary Cirrhosis	−				−
Schistosomiasis	−				−
Urinary	−				−
Intestinal	−				−
Visceral	−				−
Far Eastern	−				−

TABLE 86

GUADELOUPE—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Filariasis	+	General	R	+	−
F. bancrofti	+	General	R	+	−
Loa Loa	−				−
O. volvulus	−				−
F. perstans	−				−
F. demarquayi	−				−
F. ozzardi	−				−
Juxta-Articular Nodules	−				−
Elephantiasis	+	Guadeloupe only	R		−
Chyluria	−				−
Dracontiasis	−				−
D. medinensis	−				−
Paragonimiasis	−				−
P. ringeri	−				−
P. westermanii	−				−
P. compactus	−				−
Clonorchiasis	−				−
C. sinensis	−				−
O. felineus	−				−
Fasciolopsis	−				−
F. hepatica	−				−
F. buskii	−				−
Cestodes	+	General	R		−
Tænia saginata	+	General	R		−
Tænia solium	−				−
Dibothriocephalus latus	−				−
Hymenolepis nana	−				−
Sparganum mansoni	−				−
S. prolifer	−				−
Trichuris	−				−
T. trichiura	−				−
H. heptaticus	−				−
Trichinelliasis	−				−
T. spiralis	−				−
Climatic Bubo	−				−
Rhinosporidiosis	−				−
Goundou	−				−
Ainhum	−				−
Big Heel	−				−
Myiasis	−				−
Subcutaneous	−				−
Blood sucking	−				−
Intestinal	−				−
Larva Migrans	−				−
Leech Infection	−				−
Leucodermia	−				−
Cheloid	+	General (in colored)	R		−
Ulcus Tropicum	+	General (in colored)	?		−
Albinism	−				−
Septic Sore	−				−
Pemphigus Contagiosus	−				−
Ulcerating Dermatitis	−				−
Madura Foot	−				−
Other Mycetoma	−				−
Blastomycosis	−				−

TABLE 86

GUADELOUPE—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Mossy Foot	−				−
Pityriasis Nigra	−				−
Pityriasis Versicolor	−				−
Dhobie's Itch	−				−
Seborrhoea	−				−
Pinta	−				−
Tinea Imbricata	−				−
Trichosporosis	−				−
Trichomycosis	−				−
Acarine Dermatomycosis	−				−
Epidemic Dropsy	−				−
Peripheral Neuritis	−				−
Beriberi	−				−
Pellagra	−				−
Scurvy	−				−
General Malnutrition or Undernutrition	−				−
Heat Stroke	−				−
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	−				−
Diphtheria	+		0		−
Measles	−				−
German Measles	−				−
Varicella	−				−
Epidemic Meningitis	+	General	3–4		−
Infantile Paralysis	+	General	3–4		−
Epidemic Encephalitis	−				−
Syphilis of Central Nervous System	−				−
Influenza	−				−
Common Cold	−				−
The Pneumonias	+	General	R		−
Cholelithiasis	−				−
Urinary Calculus	−				−
Nephritis	−				−
Diabetes	+	General	R		−
Pernicious Anemia	−				−
Osteomyelitis	+	General	3–4		−
Tuberculosis	+	General	R		+
Pulmonary	+	General	R		+
Bone	−				−
Skin	−				−
Malignancy (all forms)	−				−
Trachoma	−				−
Weil's Disease	−				−
Tsutsugamushi Disease	−				−
Rabies	−				−
Unusual Skin Disease	−				−
Thyroid Disease (Goiter)	+	General	R		−
Rheumatic Fever	−				−
Arthritis (Nonspecific)	−				−
Rickets	−				−
Dental Caries	+	Colored	30%		−

TABLE 86

GUADELOUPE—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Toxemias of Pregnancy....	+	Alcoholism (colored)	1%		—
Cardio-Vascular Diseases..	—				—
Hypertension.....	—				—
Valvular Lesions.....	—				—
Aneurysm.....	—				—
Myocarditis.....	—				

[1] Ten per cent of population.
[2] Few cases many years ago.

MARTINIQUE

Martinique has an area of 385 square miles and a population, according to the census of 1931, of 234,695. Fort-de-France is the chief town, having a population of 43,338. In addition to a school of law there is a lycée for boys with 1,080 students, a high school for girls with 1,100 students, primary schools with 24,000 students, a commercial school with 120 students and a school of arts and crafts. The budget of revenue and expenditures for 1931 amounted to 96,428,996 francs. The chief products are sugar and rum, though coco, pineapples, bananas, coffee and tobacco are also produced. Over 1,000,000 tons of shipping entered and cleared during 1931.

According to Dr. Jauneau the following diseases are described as being "common" in Martinique: malaria, granuloma inguinale, hookworm disease, tropical liver, schistosomiasis, leucodermia, tropical ulcer, septic sore, other skin diseases (see Table 87), the common cold, pneumonias, measles, etc. There are between 200 and 300 cases of leprosy on the Island and syphilis and yaws are both present. See Table 87 for further information.

There are no data available to the Survey dealing with weather conditions in Martinique.

TABLE 87

MARTINIQUE

Reported by: Dr. Jauneau *Period:* Questionnaire dated 1933

I. TROPICAL DISEASES

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria.....	+	Central part of island		+	+
Benign tertian.....	+		C	+	+
Quartan.....					
Subtertian.....					

TABLE 87

MARTINIQUE—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Blackwater Fever	−				−
Piroplasmosis	−				−
Leishmaniasis	−				−
Kala-azar	−				−
Oriental Sore	−				−
Espundia	−				−
Relapsing Fever	−				−
S. recurrentis	−				−
S. duttoni	−				−
S. venezuelense	−				−
S. berberum	−				−
Rat-Bite Fever	+	Sodoku	1		−
Yellow Fever	[1]				−
Dengue Fever	−				−
Pappataci Fever	−				−
Plague	−				−
Typhus Fever	−				−
Trypanosomiasis	−				−
African Human	−				−
T. gambiense	−				−
T. rhodesiense	−				−
South American	−				−
T. cruzi	−				−
Oroya Fever	−				−
Undulant Fever	−				−
Leprosy	+		200–300		−
Syphilis	+	Scattered throughout			
Yaws	+	Two foci with local epidemics			
Granuloma Inguinale	+		C		
Tularemia	−				−
Smallpox	−				−
Amebiasis	+	Imported	R		
Balantidium Dysentery	−				−
Bacillary Dysentery	−				−
Cholera	−				−
Typhoid Fever	+	Small epidemics			
Para-Typhoid Infection	+	Small epidemics			
Sprue	−				−
Hill Diarrhea	−				−
Ascariasis	+	Scattered			−
Hookworm Disease	+	Common particularly in north of island	C		
Giardia Enteritis	+		C		
Trichomonas Infection	+		C		
Tropical Liver	+		C		
Infantile Biliary Cirrhosis	−				−
Schistosomiasis	+		C		
Urinary	−				−
Intestinal	+		C		
Visceral	−				−
Far Eastern	−				−
Filariasis	+	Scattered			
Juxta-Articular Nodules	+		R		
Elephantiasis	+	Fairly scattered			

TABLE 87

MARTINIQUE—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Chyluria	+		R		
Dracontiasis	−				−
D. medinensis	−				−
Paragonimiasis	−				−
Clonorchiasis	−				−
Fasciolopsis	−				−
Cestodes	+		R		
Tænia solium	+		R		
Trichuris	+		C		
Trichinelliasis	−				−
Climatic Bubo	−				−
Rhinosporidiosis	−				−
Goundou	−				−
Ainhum	−				−
Big Heel	−				−
Myiasis	−				−
Leech Infection	−				−
Leucodermia	+		C		
Cheloid	+	In Negroes	C		
Ulcus Tropicum	+		C		
Albinism	+		R		
Septic Sore	+		C		
Pemphigus Contagiosus	−				−
Ulcerating Dermatitis	+		C		
Madura Foot	−				−
Other Mycetoma	−				−
Blastomycosis	−				−
Mossy Foot	?				
Pityriasis Nigra	−				−
Pityriasis Versicolor	+		C		
Dhobie's Itch	?				
Seborrhoea	+		C		
Pinta	−				−
Tinea Imbricata	−				−
Trichosporosis	−				−
Trichomycosis	−				−
Acarine Dermatomycosis	+		C		
Epidemic Dropsy	−				−
Peripheral Neuritis	+				
Beriberi	−				−
Pellagra	−				−
Scurvy	−				−
General Malnutrition or Undernutrition	−				−
Heat Stroke	−				−

II. DISEASES USUALLY CONSIDERED AS OF TEMPERATE CLIMATES

Scarlet Fever	+		1[2]		
Diphtheria		Scattered. No epidemics	R		
Measles	+	Epidemic 1932–33	?		
German Measles	?				
Varicella	+	Springtime	R		
Epidemic Meningitis	−				−

TABLE 87

MARTINIQUE—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Infantile Paralysis	+	No epidemics	R		
Epidemic Encephalitis	+	In summer time	2–3		
Syphilis of Central Nervous System	+	Colored races	R		
Influenza	+	Not epidemic in behavior			
Common Cold	+		C		
The Pneumonias	+		C		
Cholelithiasis	+		C		
Urinary Calculus	+		R		
Nephritis	+				
Diabetes	+				
Pernicious Anemia	+		R		
Osteomyelitis	+		R		
Tuberculosis	+	Urban communities[3]			
Pulmonary	+				
Bone	+				
Malignancy (all forms)	?				
Trachoma	+		R		
Weil's Disease	−				
Tsutsugamushi Disease	−				
Rabies	−				
Unusual Skin Disease	−				
Thyroid Disease (Goiter)	+		Uc		
Rheumatic Fever	+		R		
Arthritis (Nonspecific)	+				
Rickets	+		C		
Dental Caries	+		C		
Toxemias of Pregnancy	?				
Cardio-Vascular Diseases	+		C		
Hypertension	+				
Aneurysm	+				

[1] Not since 1909.
[2] One unique case in 1931 of unknown origin.
[3] Less frequent than in Europe but more frequent than in less civilized colonies. Course of the disease highly fatal.

FRENCH INDIAN OCEAN GROUP

French India consists of five separate colonies with an aggregate area of about 196 square miles and a total population in 1931 of around 286,410. The Provinces are Pondichéry (which is the most important with a population of 183,555), Karikal, Chandernagor, Mahe and Yanaon. The chief town is Pondichéry with a population of 43,499. The birth rate in Pondichéry, in 1931, was 1.89 per cent for Europeans and mixed, and 3.52 for Indians. The death-rate was 1.35 per cent for Europeans and mixed and 3.93 per cent for Indians. In 1930 there were 59 primary schools and 3 colleges maintained by the Government. There were nearly 11,000 students and over 300 teachers. The local budget of income and expenditures was balanced at

2,675,597 rupees in 1932. The chief crops were paddy, rice, manioc and ground-nuts. Cattle, sheep and goats were also raised. There are three cotton mills and one jute mill, these industries employing over 8,000 people. In 1931, at the ports of Pondichéry, Karikal, Mahe and Yanaon, the imports amounted to 96,215,000 francs and the exports to 173,695,000 francs. Nearly 300 vessels entered and cleared the four ports.

Among the diseases present in this area, during the year 1932, according to the "Annales de Médecine et de Pharmacie Coloniales" for 1934, were the following: malaria, leprosy (regarded as very common), syphilis, amebiasis, bacillary dysentery, cholera, ascariasis, typhoid fever, schistosomiasis, tropical ulcer, influenza and tuberculosis. Further details may be found in Table 88.

No data concerning weather conditions in French India are available.

TABLE 88

FRENCH INDIAN OCEAN GROUP[1]

Reported by: Annales de Médecine et de Pharmacie Coloniales (1934) *Period:* 1932

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	India, Pondichéry chiefly, Coast of Somali	2,887[2]	+	+
Dengue Fever	+	India		+	
Leprosy	+	Coast of Somali, sporadic, imported mostly. India	C[3]		+
Syphilis	+	Coast of Somali, India	14–30		+
Yaws	−				
Smallpox	+	Somali, India; epidemic Karikal	1,314		+
Amebiasis	+	India, chiefly Pondichéry	614[2,4]		+
Bacillary Dysentery	+	India, chiefly Pondichéry	447[2,5]		+
Cholera	+	India, Karikal, Pondichéry, Chandernagor	53[2]		+
Typhoid Fever	+	India, Pondichéry	C[6]		+
Ascariasis	+	Somali	R		
Hookworm Disease	+	Only India			
Schistosomiasis	+	Only Somali	R	+	
Ulcus Tropicum	+	Somali and India	62[7]		
Beriberi	+	India	R		

II. Diseases Usually Considered as of Temperate Climates

Scarlet Fever	+	Somali and India			
Measles	+	Somali and India			
Varicella	+	Somali and India	C		
Influenza	+	Somali and India	R		
Tuberculosis	+	Somali and India	C		+

TABLE 88

FRENCH INDIAN OCEAN GROUP—*Concluded*

[1] Including Somali and India.
[2] Deaths.
[3] Very rare on Somali coast.
[4] Hepatic type often seen.
[5] "Diarrhoea."
[6] Increase due to carriers mostly rather than drinking water.
[7] "Ulcère phagédénique"; also numerous "consultants" besides these.

THE NETHERLANDS: DUTCH EAST INDIES

In 1602 the Dutch created the East India Company and this Company ruled the East Indies (Dutch) until 1798 when the company was dissolved and since that time the mother Netherlands have governed these territories. These territories include those under direct government and the Subject native states. The Governor-General and his Council are nominated by the Queen of the Netherlands. The Provinces and Residencies are governed by Governors and Residents. The Dutch East Indies have an area of 733,296 square miles and a population, in 1930, of 60,731,025, or 82.8 persons per square mile. The territories included are Java and Madura, Island of Sumatra, Riau-Lingga Archipelago, Bangka, Billiton, Borneo (West District), Borneo (South and East Districts), Island of Celebes, Molucca (including New Guinea), Timor Archipelago, Bali and Lombok. The largest population is found in Java and Madura, it being 41,719,524 according to the Census in 1930. Of these 40,890,244 were natives, 635,662 other Orientals (Chinese and Arabs) and 193,618 Europeans. In the outer provinces there were, in 1930, 18,253,531 natives, 650,496 Chinese, 58,720 other Orientals and 48,754 Europeans.

The educational system in the Dutch East Indies is quite comprehensive and includes over 20,000 schools, both public and private, nearly 45,000 teachers, nearly 2,000,000 pupils and, in 1931, nearly 50,000,000 guilders were spent for education. Religious liberty is permitted all denominations. The estimated revenue for 1933 was 561,119,931 guilders and the expenditures were estimated at 660,449,223 guilders. In 1931 the Dutch East Indies produced 103,244 tons of coffee, 255,991 tons of rubber, 10,625 tons of cinchona, 63,976 tons of tobacco, 81,309 tons of tea, 1,301 tons of cacao and 64,457 tons of oil palms. In 1931 the total production of sugar was 2,772,443 tons. During this year there were 178 sugar factories. The total imports in 1932 amounted to 490,200,000 guilders and the total exports to 618,800,000 guilders. Shipping entering the harbors during 1931 amounted to about 10,600,000 tons and involved over 17,000 vessels of all types.

Among the important diseases of public health importance, according to Dr. C. Broorhoofi, are malaria (which is found practically everywhere), blackwater fever (which is sporadic), plague (limited to Java since 1911), leprosy (which is distributed generally), syphilis, yaws, granuloma inguinale,

amebiasis, bacillary dysentery, the typhoid fevers, hookworm disease and ascariasis, beriberi, diphtheria, tuberculosis, trachoma, rabies and dental caries. Detailed information, such as is available, is to be found in Table 89.

According to "World Weather Records," the mean pressure (700 mm. plus) at Batavia over a period of ten years from 1921 to 1930, was 56.79. The mean temperature during the same period was 26.57°C. and the average precipitation was 1657 millimeters.

TABLE 89

THE NETHERLANDS: DUTCH EAST INDIES

Reported by: Dr. C. Broorhoofi *Period:* Questionnaire dated December, 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General		+	+
Benign tertian	+	General		+	+
Quartan	+	General		+	+
Subtertian	+	General		+	+
Blackwater Fever	+	Sporadic		+(?)	+
Rat-Bite Fever	+	Sporadic			−
Yellow Fever	−			+	−
Dengue Fever	+	General		+	−
Plague	+	Java only, since 1911	6,495	+	+
Leprosy	+	General			+
Syphilis	+	General			+
Yaws	+	General			+
Granuloma Inguinale	+				+
Smallpox	+	Residency of Polembary	252		+
Amebiasis	+	General			+
Bacillary Dysentery	+	General	1,187		+
Cholera	+		0		
Typhoid Fever	+	General	3,123		+
Para-Typhoid Infection	+	General			+
Sprue	+				−
Hill Diarrhea	+	General			−
Ascariasis	+	General			+
Hookworm Disease	+	General			+
Filariasis	+			+	−
Juxta-Articular Nodules	+				
Elephantiasis	+			+(?)	−
Cestodes	+	General		+	+
Tænia saginata	+	General		+	+
Tænia solium	+	General		+	+
Trichuris	+				
T. trichiura	+	General			
Trichinelliasis	+	Sporadic. Pigs only			+
T. spiralis	+	Sporadic. Pigs only			+
Leucodermia	+				
Cheloid	+	General			
Ulcus Tropicum	+				
Albinsim	+	Sporadic			−
Blastomycosis	+				

TABLE 89

THE NETHERLANDS: DUTCH EAST INDIES—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Pityriasis Versicolor	+				
Seborrhoea	+				
Tinea Imbricata	+				
Peripheral Neuritis	+				
Beriberi	+				+
Pellagra	+	Sporadic			
Scurvy	+				
General Malnutrition or Undernutrition	+	Sporadic			
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+	Sporadic			
Diphtheria	+		621		+
Measles	+				
Varicella	+				
Epidemic Meningitis	+	Sporadic	10		
Infantile Paralysis	+	Sporadic	10		
Epidemic Encephalitis	+	Sporadic			
Syphilis of Central Nervous System	+				
	+				
Influenza	+				
Common Cold	+				
The Pneumonias	+				
Cholelithiasis	+				
Urinary Calculus	+				
Nephritis	+				
Diabetes	+				
Pernicious Anemia	+				
Tuberculosis	+	General			+
Pulmonary	+	General			+
Bone	+	General			+
Skin	+	General			+
Malignancy (all forms)	+				
Trachoma	+	General			+
Weil's Disease	+	Sporadic			
Rabies	+		?[1]		+
Thyroid Disease (Goiter)	+				+
Rheumatic Fever	+				
Arthritis (Nonspecific)	+				
Dental Caries	+				+
Toxemias of Pregnancy	+				
Cardio-Vascular Diseases	+				
Aneurysm	+				
Myocarditis	+				

[1] Treated 522 persons in 1932.

ABYSSINIA

The independence of Abyssinia was recognized by the Convention of Addis Ababa in 1896. At the head of the Government is Emperor Haile Silassie I, who was crowned Emperor in 1930. In 1931 a new constitution was adopted.

The total area of Abyssinia is 350,000 square miles, comprising some twenty-four principal provinces. The population is estimated at about 5,500,000, though no exact figures are available. About three million of these are Abyssinians. In addition there are Greeks, Indians, Arabs, Negroes, Armenians and Europeans. Slavery exists but slave trading is prohibited by law with a penalty of death. The Abyssinians are Christians but other religions for other races exist. Education is mostly in the hands of priests and monks, though secular and mission schools exist. The Greeks and Armenians have their own schools.

Abyssinia is chiefly a pastoral and agricultural country. Besides live stock, the country produces cotton, sugar-cane, dates, coffee, wax, barley, millet, wheat, gesho and rubber. Iron, placer gold (also washing), coal, copper, sulphur, platinum and potash salts also are found. Exports include hides, skins, coffee, wax, ivory, civet and native butter. The imports include cotton yarns, artificial silk, corrugated sheets and bars, kerosene, hardware, cement, petrol, salt and glass.

Very little data on health conditions in Abyssinia are available. We are indebted to Mr. James L. Park, American Vice Consul, who advises us that the diseases of public health importance include malaria, typhus fever, leprosy (said to be very common), smallpox, amebiasis, bacillary dysentery, elephantiasis, *Tænia saginata* (said to have probably the greatest incidence of all Ethiopian diseases), septic sore, syphilis, general malnutrition and undernutrition, trachoma, rabies and the respiratory diseases, including tuberculosis. See Table 90 for further information available.

There are no data available on climate in "World Weather Records."

TABLE 90

ADDIS ABABA, ETHIOPIA (ABYSSINIA)

Reported by: James L. Park, American Vice Counsul
Period: Questionnaire dated July, 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General	?	+	+
Blackwater Fever	+		R	?	−
Relapsing Fever	+	Endemic and epidemic	?	?	−
Typhus Fever	+	Endemic and epidemic		+	+
Trypanosomiasis	+	Unknown	?	+	−
African Human	+(?)				
Leprosy	+	General	C		+
Syphilis	+		?[1]		+
Smallpox	+	Epidemic	?		+

TABLE 90

ADDIS ABABA, ETHIOPIA (ABYSSINIA)—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Amebiasis	+	Endemic. Sporadic epidemics			+
Bacillary Dysentery	+	Endemic	?		+
Typhoid Fever	+	General	?		−
Para-Typhoid Infection	+	General	?		−
Elephantiasis	+		C	?	+
Cestodes					
Tænia saginata	+				+[2]
Leech Infection	+(?)				−
Septic Sore	+	Widespread (?)			+
Dhobie's Itch	+(?)				−
General Malnutrition or Undernutrition	+	General			
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+	Unknown	?		−
Diphtheria	+	Unknown	?		−
Syphilis of Central Nervous System	+		C		+
Influenza	+	Sporadic	?		+
Common Cold	+		C		+
The Pneumonias	+	Unknown	?		+
Diabetes	+	?	?		−
Pernicious Anemia	+	?	?		−
Tuberculosis	+	?	?		+
Pulmonary	+		C		
Trachoma	+	?	?		+
Rabies	+	General	?		+

[1] Reported more prevalent than in any other country
[2] Probably greatest incidence of all Ethiopian diseases.

ALBANIA

Since 1928 Albania has been a democratic, parliamentary, independent monarchy generally recognized by European powers. The territory of Albania includes the old Turkish provinces of Scutari and Yanina and parts of those of Kosova and Monastir. In 1927 a defensive alliance for a period of two decades was signed between Italy and Albania. The total area of Albania is 10,629 square miles and the population, in 1930, was 1,003,068. There is no official religion and various denominations are present. Education is supposed to be compulsory in the primary grades between the ages of 6 and 13 but there are insufficient schools. There were but 495 State primary schools with 807 teachers and 28,199 pupils in 1929 and 32 secondary, 14 infant schools and 2 training schools for teachers.

The revenue of Albania in 1931–32 was 29,097,000 gold francs and the expenditures for the same year were 31,533,422 gold francs. The imports for

1931 amounted to 29,513,000 gold francs and the exports to 7,509,000 gold francs. Among the products of Albania are tobacco, timber, wool, hides, furs, cheese and other dairy products, fish, olive oil, cattle, corn and bitumen. The mineral wealth of Albania is undeveloped. Copper and salt-pits are of commercial importance. The chief industries are, of course, of an agricultural nature.

Among the diseases of public health importance, according to Dr. Osman Jonuzi, Director-General, are malaria, syphilis and tuberculosis. It must be pointed out, however, that few statistics concerning health are available for Albania for the past or at the present time.

No data are available in "World Weather Records" for Albania.

TABLE 91

ALBANIA

Reported by: Dr. Osman Jonuzi, Director General
Period: Questionnaire dated December, 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General	250,000	+	+
Benign tertian	+	General	C	+	+
Quartan	+	General	R	+	+
Subtertian	+	General	C	+	+
Blackwater Fever	−				−
Piroplasmosis	−				−
Leishmaniasis	+	Localized	R		−
Kala-azar	+	Localized	R		−
Oriental Sore	−				−
Espundia	−				−
Relapsing Fever	−				−
S. recurrentis	−				−
S. duttoni	−				−
S. venezuelense	−				−
S. berberum	−				−
Rat-Bite Fever	−				−
Yellow Fever	−			+	−
Dengue Fever	+		0		−
Pappataci Fever	+	Localized	R	+	−
Plague	−				−
Typhus Fever	−				−
Trypanosomiasis	−				−
African Human	−				−
T. gambiense	−				−
T. rhodesiense	−				−
South American	−				−
T. cruzi	−				−
Oroya Fever	−				−
Undulant Fever	+	Localized	R		−
Leprosy	−				−
Syphilis	+	Localized	C	+	+
Yaws	−				−
Granuloma Inguinale	−				−

TABLE 91

ALBANIA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Tularemia	−				−
Smallpox	+		0		
Amebiasis	+	Localized	R		−
Balantidium Dysentery	−				−
Bacillary Dysentery	+	General	R		−
Cholera	−				−
Typhoid Fever	+	General	R		+
Para-Typhoid Infection	+	General	R		−
Sprue	−				−
Hill Diarrhea	−				−
Ascariasis	+	General	R		−
Hookworm Disease	−				−
Giardia Enteritis	−				−
Trichomonas Infection	−				−
Tropical Liver	−				−
Infantile Biliary Cirrhosis	−				−
Schistosomiasis	−				−
Urinary	−				−
Intestinal	−				−
Visceral	−				−
Far Eastern	−				−
Filariasis	−				−
F. bancrofti	−				−
Loa Loa	−				−
O. volvulus	−				−
F. perstans	−				−
F. demarquayi	−				−
F. ozzardi	−				−
Juxta-Articular Nodules	+(?)	Localized	R		−
Elephantiasis	+(?)	Localized	R		−
Chyluria	−				−
Dracontiasis	−				−
D. medinensis	−				−
Paragonimiasis	−				−
P. ringeri	−				−
P. westermanii	−				−
P. compactus	−				−
Clonorchiasis	−				−
C. sinensis	−				−
O. felineus	−				−
Fasciolopsis	−				−
F. hepatica	−				−
F. buskii	−				−
Cestodes	+				
Tænia saginata	+		R		−
Tænia solium	+	General	R		−
Dibothriocephalus latus	−				−
Hymenolepis nana	−				−
Sparganum mansoni	−				−
S. prolifer	−				−
Trichuris	−				−
T. trichiura	−				−
H. heptaticus	−				−
Trichinelliasis	−				−
T. spiralis	−				−

TABLE 91

ALBANIA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Climatic Bubo	−				−
Rhinosporidiosis	−				−
Goundou	−				−
Ainhum	−				−
Big Heel	−				−
Myiasis	−				−
Subcutaneous	−				−
Blood sucking	−				−
Intestinal	−				−
Larva Migrans	−				−
Leech Infection	−				−
Leucodermia	−				−
Cheloid	−				−
Ulcus Tropicum	−				−
Albinism	+	General	R		
Septic Sore	−				−
Pemphigus Contagiosus	−				−
Ulcerating Dermatitis	−				−
Madura Foot	−				−
Other Mycetoma	−				−
Blastomycosis	−				−
Mossy Foot	−				−
Pityriasis Nigra	−				−
Pityriasis Versicolor	+		R		−
Dhobie's Itch	−				−
Seborrhoea	+		R		−
Pinta	−				−
Tinea Imbricata	+		R		−
Trichosporosis	−				−
Trichomycosis	−				−
Acarine Dermatomycosis	−				−
Epidemic Dropsy	−				−
Peripheral Neuritis	−				−
Beriberi	−				−
Pellagra	+	Localized	R		−
Scurvy	− (?)				
General Malnutrition or Undernutrition	+	General	C		−
Heat Stroke	−				−
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+	Localized	R		+
Diphtheria	+	Localized	R		+
Measles	+	General	C		+
German Measles	+	General	C		−
Varicella	+	General	R		−
Epidemic Meningitis	+	Localized	R		+
Infantile Paralysis	−				−
Epidemic Encephalitis	−				−
Syphilis of Central Nervous System	+	Localized	R		+
Influenza	+	General	C		−
Common Cold	+	General	C		−

TABLE 91

ALBANIA—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
The Pneumonias	+	General	R		−
Cholelithiasis	+	Localized	R		−
Urinary Calculus	+	General	R		−
Nephritis	+	General	R		−
Diabetes	+	General	R		−
Pernicious Anemia	+	General	R		−
Osteomyelitis	+	General	R		−
Tuberculosis	+	General	C		+
Pulmonary	+	General	C		+
Bone	+	General	Uc		+
Skin	+	General	R		+
Malignancy (all forms)	?				−
Trachoma	+	Localized	R		+
Weil's Disease	−				−
Tsutsugamushi Disease	−				−
Rabies	+	Localized	Uc	+	+
Unusual Skin Disease	?				
Thyroid Disease (Goiter)	+	Localized	Uc		−
Rheumatic Fever	+	General	Uc		−
Arthritis (Nonspecific)	+	General	Uc		−
Rickets	+	General	Uc		−
Rickets	+	General	Uc		−
Dental Caries	+	General	C		−
Toxemias of Pregnancy	+	General	R		+
Cardio-Vascular Diseases	+	General	Uc		−
Hypertension	+	General	Uc		−
Valvular Lesions	+	General	Uc		−
Aneurysm	+	General	Uc		−
Myocarditis	+	General	Uc		−

REPUBLIC OF ARGENTINA

The Argentine proclaimed its independence from Spain in 1816 and the present constitution of the Republic was adopted in 1853. The country has an area of 1,079,965 English square miles and a population, estimated in 1932, of 11,682,844. Most of the population is European in origin, having come principally from Italy and Spain. The decreasing Indian population is estimated at between 20,000 and 30,000. In 1931 the marriages numbered 77,934, the births 319,317 and deaths 137,171. Buenos Aires is the capital and has a population of over 2,000,000.

The Roman Catholic religion is supported by the State in the Argentine but it is not an official State religion, since all other creeds are tolerated. Illiteracy has fallen from 35 per cent in 1916 to 21.98 per cent in 1930. Primary education is free, secular and compulsory between the ages of 6 and 14. In 1931 there were 11,552 primary schools with 54,685 teachers and 1,441,348 students; there were 232 secondary, normal and special schools with 89,595 students and 241 provincial secondary schools with 13,709 students. There

were also 4,786 national schools with 23,330 teachers and 638,306 students. Besides there were over 1,300 private schools with 169,598 students. There were six national universities. In 1931, a total of 209,906,903 pesos were spent for education of all types.

The revenue of the Argentine was, for 1933 (estimates), 870,253,590 pesos and the expenditures amounted to 865,113,495 pesos. In 1932, the imports amounted to 367,956,396 gold pesos and the exports to 566,366,438 gold pesos. Millions of acres are devoted to agriculture and to cattle raising, much of which require irrigation. The country produces large quantities of grains, including wheat, oats, maize and linseed. The principal industry is meat refrigeration. Agriculture accounts for from 50 to 65 per cent of the total exports. The imports include foodstuffs, tobacco, beverages, textiles, oils, chemicals and dyes, timber, paper, rubber manufactures, iron and steel, glass, stone, lime, machines and motor vehicles. In addition to agricultural products and livestock the exports include mineral products, forest products, etc. For the year ending in June, 1932, there were over 12,000,000 tons of shipping entered and over 17,000,000 tons cleared.

The Argentine is of interest in this survey chiefly because of the incidence of malaria. According to the "Anales del Departmento Nacional de Higiene" for 1931 there were 128,660 cases of malaria during the year 1928. There were also 119 cases of plague, 6,859 cases of hookworm disease and the report states that tuberculosis is widespread. Details may be found in Table 92.

Weather conditions are recorded for various stations for the years 1921 to 1930 in "World Weather Records." The mean pressure (700 mm. plus), temperature (in degrees C.) and total precipitation (in millimeters) at the various stations were as follows:

STATION	PRESSURE	TEMPERATURE	PRECIPITATION
Bahia Blanca	58.4	15.5	570.4
Buenos Aires	59.5	16.5	977.9
Catamarca	15.3	20.0	364.7
Cordoba	23.6	17.2	733.5
Goya	57.4	20.5	1060.5
Puerto Madryn	58.0	13.5	170.0
Salta	61.6	17.5	732.0
Santa Cruz	52.8	8.6	147.0
Sarmiento	33.9	10.4	132.1

Partial records are also available for Ajo-General Lavalle, Esquel and several other places.

TABLE 92

REPUBLIC OF ARGENTINA

Reported by: Anales del Departmento Nacional de Hygiene *Period:* 1931[1]

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General; endemic	128,660	+	+
Benign tertian	+		67,658	+	+
Quartan	+		11,836	+	+
Subtertian	+		1,659	+	+
Plague	+	Sporadic; widespread	119	+	+
Syphilis	+				+
Smallpox	+				
Hookworm Disease	+	General. Endemic, Corrientes	6,859		+

II. Diseases Usually Considered as of Temperate Climates

Tuberculosis	+	General	?		+

[1] Figures are all for 1928.

REPUBLIC OF BOLIVIA

The Republic of Bolivia is divided into eight departments, three territories, seventy-two provinces and 681 cantons. The total area of the departments and territories is 514,155 square miles and the estimated census in 1929 was 2,911,283 and in 1931 slightly over 3,000,000. Catholicism is the State religion but religious freedom exists. Primary education is free and compulsory. In 1932 there were 2,033 elementary schools with 1,242 teachers and nearly 150,000 students. There were also 29 colleges, 5 clerical institutions, and 5 private schools, with 2,033 students. The St. Francis Xavier University at Sucre is one of the oldest in America, having been established in 1624. There are 18 institutions giving university training, with 193 teachers and 1,745 students.

The revenue for 1932 (estimated) was 27,355,826 bolivianos and the expenditures amounted to 43,957,991 bolivianos. It is estimated that about 4,940,000 acres are under cultivation but agriculture is backward. Irrigation by artesian wells is being experimented with in some areas. Potatoes, cacao, coffee, barley, coco, highland rice and rubber are the chief products. Bolivia is second to Brazil in rubber exportation. Mining is the only important industry. Tin, silver, lead, copper, antimony, bismuth and tungsten are found. The tin is shipped to England and reshipped to the United States where most of it is used. The exports into Bolivia in 1931 amounted to 60,613,624 bolivianos and the imports to 29,821,019 bolivianos.

Our data concerning the public health in Bolivia is rather meagre but we

are indebted to the Director-General L. S. Rowe, Pan-American Union, for his interest in obtaining data for us. The Director-General of Public Health in Bolivia, Dr. Emilio Lara Quiroz, has informed Dr. Rowe that the physicians in Bolivia have been engaged in military service and have not been able to continue the study of the distribution of tropical and other diseases. However, he states that malaria exists in three-fourths of the country and such other diseases as leishmaniasis (espundia), yellow fever, dengue fever, plague, leprosy, syphilis, bacillary dysentery, typhoid fever, para-typhoid fever and hookworm disease exist constantly or sporadically.

From "World Weather Records" we learn that the mean pressure (490 mm. plus) over a period from 1918 to 1930 was 3.6; that the mean temperature for this period was 9.5°C. and the mean total precipitation from 1891 to 1930 was 588 millimeters (all readings taken at La Paz).

TABLE 93

BOLIVIA

Reported by: Dr. Emilio Lara Quiroz *Period:* Questionnaire dated December, 1934

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Three-fourths of country	?		+
Leishmaniasis	+				
Espundia	+	Principally in N.E. part and Yungas dept. of La Paz	?		
Yellow Fever	+	Santa Cruz and Beni	?		
Dengue Fever	+	Santa Cruz and Beni			
Plague	+	Sporadic in Vallegrande (St. Cruz and Tomina (Chuq.)	?		
Leprosy	+	Isolated cases, St. Cruz, Beni and Chuquisaca	?		
Syphilis	+	General	?		
Bacillary Dysentery	+	Chaco and hot zones	?		
Typhoid Fever	+	General	?		
Para-Typhoid Infection	+	General	?		
Hookworm Disease	+	Santa Cruz and Beni	?		

BRAZIL

Brazil, discovered in 1500 by the Portuguese and gaining independence in 1822, has a total area of 3,275,510 square miles and a population (estimated in 1931) of 41,477,827. The population is a mixture of Italians, Portuguese, Spaniards, Germans, Austrian, Asiatic Turks, Uruguayans, Japanese, Argentinians and others. In the Amazon there are many thousands of Indians.

The chief religion is Roman Catholic but there is no connection between church and state. There are also eight Evangelic sects and many other faiths such as would be found in such a cosmopolitan population. Education is free. In 1931 there were 3,973 boys' schools and 2,167 girls' schools and 29,295 co-educational schools. These are federal, state, municipal and private in administration. There are 1,145 high schools, 87 colleges, 211 teachers' colleges and 943 special schools. There are 19 schools of medicine, pharmacy and dentistry.

The total revenue and expenditure for Brazil in 1933 was (gold) 87,756,000 milreis, 1,502,678,000 paper milreis and gold milreis 34,264,855, paper milreis 1,861,975,603, respectively. Brazil is an agricultural country, though much wheat and flour are imported. There are about 17,387,000 acres under cultivation. The chief crops are coffee, maize, cotton and rice. Coco, sugar and tobacco are also raised. The chief product is coffee, in which Brazil ranks first. This product accounts for nearly 75 per cent of the total exports. India rubber is also an important product of the country. Cattle, swine, sheep, goats, horses and mules are raised in large numbers. The forests and mines of Brazil are extremely important assets. Manganese, gold, diamonds, etc., are mined. Exports of timber in 1931 were 101,697 metric tons. The most important manufacturing industry is cotton weaving; in 1929, there were 347 cotton factories. There are also many silk, woollen, jute and paper mills. There are over 2000 tobacco factories and between 200 and 300 sugar factories. There are some 500 electric plants with a combined horse-power of around 7,000,000.

In 1932 the imports amounted to 1,518,705 contos of reis and the exports to 2,536,726 contos of reis. Shipping under the Brazilian flag in 1932 amounted to 491,647 tons, Rio de Janeiro and Santos being the two leading ports. There are some 40,300 miles of inland waterways open to navigation.

Among the important public health problems are malaria, leishmaniasis, yellow fever, plague, leprosy, syphilis, yaws, schistosomiasis, trachoma and tuberculosis. (See Table 94 for data.) Hookworm disease, the dysenteries and the typhoid fevers are present in considerable numbers. Leprosy is the most pressing public health problem in Brazil.

Data on climate from Rio de Janeiro indicate a mean pressure of 56.1 (700 mm. plus) (corrected) over a period of ten years from 1921 to 1930. The mean temperature for the same period was 22.8°C. The average precipitation was 1007.7 millimeters.

Special notes regarding several of the diseases found in Brazil have been supplied us by A. A. Moll of the Sanitary Bureau of the Pan American Union from their records. These notes seem to be so informative that they are reproduced in the Appendix.

TABLE 94

BRAZIL

Reported by: Cities (12), States (8) and Federal District (Rio)
Period: Most figures for 1932

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Alagôas, Esp. Sto., Pará, Parahyba, Paraná, Rio, S. P.	10,747[1]	+[2]	+
Benign tertian	+	Alagôas, Esp. Sto., Pará, Paraná, Rio, Parahyba	C	+	+
Quartan	+	Alagôas, Esp. Sto., Pará, Paraná, Rio, Parahyba	Uc	+	+
Subtertian	+	Alagôas, Esp. Sto., Pará, Parahyba, Paraná, Rio, S. P.	C	+	+
Blackwater Fever	+	Alagôas, Pará, Paraná, Rio	16		+
Piroplasmosis	+	Parahyba			
Leishmaniasis	+	Alagôas, Esp. Sto., Pará, Parahyba, Rio, S. P.	1,736	+	+
Oriental Sore	+	Alagôas, Parahyba			
Espundia	+	Alagôas			
Yellow Fever	+	Alagôas, Rio, Parahyba, Esp. Sto., S. P.	5	+	+
Dengue Fever	+	Rio		+	
Plague	+	Alagôas, Pará, Parahyba, Paraná, Rio, S. P.		+	+
Typhus Fever	+	Parahyba, Paraná, S. P.	17	+	
Trypanosomiasis	+	Esp. Sto.	2	+	
Undulant Fever	+	S. P.	2	+	
Leprosy	+	Alagôas, Esp. Sto., Pará, Parahyba, Paraná, Rio, S. P.	6,655		+
Syphilis	+	Alagôas, Esp. Sto., Pará, Paraná, Rio, S. P.	4,201[3]		+
Yaws	+	Alagôas, Esp. Sto., Pará, Paraná, Rio, S. P.	60		+
Granuloma Inguinale	+	Alagôas, Pará, Parahyba, Rio, S. P., Paraná	5		
Smallpox	+	Alagôas, Esp. Sto., Paraná, Rio, Parahyba, S. P.	638		
Amebiasis	+	Alagôas, Esp. Sto., Pará, Parahyba, Paraná, S. P.	544		
Balantidium Dysentery	+	Alagôas, Esp. Sto., Pará, Parahyba, Paraná, S. P.	319		

TABLE 94

BRAZIL—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Bacillary Dysentery	+	Alagôas, Esp. Sto., Pará, Parahyba, Paraná, S. P.	909		
Cholera	+	Rio	0		
Typhoid Fever	+	Alagôas, Esp. Sto., Pará, Parahyba, Paraná, S. P.	927		
Para-Typhoid Infection	+	Alagôas, Esp. Sto., Pará, Parahyba, Paraná, S. P.	69		
Sprue	+	Alagôas, Pará, Paraná, S. P.			
Ascariasis	+	Alagôas, Esp. Sto., Pará, Parahyba, Paraná, Rio, S. P.	4,065		
Hookworm Disease	+	Alagôas, Pará, Paraná, Rio, S. P.	16,000[4]		
Giardia Enteritis	+	Alagôas, Esp. Sto., Rio, S. P. Parahyba	15		
Trichomonas Infection	+	Alagôas, Esp. Sto., S. P., Parahyba	183		
Infantile Biliary Cirrhosis	+	Alagôas			
Schistosomiasis	+	Alagôas, Pará, Rio, Parahyba	?[5]	+	+
Intestinal	+	Alagôas, Pará, Rio, Parahyba		+	
Visceral	+			+	
Filariasis	+	Alagôas, Pará, Paraná, Parahyba		+	
F. bancrofti	+	Alagôas, Pará, Parahyba		+	
Juxta-Articular Nodules	+	Pará, Parahyba			
Elephantiasis	+	Alagôas, Pará, Rio, S. P., Parahyba			
Chyluria	+	Alagôas, Pará, Rio, Parahyba			
Cestodes	+	Alagôas, Esp. Sto., Pará, Parahyba, Paraná, S. P.		+	
Tænia saginata	+	All but Parahyba	27	+	
Tænia solium	+	Alagôas, Pará, Paraná, Rio, S. P.	61	+	
Dibothriocephalus latus	+	Alagôas, Paraná	5	+	
Hymenolepis nana	+	S. P.	12		
Trichuris	+	Alagôas, Pará, Paraná, S. P.			
T. trichiura	+	Alagôas, Pará			
H. heptaticus	+	Pará			
Trichinelliasis	+	Alagôas		+	
T. spiralis	+	Alagôas		+	
Climatic Bubo	+	Alagôas, Pará, Paraná, S. P.			
Ainhum	+	Imported	1		
Myiasis	+	Alagôas, Pará, S. P.		+	
Subcutaneous	+	Alagôas, Pará, S. P.		+	
Intestinal	+	S. P.		+	
Leucodermia	+	Alagôas, Esp. Sto.	1		

TABLE 94

BRAZIL—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Cheloid	+	Alagôas, Rio			
Ulcus Tropicum	+	Alagôas, Pará, Rio, S. P.	300		
Albinism	+	Alagôas, Pará, Rio, S. P.	5		
Septic Sore	+	S. P.			
Pemphigus Contagiosus	+	Pará, Parahyba, S. P.			
Ulcerating Dermatitis	+	Pará, Parahyba, Rio			
Blastomycosis	+	Alagôas, S. P.			
Pityriasis Nigra	+	Alagôas, Pará			
Pityriasis Versicolor	+	Alagôas, Pará, Parahyba, Paraná, S. P.	20		
Seborrhoea	+	Alagôas, Pará, Parahyba, Paraná, Rio, S. P.	12		
Tinea Imbricata	+	Alagôas, Pará, Rio, S. P.			
Trichosporosis	+	Alagôas, Rio, S. P.	2		
Trichiomycosis	+	Alagôas			
Acarine Dermatomycosis	+	Alagôas, Pará, Paraná, Rio, S. P.	170		
Peripheral Neuritis	+	Alagôas, Pará, S. P.			
Beriberi	+	Alagôas, Esp. Sto., Rio	15		
Pellagra	+	Alagôas, Pará, Rio, S. P.			
Scurvy	+	Alagôas, Pará, Parahyba, Paraná, Rio, S. P.	9		
General Malnutrition or Undernutrition	+	Alagôas, Pará, Parahyba, Paraná, S. P.	8,000		+
Heat Stroke	+	Alagôas,			
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+	Alagôas, Esp. Sto., Rio de J., Pará, Paraná, S. P., Sergipe	12[6]		
Diphtheria	+		389		+
Measles	+		2,375		+
German Measles	?		12?		
Varicella	+		425		
Epidemic Meningitis	+		21		
Infantile Paralysis	+		1		
Epidemic Encephalitis	+				
Syphilis of Central Nervous System	+		10		
Influenza	+		1,025		+
Common Cold	+		1,440		+
The Pneumonias	+		90		
Cholelithiasis	+				

TABLE 94

BRAZIL—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Urinary Calculus	+		15		
Nephritis	+		360		
Diabetes	+		16		
Pernicious Anemia	?				
Osteomyelitis	+		2		
Tuberculosis	+		2,304		+
Pulmonary	+		1,269		+
Bone	+		2		
Skin	+		8		
Malignancy (all forms)	+		215		+
Trachoma	+		7,897		+
Weil's Disease	?		?		
Rabies	+		18		
Unusual Skin Disease	+				
Thyroid Disease (Goiter)	+				
Rheumatic Fever	+		74		
Arthritis (Nonspecific)	+		15		
Rickets	+		10		
Dental Caries	+		10,000		+
Toxemias of Pregnancy	+		6		+
Cardio-Vascular Diseases	+		130		+
Hypertension	+		30		+
Valvular Lesions	+		80		+
Aneurysm	+		6		+
Myocarditis	+		4		+

[1] Figures cannot represent true incidence as Parahyba alone is estimated to have 500,000 cases (see Appendix).
[2] Vectors: *A. argyritarsis, A. tarsimaculatus, A. abitarsis, A. costalis.*
[3] Paraná, 3,000; Alagôas, 1,201; Sergipe, 80 per cent of population.
[4] Paraná, 7,000; S. P., 9,000; 30 per cent population some places.
[5] Alagôas, 50 per cent population in some places.
[6] These figures apply only to few localities and are incomplete for those.

REPUBLIC OF CHILE

Chile established its national government under a republic in 1810 when she severed allegiance to Spain. A new constitution was adopted in 1925. The Republic is divided into provinces and these into departments for purposes of administration. There are 15 provinces and two territories. The total area is 285,133 square miles and the population, in 1930, was 4,287,445. The coast is nearly 2,500 miles in length. The country averages about 100 miles in width. Islands to the north, west and south belong to Chile. The two largest cities are Santiago, with a population, in 1932, of 702,431 and Valparaiso, with 189,119. In 1930 there were 169,395 births and 105,140 deaths. The Roman Catholic religion prevails and there are nearly 600 churches and chapels. Education is free and obligatory in the cities for six years and in the country districts for four years. In 1930 there were 3,860 schools with 559,016 students and 9,856 teachers. There were six normal

schools with 1,342 students and 200 teachers. The secondary schools number 175 with 51,624 students and 2,438 teachers; there are ten commercial schools with 4,229 students and 211 teachers. The State University of Chile provides professional and secondary education to 3,338 students. In addition there is a Catholic University in Santiago, a University of Concepcion, a National Institute at Santiago, a Technical School at Valparaiso, agricultural schools, schools of mines, professional schools and colleges in the capitals of the provinces. Nearly 700 newspapers and journals are published in Chile.

The revenue for 1933 (estimated) was 927,140,073 pesos and the expenditures amounted to 927,140,073 pesos in the balanced budget. The imports in 1931 amounted to 705,902,012 pesos and the exports to 824,738,960 pesos. Over 2,000,000 tons of shipping entered and cleared the ports of Chile in 1931. Chile is divided into an arid zone (from which nitrates, iodine and copper come), an agricultural zone (cereals, fruits and vegetables), there being 210,736 farms in 1930, and a forest zone of some 11,231,685 acres. The vineyards constitute one of the chief industries and the capital investment is over 4,000,000 pesos. In 1930 about 7,950 acres were devoted to tobacco and over 6,000,000 kilos of tobacco were produced. Besides these interests cattle raising and dairy farming are also important. The chief wealth of Chile, however, is to be found in minerals, such as gold, silver, copper, cobalt, zinc and manganese. Besides these coal, nitrates, guano, sulphur, salt and borates are found in quantity. Iron-ore is found in enormous quantities in the Provinces of Atacama and Coquimbo. Exports are usually over 1,000,000 tons annually. In 1928 there were over 8,500 factories, employing nearly 100,000 persons.

Among the diseases of public health importance, according to Dr. Leonardo Guzman who has kindly supplied us with data, are malaria, yellow fever, plague (not since 1930), typhus fever, leprosy (Isla de Pasena), syphilis (estimated at 25 per cent of the population), granuloma inguinale, smallpox, typhoid fever, influenza and tuberculosis. Further details may be found in Table 95.

The mean pressure for the ten year period, 1921–30, at Islota de Los Evangelistos in Chile was 52.8 (700 mm. plus). The mean temperature for the same period in the same locality was 5.9°C. and the mean total precipitation was 2843 millimeters. The means for pressure, temperature and precipitation, respectively, at Magallanes, Punta and Santiago (for the same period) are: 49.4, 62.5 and 16.4 (pressure) (700 mm. plus), 6.54°, 11.1° and 13.70°C., and 312.3, 1974 and 387.7 (total precipitation in millimeters).

TABLE 95
CHILE

Reported by: Dr. Leonardo Guzman *Period:* Questionnaire dated 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+			+	+
Benign tertian	+	Endemic (north)	1,187	+	+
Quartan	−				−
Subtertian	−				−
Blackwater Fever	−				−
Piroplasmosis	−				−
Leishmaniasis	−				−
Kala-azar	−				−
Oriental Sore	−				−
Espundia	−				−
Relapsing Fever	−				−
S. recurrentis	−				−
S. duttoni	−				−
S. venezuelense	−				−
S. berberum	−				−
Rat-Bite Fever	+	Central zone	R		−
Yellow Fever	[1]	Epidemic in north	1,285	+	+
Dengue Fever	+	North	R	+	+
Pappataci Fever	−				−
Plague	[2]	Sporadic (north)	5,121	+	+
Typhus Fever	+	Epidemic, center and south zone	15,365	+	+
Trypanosomiasis	−				−
African Human	−				−
T. gambiense	−				−
T. rhodesiense	−				−
South American	−				−
T. cruzi	−				−
Oroya Fever	−				−
Undulant Fever	−				−
Leprosy	+	Endemic, "Isla de Pasena"	30		+
Syphilis	+	Endemic everywhere	25%		+
Yaws	−				−
Granuloma Inguinale	+	General	C		+
Tularemia	−				−
Smallpox	[2]	Epidemics everywhere	0		+
Amebiasis	+	Endemic, center and south	?		+
Balantidium Dysentery	+	Endemic, center	?		+
Bacillary Dysentery	+	Endemic everywhere	?		+
Cholera	[3]	Epidemic everywhere	0		+
Typhoid Fever	+	Endemic everywhere	850[4]		+
Para-Typhoid Infection	+	Endemic everywhere	[4]		+
Sprue	−				−
Hill Diarrhea	−				−
Ascariasis	+	Endemic everywhere	?		
Hookworm Disease	+	Endemic, center and south	?		+

TABLE 95

CHILE—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Giardia Enteritis	−				−
Trichomonas Infection	−				−
Tropical Liver	−				−
Infantile Biliary Cirrhosis	−				−
Schistosomiasis	−				−
Urinary	−				−
Intestinal	−				−
Visceral	−				−
Far Eastern	−				−
Filariasis	−				−
F. bancrofti	−				−
Loa Loa	−				−
O. volvulus	−				−
F. perstans	−				−
F. demarquayi	−				−
F. Ozzardi	−				−
Juxta-Articular Nodules	−				−
Elephantiasis	−				−
Chyluria	−				−
Dracontiasis	−				−
D. medinensis	−				−
Paragonimiasis	−				−
P. ringeri	−				−
P. westermanii	−				−
P. compactus	−				−
Clonorchiasis	−				−
C. sinensis	−				−
O. felineus	−				−
Fasciolopsis	−				−
F. hepatica	−				−
F. buskii	−				−
Cestodes	+	Endemic everywhere	?	+	+
Tænia saginata	+	Endemic everywhere		+	+
Tænia solium	+	Endemic everywhere		+	+
Trichuris	+	Sporadic, center and south	?		
Trichinelliasis	+	Sporadic, center and south	?	+	
Climatic Bubo	−				−
Rhinosporidiosis	−				−
Goundou	−				−
Ainhum	−				−
Big Heel	−				−
Myiasis	−				−
Subcutaneous	−				−
Blood sucking	−				−
Intestinal	−				−
Larva Migrans	−				−
Leech Infection	−				−
Leucodermia	−				−
Cheloid	−				−
Ulcus Tropicum	−				−
Albinism	−				−
Septic Sore	−				−
Pemphigus Contagiosus	+	Sporadic everywhere	?		−

TABLE 95

CHILE—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Ulcerating Dermatitis	−				−
Madura Foot	−				−
Other Mycetoma	−				−
Blastomycosis	−				−
Mossy Foot	−				−
Pityriasis Nigra	+	Sporadic	?		−
Pityriasis Versicolor	+	Sporadic	?		−
Dhobie's Itch	+	Endemic everywhere	?		+
Seborrhoea	−				−
Pinta	−				
Tinea Imbricata	+	Endemic everywhere	?		−
Trichosporosis	−				−
Trichomycosis	−				−
Acarine Dermatomycosis	−				−
Epidemic Dropsy	−				−
Peripheral Neuritis	−				−
Beriberi	−				−
Pellagra	−				−
Scurvy	−				−
General Malnutrition or Undernutrition	−				−
Heat Stroke	−				−
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+	Endemic everywhere	181		+
Diphtheria	+	Endemic everywhere	611		+
Measles	+	Periodic epidemics everywhere	1,524		+
German Measles	+	Endemic everywhere	?		−
Varicella	+	Endemic everywhere	283		+
Epidemic Meningitis	−		0		+
Infantile Paralysis	+	Sporadic everywhere	6		+
Epidemic Encephalitis	+	Sporadic everywhere	0		+
Syphilis of Central Nervous System	+	Endemic everywhere	?		+
Influenza	+	Endemic everywhere	5,553		+
Common Cold	+	Endemic everywhere	?		+
The Pneumonias	+	Endemic everywhere	C		+
Cholelithiasis	+	Endemic everywhere	C		−
Urinary Calculus	+	General	C		−
Nephritis	+	General	C		−
Diabetes	+	General	C		−
Pernicious Anemia	+	General	R		−
Osteomyelitis	+	General	C		−
Tuberculosis	+	General	10%		+
Pulmonary	+	General			+
Bone	+	General			+
Skin	+	General	C		+
Malignancy (all forms)	+		C		+
Trachoma	+	South	C		+
Weil's Disease	−				−
Tsutsugamushi Disease	−				−
Rabies	+	General	R	+	+

TABLE 95

CHILE—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Unusual Skin Disease.....	+		C		−
Thyroid Disease (Goiter)..	+	North and south	R		−
Rheumatic Fever.....	+	General	C		−
Arthritis (Nonspecific)....	+	General	C		−
Rickets.....	+	General	C		+
Dental Caries.....	+	General	C		+
Toxemias of Pregnancy....	+	General	C		+
Cardio-Vascular Diseases..	+	General	C		+
Hypertension.....	+	General	C		+
Valvular Lesions.....	+	General	C		+
Aneurysm.....	+	General	C		+
Myocarditis.....	+	General	C		+

[1] 1912.
[2] Not since 1930.
[3] Not since 1886.
[4] Includes para-typhoid.

CHINA

China has been a republic since 1912. Including Manchuria, there is an area of approximately 4,278,352 square miles with an estimated population (1932) of 474,787,386. There are eighteen provinces in China, not including the New Dominion or the Dependencies, Mongolia and Tibet. Several of the provinces have more than 20,000,000 people each. Manchuria has over 24,000,000 people and each of the Dependencies have about 2,000,000. Peiping, the capital of China, has a population of 811,138. There are about 370,393 foreigners residing in China (1931), of which the Japanese make up the largest number (260,621). There are over 8,000 Americans and over 13,000 British. There are also over 66,000 Russians and over 8,000 French, besides varying numbers of other nationalities. Until 1929 there were 29 Treaty Powers in China. On January 1, 1930 the gradual abolition of extra-territoriality began as a new principle.

There are three religions in China, i.e., Confucianism, Buddhism and Taoism. There are approximately 2,500,000 native Christians. Catholic and Protestant missions abound. In education the system of western learning has been developing for the past three decades. In 1923 it was estimated that there were 167,076 schools with nearly 6,000,000 pupils. In 1928 there were 34 universities and colleges and 16 High Technical Colleges in China. There were a total of 19,453 students in these institutions, both government and private. The Peking Union Medical College was established in 1906. In 1915 this institution was placed under the Chinese Medical Board.

The revenue during 1931–32 of the Nationalist Government was $632,644-

906 and the expenditures amounted to $682,990,864. The total foreign trade for 1932 amounted to 184,309,000 taels. In 1932 the total imports amounted to £98,366,873 and the exports to £46,185,120. Imports from the United States amounted to 269,176,000 taels and exports to the United States amounted to 59,993,000 taels. The chief imports are cotton and cotton goods, wool and woollen goods, metals and minerals, sea products, tobacco, chemicals, dyes and pigments, machinery, coal, coke, etc. The principal exports are yellow beans, bean cake, coal, raw cotton, raw silk, hides and skins, tea, wood oil, metals and minerals, silk, bean oil, etc. During 1931 some 160,005,101 tons of shipping entered and cleared Chinese ports.

In so far as the public health problem is concerned it is, of course, difficult to obtain information for so large a country at the present time. We are indebted to Dr. J. H. Herring, Jr., who has supplied us with data for South China and to Dr. J. Heng Liu, who has sent us much information for China as a whole. Among the diseases of importance to the public health are malaria, leishmaniasis, plague, leprosy (of which there is an estimate of 1,000,000 cases), syphilis, smallpox, amebiasis, bacillary dysentery, the typhoid fevers, hookworm disease, schistosomiasis, tuberculosis, trachoma and cholera. See Table 96 for detailed information available. Malnutrition and undernutrition are, of course, widespread throughout China.

At Fort Bayard, according to "World Weather Records," the mean pressure (700 mm. plus) over a period of ten years, 1921–1930, was 57.8. For this same period the mean temperature was 23.7°C. and the average total precipitation was 1420.8 millimeters.

TABLE 96

CHINA

Reported by: J. Heng Liu, Director *Period:* Questionnaire dated April, 1934

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Prevalent in south and central; rare in northwest		+	+
Benign tertian	+	Prevalent in south and central; rare in northwest	C	+	+
Quartan	+	Prevalent in south and central; rare in northwest	C	+	+
Subtertian	+	Prevalent in south and central; rare in northwest	C	+	+
Blackwater Fever	+		R		
Piroplasmosis	−				−

TABLE 96

CHINA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Leishmaniasis	+				
Kala-azar	+	Shantung, Hopei, North Kaingsu and North Anhwei		+[1]	+
Oriental Sore	−				−
Espundia	−				−
Relapsing Fever	+	North China		+(?)	
S. recurrentis	+				
S. duttoni	−				−
S. venezuelense	−				−
S. berberum	−				−
Rat-Bite Fever	+		R		
Yellow Fever	−				−
Dengue Fever	+	Sporadic in south		+	
Pappataci Fever	−				−
Plague	+	Epidemic, Shansi, Shensi, Suiyuan in 1928–30		+	
Typhus Fever	+	Endemic north; sporadic south		+	
Trypanosomiasis	−				−
African Human	−				−
T. gambiense	−				−
T. rhodesiense	−				−
South American	−				−
T. cruzi	−				−
Oroya Fever	−				−
Undulant Fever	+	Shanghai and Fukien	R		
Leprosy	+	General	1,000,000		+
Syphilis	+	Everywhere, especially cities	C		+
Yaws	+		R		
Granuloma Inguinale	?				
Tularemia	−				−
Smallpox	+	Especially rural	C		+
Amebiasis	+	Central and south	C		+
Balantidium Dysentery	+		R		
Bacillary Dysentery	+	Endemic everywhere			+
Cholera	+	Epidemics coastal and Yangtze valley	100,000[2]		+
Typhoid Fever	+	Endemic everywhere	?		+
Para-Typhoid Infection	+	Endemic everywhere	?		+
Sprue	+		R		
Hill Diarrhea	−				−
Ascariasis	+	General	C		
Hookworm Disease	+	Especially central	C		+
Giardia Enteritis	+		R		
Trichomonas Infection	+		C		
Tropical Liver	?				
Infantile Biliary Cirrhosis	?				
Schistosomiasis	+	Lower Yangtze region	C	+[3]	+
Urinary	−				−
Intestinal	+			+	
Visceral	+			+	
Far Eastern	?				

TABLE 96

CHINA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Filariasis	+	Kiangsu and Fukien	C	+	
Juxta-Articular Nodules	−				−
Elephantiasis	+	Kiangsu and Fukien	C	+(?)	
Chyluria	+	Kiangsu and Fukien	C	+(?)	
Dracontiasis	−				−
D. medinensis	−				−
Paragonimiasis	+	Coastal provinces, sporadic			
P. ringeri	?				
P. westermanii	+				
P. compactus	−				−
Clonorchiasis	+	Prevalent in Kwangtung			
C. sinensis	+				
O. felineus	?				
Fasciolopsis	+				
F. hepatica	+		R		
F. buskii	+	Endemic Chekiang Prov.			
Cestodes	+	Moderate in north	C	+	
Tænia saginata	+	North and Mongolia		+	
Tænia solium	+	North Hopei		+	
Dibothriocephalus latus	+	Northern Manchuria		+	
Hymenolepis nana	+		R		
Sparganum mansoni	+		R		
S. prolifer	?				
Trichuris	+		C		
T. trichiura	+		C		
H. heptaticus	+	North	C		
Trichinelliasis	+		R		
T. spiralis	+		R		
Climatic Bubo	−				−
Rhinosporidiosis	−				−
Goundou	−				−
Ainhum	−				−
Big Heel	−				−
Myiasis	?				−
Subcutaneous	?				
Blood sucking	?				
Intestinal	?				
Larva Migrans	?				
Leech Infection	?				
Leucodermia	+		R		
Cheloid	+				
Ulcus Tropicum	?				
Albinism	+		R		
Septic Sore	?				
Pemphigus Contagiosus	+		R		
Ulcerating Dermatitis	?				
Madura Foot	?				
Other Mycetoma	−				−
Blastomycosis	+		R		
Mossy Foot	−				−
Pityriasis Nigra	+		R		
Pityriasis Versicolor	+		R		

TABLE 96

CHINA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Dhobie's Itch	+		R		
Seborrhoea	+		R		
Pinta	?				
Tinea Imbricata	+	Szechuan	C		
Trichosporosis	−				−
Trichomycosis	?				
Acarine Dermatomycosis	?				
Epidemic Dropsy	−				−
Peripheral Neuritis	+		R		
Beriberi	+	Coast—Kwangtung, Fukien and Chekiang	C		
Pellagra	+	Sporadic in Shanghai and Nanking	R		
Scurvy	+		R		
General Malnutrition or Undernutrition	+		C		
Heat Stroke	+		R		
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+	More common in north	C		+
Diphtheria	+	More common in north			+
Measles	+	Epidemic everywhere			+
German Measles	+		R		
Varicella	+	General	C		
Epidemic Meningitis	+	Yangtze Valley	C		
Infantile Paralysis	+		R		
Epidemic Encephalitis	+		R		
Syphilis of Central Nervous System	+		C		
Influenza	+		C		
Common Cold	+		C		
The Pneumonias	+		C		
Cholelithiasis	+		R		
Urinary Calculus	+	North of Kiangsu	C		
Nephritis	+		C		
Diabetes	+		R		
Pernicious Anemia	−				
Osteomyelitis	+		C		
Tuberculosis	+	General	C		
Pulmonary	+		C		+
Bone	+		C		
Skin	+		C		
Malignancy (all forms)	+		C		
Trachoma	+		C		+
Weil's Disease	+	Epidemics; Hopei, Shansi Shangtung and North Kiangsu	R		
Tsutsugamushi Disease	+	Wuchang, Hupei Provinces (Japanese)	2		

TABLE 96

CHINA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Rabies	+		R		
Thyroid Disease (Goiter)	+	Kwangsi, Yunnan, Hopei, Hunan and Tsungming Island			
Rheumatic Fever	+	Rare in north and common in central and south			
Arthritis (Nonspecific)	+		C		
Rickets	+		R		
Dental Caries	+		C		
Toxemias of Pregnancy	+		R		
Cardio-Vascular Diseases	+		C		
Hypertension	+		C		
Valvular Lesions	+		C		
Aneurysm	+		R		
Myocarditis	+		C		

SOUTH CHINA

Reported by: Dr. J. H. Herring, Jr., Superintendent Forman Memorial Hospital

Period: Questionnaire dated October, 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General	500	+	+
Benign tertian	+	General	450	+	
Quartan	+	General	50	+	
Subtertian					
Blackwater Fever	+		2		−
Piroplasmosis	−				−
Leishmaniasis	−				−
Kala-azar	−				−
Oriental Sore	−				−
Espundia	−				−
Relapsing Fever	−				−
S. recurrentis	−				−
S. duttoni	−				−
S. venezuelense	−				−
S. berberum	−				−
Rat-Bite Fever	+		2	+	−
Yellow Fever	−				−
Dengue Fever	−				−
Pappataci Fever	−				−
Plague	+		0[4]	+	+
Typhus Fever	−				−
Trypanosomiasis	−				−
African Human	−				−
T. gambiense	−				−
T. rhodesiense	−				−

TABLE 96

SOUTH CHINA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
South American	−				−
T. cruzi	−				−
Oroya Fever	−				−
Undulant Fever	−				−
Leprosy	+	General. Poor class	200		+
Syphilis	+		60		+
Yaws	−				−
Granuloma Inguinale	−				−
Tularemia	−				−
Smallpox	+		100		+
Amebiasis	+		70		+
Balantidium Dysentery	−				−
Bacillary Dysentery	−				−
Cholera	+		0[5]		+
Typhoid Fever	+	Endemic	15		+
Para-Typhoid Infection	−				−
Sprue	+	Among foreigners	0[6]		−
Hill Diarrhea	−				−
Ascariasis	+	Endemic in children	200		+
Hookworm Disease	+	Endemic, farmers	20		+
Giardia Enteritis	−				−
Trichomonas Infection	−				−
Tropical Liver	+	Endemic, mostly males	30		+
Infantile Biliary Cirrhosis	−				−
Schistosomiasis	−				−
Urinary	−				−
Visceral	−				−
Far Eastern	−				−
Filariasis	+	Sporadic	10	+	−
Juxta-Articular Nodules	−				−
Elephantiasis	+		10		−
Chyluria	−				−
Dracontiasis	−				−
Paragonimiasis	−				−
Clonorchiasis	−				−
Fasciolopsis	−				−
Cestodes	+		2	+	−
Tænia solium	+		2	+	−
Dibothriocephalus latus					
Sparganum mansoni	+		1[7]		−
Trichuris	−				−
Trichinelliasis	−				−
Climatic Bubo	−				−
Rhinosporidiosis	−				−
Goundou	−				−
Ainhum	−				−
Big Heel	−				−
Myiasis	−				−
Leech Infection	−				−
Leucodermia	+	Sporadic	2		−
Cheloid	+		2		−
Ulcus Tropicum	−				−
Albinism	−				−
Septic Sore	+		50		+

TABLE 96

SOUTH CHINA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Pemphigus Contagiosus	−				−
Ulcerating Dermatitis	+	Farmers	60		+
Madura Foot	−				−
Other Mycetoma	−				−
Blastomycosis	−				−
Mossy Foot	−				−
Pityriasis Nigra	−				−
Pityriasis Versicolor	−				−
Dhobie's Itch	+		20		+
Seborrhoea	−				−
Pinta	−				−
Tinea Imbricata	−				−
Trichosporosis	−				−
Trichomycosis	−				−
Acarine Dermatomycosis	−				−
Epidemic Dropsy	−				−
Peripheral Neuritis	−				−
Beriberi	+	Endemic	40		+
Pellagra	−				−
Scurvy	−				−
General Malnutrition or Undernutrition	+		200		+
Heat Stroke	−				−

II. Diseases Usually Considered as of Temperate Climates

Measles	+	General	100		+
German Measles	+	General	10		−
Epidemic Meningitis	+	Sporadic	5		+
Infantile Paralysis	−				−
Epidemic Encephalitis	−				−
Syphilis of Central Nervous System	+		5		+
Influenza	−				−
Common Cold	+		300		+
The Pneumonias	+	General	2[8]		−
Cholelithiasis	−				−
Urinary Calculus	+		0[9]		−
Nephritis	+		6		−
Diabetes	−				−
Pernicious Anemia	−				−
Osteomyelitis	+	General	30		+
Tuberculosis	+	General	60		+
Pulmonary	+	General	60		+
Bone	+	General	5		
Skin	−				−
Malignancy (all forms)	+		20		+
Trachoma	+	General	50		+
Weil's Disease	−				−
Tsutsugamushi Disease	−				−
Rabies	+	Sporadic	2	+	+
Thyroid Disease (Goiter)	+	General	15		
Rheumatic Fever	−				−
Arthritis (Nonspecific)	+	General	25		+

TABLE 96

SOUTH CHINA—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Rickets	−				−
Dental Caries	+		600		+
Toxemias of Pregnancy	+		10		+
Cardio-Vascular Diseases	+		50		+
Hypertension	−				−
Valvular Lesions	+		40		+
Aneurysm	+		2		
Myocarditis	+	General	2		

[1] Sandflies very prevalent and thought to be transmitters.
[2] Only 6 cases in 1933.
[3] *Oncomelania nosophora* and *hupensis*.
[4] Formerly, per annum average was 100 cases.
[5] Previously averaged about 200 per annum.
[6] Previously averaged about 2 per annum.
[7] Previously, in an ulcer, Sparg. Baxtin.
[8] Bronchial type.
[9] Previously about 2.

REPUBLIC OF COLOMBIA

The Republic of Colombia was established in 1819 when independence was proclaimed from Spain. The area of Colombia is estimated at 447,536 square miles. There are over 2,000 miles of coast most of which is on the Pacific Ocean, the remainder being on the Caribbean Sea. According to the census of 1928, the population was 7,851,000, of which 69,867 are Indians. The population is divided almost equally between males and females. The bulk of the population lives from 4,000 to 9,000 feet above sea level. Illiteracy amounted to about 24 per cent in 1928. The religion of the country is Roman Catholic; other religions are permitted however. Primary education is free but is not obligatory. In 1931–32 there were 7,495 primary and secondary schools with 447,946 students. There are also at least 25 industrial and art schools and several universities.

The revenue in 1932–33 (estimated) amounted to 32,435,600 gold pesos and the expenditures were fixed at the same figure. The imports during 1931 amounted to 41,056,000 gold pesos and the exports amounted to 98,009,000 gold pesos. Colombia is the largest producer of mild coffee. Other products are tobacco, cotton, coco, sugar, vegetable ivory and ivory nut, dyewoods, wheat, maize, bananas, balsam, copaiba, cedar and rubber (growing wild). The country is rich in minerals including gold, copper, lead, mercury, cinnabar, manganese, emeralds and platinum. Petroleum has recently been found. Daily airplane service connects Bogota with Barranquilla on the Atlantic coast and from there bi-weekly service connects with New York City.

According to the "Informe de las Labores del Departamento Nacional de Higiene" for 1931–32 there were 10,669 cases of malaria in Colombia, 24 of relapsing fever, 7,347 of leprosy, 2,877 of yaws, 3,568 of amebiasis, 16,883 of hookworm disease and various other diseases, including the respiratory diseases such as influenza, the pneumonias and tuberculosis. Further details may be found in Table 97.

The only information available to us concerning weather conditions in Colombia is the figure for the mean precipitation for the ten year period 1921–30 at Bogota, which was 924.5 millimeters (sum of 12 monthly means).

TABLE 97

REPUBLIC OF COLOMBIA

Reported by: Informe de las Labores del Departamento Nacional de Higiene

Period: 1931–32

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General. Epidemic and endemic	10,669	+	+
Benign tertian	+		227	+	+
Quartan	+		2	+	+
Subtertian	+		58	+	+
Leishmaniasis	+	Quibdo		+	
Espundia	+	Santa Marta	1		
Relapsing Fever	+	Cauca, Muzo scattered	24	+	+
Yellow Fever	+				
Typhus Fever	+				
Leprosy	+	General	7,347		+
Syphilis	+	General	248		+
Yaws	+	General	2,877		+
Granuloma Inguinale	+		2[1]		
Smallpox	+	Endemic, epidemic	1,473		+
Amebiasis	+	Endemic, epidemic	3,568		+
Bacillary Dysentery	+	Antioquia, Huila, Cauca	108[2]		+
Typhoid Fever	+	Epidemics, endemic	1,891		+
Para-Typhoid Infection	+	Magdalena			
Ascariasis	+	Antioquia, general	137[3]		+
Hookworm Disease	+	General	16,883		+
Cestodes	+				
Blastomycosis	?[4]				
Pellagra	+	Antioquia	10[5]		

II. Diseases Usually Considered as of Temperate Climates

Diphtheria	+	Epidemic, Atlantico, Antioquia; widespread	184		+
Measles	+	Antioquia, Atlantico, Puerto Colombia, epidemic	310		+

TABLE 97

REPUBLIC OF COLOMBIA—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Varicella	+	Cauca, Villavicencio	202		+
Epidemic Meningitis	+	Bogota	12		
Influenza	+	Widespread epidemics	12,650		+
The Pneumonias	+	Bogota, Antioquia	3,027		+
Nephritis	+	Antioquia	215[5]		+
Pernicious Anemia	+	Antioquia	8,529[6]		+
Tuberculosis	+	Widespread	4,310		+
Pulmonary	+	Bogota, Antioquia	1,490		+
Malignancy (all forms)	+	Bogota	240[5]		+
Rabies	+		1[5,7]	+	
Rickets	+	Antioquia	225[5,8]		
Cardio-Vascular Diseases	+				+
Valvular Lesions	+	Antioquia	165[5]		+
Myocarditis	+	Antioquia	23[5]		+

[1] "Granulomas."
[2] 35 cases dysentery at Muzo.
[3] 64 cases "helminthiasis."
[4] 3 cases "*Micosis varias*." 1 case "onicomicosos."
[5] Deaths.
[6] Tropical anemia.
[7] 140 people treated.
[8] Includes "atrepsia."

THE BELGIAN CONGO

In 1885 the Congo Independent State was founded under Leopold II, King of the Belgians. Annexation was approved in 1908. The Congo Colony is divided into four provinces and sixteen administrative districts. The capital of the Colony is Leopoldville. The total area of the Belgian Congo is estimated at 918,000 square miles. The population of Bantu origin is estimated at nearly 9,000,000 and the white population was 22,382 in 1932. The religion of the natives is a gross fetichism. In 1932 there were 2,471 missionaries, of whom 1,753 were Catholic and 718 Protestant. These missionaries work with the government in the educational system. Nearly 300,000 children receive elementary education. In 1932 the Government spent 21,248,794 francs on education, of which about half was spent through the missionaries. There is an organized medical service staffed chiefly by physicians from the homeland.

In 1933 the ordinary revenue amounted to 357,736,580 francs and the expenditures to 725,757,940 francs. The imports in 1931 amounted to 961,891,851 francs and the exports to 1,104,045,231 francs. The chief imports were arms, ammunition, steamers and ships, machinery, wines, spirits, beer, provisions and cottons while the exports included rubber, ivory, palm-nuts, palm-oil, copal, gold, copper, diamonds, tin ore and cotton. In 1931 a total

tonnage of 1,903,573 entered and nearly the same tonnage cleared the ports of the Congo.

We are indebted to Doctors Mouchet, Chesterman and Barger, all of whom have sent us information dealing with public health problems in the Congo. Among the diseases of public health importance are malaria, blackwater fever, piroplasmosis, relapsing fever, yellow fever, plague, trypanosomiasis, leprosy, syphilis, yaws, smallpox, bacillary dysentery, amebiasis, typhoid fever, hookworm disease, ascariasis, tropical ulcer, beriberi, scurvy, general malnutrition and under nutrition, trachoma, the pneumonias and tuberculosis.

There are no data on weather conditions available in "World Weather Records."

TABLE 98

THE BELGIAN CONGO

Reported by: Drs. R. Mouchet, C. C. Chesterman and G. J. P. Barger and Public Health Report (1931) *Period:* Questionnaire compiled June, 1934

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General	[1]	+	+
Benign tertian	+		R	+	+
Quartan	+		C	+	+
Subtertian	+	General		+	+
Blackwater Fever	+	General	111		+
Piroplasmosis	+	In animals. Eastern. General, cattle, dogs		+	+
Leishmaniasis	−				−
Kala-azar	−				−
Oriental Sore	−				−
Espundia	−				−
Relapsing Fever	+			+	−
S. recurrentis	−				
S. duttoni	+	South and east	84–126	+	+
S. venezuelense	−				−
S. berberum	−				−
Rat-Bite Fever	−				−
Yellow Fever	[2]	Matadi and Boma		+	+
Dengue Fever	+(?)	Northeast (?)			−
Pappataci Fever	−				−
Plague	+	East Ituri District	3–16	+	+
Typhus Fever	−				−
Trypanosomiasis	+	General	25,582[3]	+	+
T. gambiense	+	General			
T. rhodesiense	−				−
South American	−				−
T. cruzi	−				−
Oroya Fever	−				−
Undulant Fever	−	*B. abortus* in animals			−
Leprosy	+	General	9,796[4]		+

TABLE 98

THE BELGIAN CONGO—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Syphilis	+	Trade routes everywhere	9,034		+
Yaws	+	Trade routes everywhere	160,471		+
Granuloma Inguinale	+	Natives	C		−
Tularemia	−				−
Smallpox	+	Epidemics everywhere	966		+
Amebiasis	+	General	6,489		+
Balantidium Dysentery	+	Scattered	8–10		−
Bacillary Dysentery	+	General. Epidemics	305		+
Cholera	−				−
Typhoid Fever	+	Travel routes	56[5]		+
Para-Typhoid Infection	+	Travel routes	[5]		−
Sprue	−				−
Hill Diarrhea	−				−
Ascariasis	+	General	C		+
Hookworm Disease	+	General	22,114		+
Giardia Enteritis	+	Equator	1		−
Trichomonas Infection	+	Equator	C		−
Tropical Liver	+	Malarial regions			−
Infantile Biliary Cirrhosis	−				−
Schistosomiasis	+	Katanga region. Oriental Province. Scattered	2,617	+	−
Urinary	+	Katanga region. Oriental Province. Scattered		+	−
Intestinal	+	Northeast and lower Congo	C[6]	+	−
Visceral	+	Northeast and lower Congo		+	−
Filariasis	+	Upper Sankuro	R[7]		−
Loa Loa	+	Mayumbe. General	C	+	−
O. volvulus	+	Widespread along rivers		+	−
F. perstans	+	Scattered		+	−
F. demarquayi	−				−
F. ozzardi	−				−
Juxta-Articular Nodules	+	General	C		−
Elephantiasis	+	General	C	+(?)	−
Chyluria	+		R		−
Dracontiasis	−				−
D. medinensis	−				−
Paragonimiasis	+				−
P. ringeri	−				−
P. westermanii	+		R	+	−
P. compactus	−				−
Clonorchiasis	−				−
C. sinensis	−				−
O. felineus	−				−
Fasciolopsis	−				−
F. hepatica	−				−
F. buskii	−				−

TABLE 98

THE BELGIAN CONGO—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Cestodes	+			+	−
Tænia saginata	+	Cattle country (east)	8	+	−
Tænia solium	+			+	−
Dibothriocephalus latus	−				−
Hymenolepis nana	+[8]	Yakuso	4		−
Sparganum mansoni	[9]	Yakusu and Bolobo	2		−
S. prolifer	−				−
Trichuris	+				−
T. trichiura	+	In natives. General			−
H. heptaticus	?			+	
Climatic Bubo	+	Spotted	R		−
Rhinosporidiosis	−				−
Goundou	+		R		−
Ainhum	+	Yakusu	4		−
Big Heel	−				−
Myiasis	+			+	−
Subcutaneous	+	Tanganyika	3–5[10]	+	−
Blood sucking	+	General		+	−
Intestinal	+	Yakusu	1	+	−
Larva Migrans	+	Yakusu	2		
Leech Infection	−				
Leucodermia	+	General	1,000		−
Cheloid	+	General	C		−
Ulcus Tropicum	+	General	53,882		+
Albinism	+	General	R		−
Septic Sore	+	General. Special Congo variety	C		−
Pemphigus Contagiosus	−				−
Ulcerating Dermatitis	+	Yakusu	R		−
Madura Foot	−				−
Other Mycetoma	+		C		−
Blastomycosis	−				−
Mossy Foot	+	General	C		−
Pityriasis Nigra	−				−
Pityriasis Versicolor	+	General	C		−
Dhobie's Itch	+	General	C		−
Seborrhoea	+	General	R		−
Pinta	−				−
Tinea Imbricata	−				−
Trichosporosis	+		R		−
Trichomycosis	−				−
Acarine Dermatomycosis	+	General	C[11]		−
Epidemic Dropsy	−				−
Peripheral Neuritis	−				−
Beriberi	+	Epidemic	10		+
Pellagra	−				−
Scurvy	+	Laborers and prisoners. Epidemic			+
General Malnutrition or Undernutrition	+	Most natives underfed in villages			+
Heat Stroke	+		R		−

TABLE 98

THE BELGIAN CONGO—*Concluded*

II. Diseases Usually Considered as of Temperate Climates

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Scarlet Fever	−				−
Diphtheria	+	Whites at Elizabethville	R		−
Measles	+	Local epidemics	C		−
German Measles	?[12]				−
Varicella	+	General, epidemic	2,083		−
Epidemic Meningitis	+		R[13]		+
Infantile Paralysis	+	Epidemic 1933. Sporadic			−
Epidemic Encephalitis	−(?)				−
Syphilis of Central Nervous System	+	Natives			−
Influenza	+	1918 epidemic			+
Common Cold	+	General			−
The Pneumonias	+	General (natives)	4,662[14]		+
Cholelithiasis	+				−
Urinary Calculus	+		R		−
Nephritis	+		?		−
Diabetes	+		R		−
Pernicious Anemia	+		R		−
Osteomyelitis	+		R		−
Tuberculosis	+	General	703		+
Pulmonary	+		C		+
Bone	+	+	?		+
Skin	+				?
Malignancy (all forms)	+		104		−
Trachoma	+	Southeast Katanga	C		+
Weil's Disease	+[15]	Severe epidemic in Stanleyville			−
Tsutsugamushi Disease	−				−
Rabies	+	Sporadic everywhere	12	+	+
Thyroid Disease (Goiter)	+	Endemic in Stanleyville and Katanya	1,522		+
Rheumatic Fever	+[16]	General			−
Arthritis (Nonspecific)	+	General			−
Rickets	+		R		
Dental Caries	+	General	C		−
Toxemias of Pregnancy	+	Among Europeans	C		−
Cardio-Vascular Diseases	+				−
Valvular Lesions	+		C		−
Aneurysm	+		2		
Myocarditis	+				

[1] 60–85% of population. [2] Not since 1928.
[3] 1930 1.2% new infections, 1931 only 0.9%.
[4] Treated cases, perhaps 150,000 in colony. [5] Including para-typhoid.
[6] Endemic in Stanleyville region. [7] Cases of blindness due to *F. accutiens*.
[8] *H. diminuta*. [9] Not since 1925. [10] *Cordylobia anthropophaga*.
[11] *A. scabei* and *T. penetrans*.
[12] Chesterman doubts measles, thinks disease is German measles or of similar nature.
[13] Chief Medical Officer thinks rare; Chesterman thinks often confused with pneumococcal meningitis.
[14] Tens of thousands of cases. [15] Diagnosis not proved.
[16] Chief Medical Officer, "only rarely in natives"; Chesterman says has seen typical rheumatic heart at autopsy.

COSTA RICA

Costa Rica is one of few of the Latin-American countries for which we have been able to obtain public health information for this survey. Costa Rica has been an independent State since 1821. By an election law of 1913 universal suffrage was adopted in this Republic. The area of the Republic is 23,000 English square miles. The country is divided into seven provinces. The Census of 1927 gives a population of 471,525. San José province is the largest with a population of 153,183. In 1931 there were 2,933 marriages, 23,838 births and 12,567 deaths.

The religion of the State is Roman Catholic but the Constitution grants religious freedom. Elementary education is compulsory and provided by the the State. In 1932 there were 513 elementary schools and 1,882 teachers. There is a lyceum in San José which provides secondary education, having nearly 700 students and 40 instructors, and also a college for girls with nearly 400 students and 46 teachers. There is also a normal school at Heredia and a college in Cartago and Alajuela. In 1931 4,086,528 colones were spent on education. The revenue of Costa Rica in 1932 amounted to 26,407,046 colones and the expenditures to 24,865,179 colones.

Dr. Solón Núnez and Dr. Clodomire Picardo have supplied us with information concerning public health conditions in Costa Rica and report that the following diseases are among those of public health importance: malaria, leishmaniasis, leprosy, syphilis, yaws, smallpox, amebiasis, the typhoid fevers, ascariasis, hookworm disease, trichomonas infection, hymenolepsis, trichuris, septic sore, nephritis, pernicious anemia and tuberculosis. Table 99 contains the details of the information which is available regarding these various conditions.

There are no data available in "World Weather Records" for Costa Rica.

TABLE 99

COSTA RICA

Reported by: Dr. Solón Núnez and Dr. Clodomire Picardo

Period: Questionnaires dated 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General	200,000	+	+
Benign tertian	+	General	150,000	+	+
Quartan	+	Atlantic and Pacific	?	+	+
Subtertian	+	Atlantic and Pacific	50,000	+	+
Blackwater Fever	+	Atlantic and Pacific	R		−
Piroplasmosis	+	Low areas		+	
Leishmaniasis	+	Coast	5,000	+	+
Kala-azar	−			+	

TABLE 99

COSTA RICA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Oriental Sore	+	Low areas		+	−
Espundia	+	Low areas	R	+(?)	−
Relapsing Fever	−				−
S. recurrentis	−				−
S. duttoni	−				−
S. venezuelense	−				−
S. berberum	−				−
Rat-Bite Fever	?		1[1]		
Yellow Fever	−				−
Dengue Fever	?				
Pappataci Fever	−				−
Plague	−				−
Typhus Fever	−				−
Trypanosomiasis	−				−
African Human	−				−
T. gambiense	−				−
T. rhodesiense	−				−
South American	−				−
T. cruzi	−				−
Oroya Fever	−				−
Undulant Fever	+		1		−
Leprosy	+	Sporadic	200		+
Syphilis	+	General	100,000		+
Yaws	+	Pacific lowlands	2,000		+
Granuloma Inguinale	+		R		
Tularemia	?				
Smallpox	+		0		+
Amebiasis	+	General	25,000		+
Balantidium Dysentery	+	Spotted	R		
Bacillary Dysentery	+		R		−
Cholera	−				
Typhoid Fever	+	General	200		+
Para-Typhoid Infection	+	General	500		+
Sprue	+	General	200		−
Hill Diarrhea	−				−
Ascariasis	+	General	100,000		+
Hookworm Disease	+	General	200,000		+
Giardia Enteritis	+		R		−
Trichomonas Infection	+	General	5,000		+
Tropical Liver	+	Coast			
Infantile Biliary Cirrhosis	?				
Schistosomiasis	−				−
Urinary	−				−
Intestinal	−				−
Visceral	−				−
Far Eastern	−				−
Filariasis	+	Puerto Limon	2		
Juxta-Articular Nodules	+		R		
Elephantiasis	+		2		−
Chyluria	?				−
Dracontiasis	−				−
D. medinensis	?				−
Paragonimiasis	−				−
P. ringeri	−				−
P. westermanii	−				−
P. compactus	−				−

TABLE 99

COSTA RICA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Clonorchiasis	−				−
C. sinensis	−				−
O. felineus	−				−
Fasciolopsis	+		1		
F. hepatica	+	Chinese	1		
F. buskii	−				−
Cestodes	+	General	?		
Tænia saginata	+	General	?		
Tænia solium	+		R		
Dibothriocephalus latus	−				−
Hymenolepis nana	+	General	100,000		+
Sparganum mansoni	−				−
S. prolifer	−				−
Trichuris	+	General	400,000		+
T. trichiura	+	General	C		+
H. heptaticus	−				−
Trichinelliasis	−				−
T. spiralis	−				−
Climatic Bubo	+		50		
Rhinosporidiosis	?				
Goundou	+		R		
Ainhum	+		R		
Big Heel	?				
Myiasis	+		R	+	
Subcutaneous	+		R	+	
Blood sucking	−				−
Intestinal	+		R	+	
Larva Migrans	+				
Leech Infection	−				−
Leucodermia	+?				
Cheloid	+		R		
Ulcus Tropicum	+	Low places	C		
Albinism	+		R		
Septic Sore	+	Pacific coast	?		+
Pemphigus Contagiosus	+				
Ulcerating Dermatitis	?				
Madura Foot	−				−
Other Mycetoma	−				−
Blastomycosis	+		R		
Mossy Foot	+		R		
Pityriasis Nigra	+				
Pityriasis Versicolor	+				
Dhobie's Itch	?				
Seborrhoea	+				
Pinta	+				
Tinea Imbricata	+				
Trichosporosis	?				
Trichomycosis	+		R		
Acarine Dermatomycosis	+				
Epidemic Dropsy	+	Outbreak suspected, 1931	40		
Peripheral Neuritis	+				
Beriberi	?		R		
Pellagra	+				
Scurvy	+		R		
General Malnutrition or Undernutrition	+		R		
Heat Stroke	+		R		

TABLE 99

COSTA RICA—*Concluded*

II. Diseases Usually Considered as of Temperate Climates

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Scarlet Fever	+	Spotted	80		
Diphtheria	+	General	20		−
Measles	+	Spotted	80		
German Measles	+				
Varicella	+	Spotted	80		
Epidemic Meningitis	+				−
Infantile Paralysis	+		0		−
Epidemic Encephalitis	−				−
Syphilis of Central Nervous System	+	General	Uc		+(?)
Influenza	+		0		
Common Cold	+	General			
The Pneumonias	+	General			−
Cholelithiasis	+(?)				
Urinary Calculus	+		?		−
Nephritis	+	General	25,000		+
Diabetes	+		R		
Pernicious Anemia	+	General	25,000		+
Osteomyelitis	+		R		
Tuberculosis	+	General	25,000		+
Pulmonary	+				
Bone	+				
Skin	+				
Malignancy (all forms)	?				
Trachoma	−				−
Weil's Disease	−				−
Tsutsugamushi Disease	−				−
Rabies	−				−
Unusual Skin Disease	−				−
Thyroid Disease (Goiter)	+		R		
Rheumatic Fever	+				
Arthritis (Nonspecific)	+		R		
Rickets	+		R		
Dental Caries	+	General	400,000		+
Toxemias of Pregnancy	+				
Cardio-Vascular Diseases	+				
Hypertension	+				
Valvular Lesions	+				
Aneurysm	+				
Myocarditis	+				

[1] Suspected case.

DOMINICAN REPUBLIC

Santo Domingo, discovered by Columbus in 1492, declared its independence of Spain in 1821. The country established a Republic in 1844 after the Haitian invasion. The Dominican Republic consists of the eastern portion of the island of Hispaniola, the western portion being Haiti. The area of the Santo Domingo portion is estimated at about 19,332 square miles, having 1,017 miles of coast line and 193 miles of frontier line with Haiti. The popu-

lation, estimated in 1932, is 1,200,000. The population includes some Creoles of Spanish descent but is chiefly a mixed race of Europeans, Africans and Indians. There are also many Syrians in Santo Domingo, the capital city. The city of Santo Domingo has a population of nearly 50,000. The religion of the State is Roman Catholic, though other creeds are permitted. Primary education is free and compulsory and receives aid from the State. The State schools are primary, secondary, technical, normal and university. The university was established in 1914.

The revenue of Santo Domingo was, in 1931, $7,311,418 and the expenditures amounted to $7,920,120. The imports, in 1931, amounted to $10,151,762 and the exports to $13,067,162. Agriculture is the chief industry of the country and the crops include sugar, coco, coffee, leaf tobacco and molasses made on the island. Livestock is a growing industry. The minerals found in the Dominican Republic include gold, copper, iron, silver and platinum. Petroleum has also been found in the Azua region. In 1931 the chief imports included cotton goods, rice, machinery, petrol, automobiles, wheat flour, etc. In 1930 about 1600 vessels of a total tonnage of over 2,000,000 tons entered the ports and slightly less than this tonnage cleared.

According to the "Memoria Presenta El Secretario de Estado de Sanidad y Beneficencia" for 1930 (the last available) the following diseases of interest to our survey were present: malaria, leprosy, bacillary dysentery, syphilis, typhoid fever (195 cases), hookworm disease (only three cases listed) and various diseases usually considered as of temperate climates, including influenza, the pneumonias and tuberculosis. It is rather interesting to note that 44 cases of rickets were also reported, a disease usually not very prevalent at such latitudes. Further details concerning health conditions in Santo Domingo may be found in Table 100.

There are no data concerning weather conditions in the Dominican Republic in "World Weather Records."

TABLE 100

DOMINICAN REPUBLIC

Reported by: Memoria Presenta el Secretario de Estado de Sanidad y Beneficencia
Period: 1930

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+		399	+	+
Leprosy	+		70[1]		+
Syphilis	+		35		+
Bacillary Dysentery	+		89[2]		+
Typhoid Fever	+		195		+
Hookworm Disease	+		3		

TABLE 100

DOMINICAN REPUBLIC—*Concluded*

II. Diseases Usually Considered as of Temperate Climates

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Diphtheria	+		9		
Measles	+		5		
Epidemic Meningitis	+		12[3]		
Epidemic Encephalitis	+		1[4]		
Influenza	+		39		
The Pneumonias	+		177		
Nephritis	+		27		
Diabetes	+		7		
Pernicious Anemia	+		28[5]		
Tuberculosis	+		283		+
Pulmonary	+		265		+
Malignancy (all forms)	+		45		
Rabies	+		1		
Rickets	+		44		

[1] Estimated number of cases of leprosy.
[2] Dysentery.
[3] Meningitis, all types.
[4] Listed as encephalitis.
[5] Listed as anemia.

EGYPT

Egypt was formerly part of the Turkish Empire. In 1914 the British established a Protectorate over Egypt which was terminated in 1922, at which time the Sultan was proclaimed King. Islam is the State religion and Arabic the official language. For administrative purposes Egypt is divided into five governorships of principal towns and 14 provinces which are subdivided into districts. The total area of Egypt, including the Libyan Desert, the region between the Nile and the Red Sea and the Sinai Peninsula is about 383,000 square miles. The cultivated area of the Nile valley, Delta and Oases is about 13,600 square miles. In general the country is divided into two districts, Lower Egypt and Upper Egypt. According to the Census of 1927 the population numbered 14,217,864. Of these 12,929,260 were Moslems, 999,170 Orthodox and 66,080 Protestants and about the same number of Jews. In 1931–32 there were 1,624 schools with 158,885 students. The Government aided these institutions in 1930–31 with over 13,000 pounds. In addition to these schools (so-called Maktabs or elementary schools) there are many institutions of higher learning and technical schools. There is one school each of medicine, nursing, dentistry and pharmacy.

In 1932–33 the revenue of Egypt amounted to 37,492,520 pounds and the expenditures to 37,309,639 pounds (both estimates). The imports for 1932 amounted to 27,425,741 pounds and the exports to 26,987,417 pounds. The

chief imports and exports include animals, vegetable products, animal and vegetable fats, provisions and beverages, minerals, chemicals and drugs, skins, hides, furs, etc., wood and cork articles, paper, textiles, clothing, metals, machinery, means of transport and works of art. In 1931 about 8,000 vessels of over 31,000,000 tons entered and cleared Egyptian ports. In 1932 there were 5,032 transits and a net tonnage of 28,340,289 through the Suez Canal. During the same year 270,657 passengers passed through the Canal.

According to Dr. Shahin Pasha and Dr. F. C. McClanahan, who have furnished us with information regarding health conditions in Egypt as a whole and for Asyût, respectively, the following diseases are of public health importance: malaria, piroplasmosis, plague, typhus fever, leprosy, syphilis, smallpox, amebiasis, the typhoid fevers, ascariasis, hookworm disease, schistosomiasis, filariasis, bacillary dysentery, elephantiasis, chyluria, pellagra, diphtheria, measles, epidemic meningitis, influenza, rabies and tuberculosis. Details will be found in Table 101. Schistosomiasis is of particular note.

According to "World Weather Records," at Alexandria, the mean pressure for the ten year period 1921–30 (700 mm. plus), was 58.1. The mean temperature for the same period was 20.9°C. and the mean precipitation in millimeters was 195, while at Helwan the mean precipitation for the same period was only 31 millimeters.

TABLE 101

EGYPT AND ASSIUT

Reported by: Dr. M. H. Pasha and Dr. F. C. McClanahan

Period: Questionnaires dated December, 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Sporadic in many parts	1,165[1]	+	+
Benign tertian	+	Sporadic in many parts		+	+
Quartan	+	North		+	+
Subtertian	+	Egyptian Oases		+	+
Blackwater Fever	−				−
Piroplasmosis	+	General		+	+
Leishmaniasis	+	East of Delta			−
Kala-azar	−				−
Oriental Sore	+	East of Delta	6	?	−
Espundia	+		R		
Relapsing Fever	+	Upper and lower Egypt	R	+	−
S. recurrentis	−				−
S. duttoni	−				−
S. venezuelense	−				−
S. berberum	−				−
Rat-Bite Fever	+	Upper and lower	R	+	−

TABLE 101

EGYPT AND ASSIUT—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Yellow Fever	−			+	
Dengue Fever	+	Epidemic, 1928	1,287	+	−
Pappataci Fever	+	Sinai, Abbassia and Oases		+	−
Plague	+	Epidemic in 1931. Everywhere except Cairo	341	+	+
Typhus Fever	+	General	918	+	+
Trypanosomiasis	−				−
African Human	−				−
T. gambiense	−				−
T. rhodesiense	−				−
South American	−				−
T. cruzi	−				−
Oroya Fever	−				−
Undulant Fever	+	Port-Said	7	+	−
Leprosy	+	General	10,000		+
Syphilis	+	General	92,350		+
Yaws	−				−
Granuloma Inguinale	−				−
Tularemia	−				−
Smallpox	+	General. Epidemic, 1932	135		+
Amebiasis	+	General	C		+
Balantidium Dysentery	+	General	R		−
Bacillary Dysentery	+	General	1,994[2]		+
Cholera	−				−
Typhoid Fever	+	Villages, general	2,992[3]		+
Para-Typhoid Infection	+	General			+
Sprue	−				−
Hill Diarrhea	−				−
Ascariasis	+	Delta especially	51%[4]		+
Hookworm Disease	+	South mostly	40–50%[4]		+
Giardia Enteritis	+	General	R		−
Trichomonas Infection	+	Villages everywhere	[5]		−
Tropical Liver	+	General	?		−
Schistosomiasis	+	Nile Valley and Delta	65–75%[4]	+	+
Urinary	+	Nile Valley and Delta	57%[4]	+[6]	+
Intestinal	+	Upper Nile Delta	30%[4]	+	+
Visceral	+	Nile Delta	50%[4]	+	+
Far Eastern	−				−
Filariasis	+	Endemic, lower Egypt	5–40%[4]	+	+
F. bancrofti	+	Endemic, lower Egypt	5–40%[4]	+	+
Loa Loa	−				−
O. volvulus	?	Delta	1	?	
F. perstans	−				−
F. demarquayi	−				−
F. ozzardi	−				−
Juxta-Articular Nodules	−				−
Elephantiasis	+	Delta	?	+(?)	+
Chyluria	+	Delta	?	+(?)	+
Dracontiasis	−				−
D. medinensis	−				−

TABLE 101

EGYPT AND ASSIUT—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Paragonimiasis	−				−
P. ringeri	−				−
P. westermanii	−				−
P. compactus	−				−
Clonorchiasis	−				−
C. sinensis	−				−
O. felineus	−				−
Fasciolopsis	−				−
F. hepatica	−				−
F. buskii	−				−
Cestodes	+	General	?	+	+
Tænia saginata	+	General	R	+	+
Tænia solium	+		2		−
Dibothriocephalus latus	−				−
Hymenolepis nana	+	Children everywhere	1,090	+(?)	+
Sparganum mansoni	−				−
S. prolifer	−				−
Trichuris	+	Upper Delta	?		−
T. trichiura	+	Upper Delta	R		−
H. heptaticus	−				−
Trichinelliasis	−				−
T. spiralis	−				−
Climatic Bubo	?				−
Rhinosporidiosis	−				−
Goundou	−				−
Ainhum	−				−
Big Heel	−				−
Myiasis	+	Lower Egypt	26		−
Subcutaneous	−				−
Blood sucking	−				−
Intestinal	+		R		−
Larga Migrans	−				−
Leech Infection	−				−
Leucodermia	+	Upper Egypt	?		−
Cheloid	+		?		−
Ulcus Tropicum	−				−
Albinism	+		R		−
Septic Sore	+		?		−
Pemphigus Contagiosus	+	General	R		−
Ulcerating Dermatitis	+	General, mostly towns	?		−
Madura Foot	+	General	R		−
Other Mycetoma	+[7]		R		−
Blastomycosis	−				−
Mossy Foot	−				−
Pityriasis Nigra	−				−
Pityriasis Versicolor	+	Upper Egypt	?		−
Dhobie's Itch	+	Lower Egypt	?		−
Seborrhoea	+	General	?		−
Pinta	−				−
Tinea Imbricata	−				−
Trichosporosis	−				−
Trichomycosis	+	Children everywhere	?		−
Acarine Dermatomycosis	+	General	?		−
Epidemic Dropsy	−				−

TABLE 101

EGYPT AND ASSIUT—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Peripheral Neuritis	+[8]		?		−
Beriberi	−				−
Pellagra	+	General	C		+
Scurvy	−				−
General Malnutrition or Undernutrition	?[9]	Under investigation			
Heat Stroke	−				−
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+	Mostly in foreigners	107		−
Diphtheria	+	General	14,403[10]		+
Measles	+	General	(7)		+
German Measles	+	General	14,403		−
Varicella	+	Sporadic. Cairo, Alexandria	872		−
Epidemic Meningitis	+	Recent. General	1,106		+
Infantile Paralysis	+	General	R		−
Epidemic Encephalitis	+	Cairo, Alexandria	9		−
Syphilis of Central Nervous System	+	General	R		−
Influenza	+	General	5,033		+
Common Cold	+	General	?		−
The Pneumonias	+	General	?		−
Cholelithiasis	+	General	R		−
Urinary Calculus	+	General	C		
Nephritis	+	General	?		−
Diabetes	+	General	?		−
Pernicious Anemia	+		2		−
Osteomyelitis	+	General	?		−
Tuberculosis	+	General	?		+
Pulmonary	+		C		+
Bone	+		?		+
Skin	+		R		−
Malignancy (all forms)	+	General	?		−
Trachoma	+	General in schools	[11]		+
Weil's Disease	+	Cairo and Alexandria		+	−
Tsutsugamushi Disease	−				−
Rabies	+	General	3,500		+
Unusual Skin Disease	−				−
Thyroid Disease (Goiter)	+	Upper Egypt. Sporadic. Endemic in cases	?		
Rheumatic Fever	+	General	?		−
Arthritis (Nonspecific)	+	General	?		−
Rickets	+	General	?		−
Dental Caries	+	General	?		−
Toxemias of Pregnancy	+	General	?		−
Cardio-Vascular Diseases	+	General	?		−
Hypertension	+	General	?		−
Valvular Lesions	+	General	?		−
Aneurysm	+	General	?		−
Myocarditis	+	General	?		−

TABLE 101

EGYPT AND ASSIUT—*Concluded*

[1] Approximate number of cases is the average of the last 5 years (i.e., 1928–1932).
[2] All dysenteries.
[3] Including para-typhoid.
[4] These figures refer to percentage of population.
[5] 75 per cent of children.
[6] *Bullinus, innesi, dybouski, contortus.*
[7] Actimonycosis and sporomycosis.
[8] Leprotic type.
[9] Seventy-five per cent of babies in the villages have rickets.
[10] Including German measles.
[11] 94 per cent of children.

GREECE

Greece is, of course, considerably north of the tropical belt but we included a few notes concerning this country in this survey, particularly since some of the tropical diseases are quite prevalent. We are indebted to Dr. P. H. Copanaris for the information which will be found in Table 102. It will be noted that malaria is exceedingly prevalent. The population of Greece (including the Islands) on December 31, 1931 was estimated at 6,480,000. The approximate number of cases of malaria during 1933 was 1,500,000 to 2,000,000. Dengue fever was also present almost in the same number of cases. Leishmaniasis cases also numbered 849, typhus fever 806 cases and plague accounted for 648 cases of illness. There were also 600 cases of leprosy and a great deal of smallpox, bacillary dysentery and typhoid fever. Scarlet fever, diphtheria, epidemic meningitis and tuberculosis were also quite common.

According to "World Weather Records" the mean pressure (700 mm. plus) over the ten year period 1921–30 at Athens was 51.68. The mean temperature for the same period was 17.87°C. and the mean precipitation was 387.1 millimeters.

For further information concerning the distribution and incidence of disease in Greece, see Table 102.

TABLE 102

GREECE

Reported by: P. H. Copanaris, Director and General Technical Adviser
Period: Questionnaire dated December, 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General	2,000,000	+	+
Benign tertian	+	General	60%	+	+
Quartan	+	Spotted	R	+	−
Subtertian	+	General	70–80%	+	+

TABLE 102

GREECE—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Blackwater Fever	+	General	?		+
Piroplasmosis	+	Sporadic, Macedonia			
Leishmaniasis	+	25 out of 35 provinces	849	+(?)	+
Kala-azar	+	22 provinces	?	+(?)	+
Oriental Sore	+	3 provinces	?	+	+
Espundia	−				−
Relapsing Fever	+	Sporadic	4–5	+	−
S. recurrentis	−	Sporadic	4–5	+	−
S. duttoni	−				−
S. venezuelense	−				−
S. berberum	−				−
Rat-Bite Fever	−				−
Yellow Fever	−			+	−
Dengue Fever	[1]	Everywhere, 1928	1,500,000	+	+
Pappataci Fever	+	Nearly everywhere	?	+	−
Plague	[2]	(1924–30) Main ports	648	+	+
Typhus Fever	+	(1924–31) Spotted	806	+	+
Trypanosomiasis	−				−
African Human	−				−
T. gambiense	−				−
T. rhodesiense	−				−
South American	−				−
T. cruzi	−				−
Oroya Fever	−				−
Undulant Fever	+	(1923–31) Spotted	91	+	−
Leprosy	+	Islands	600		+
Syphilis	+	General	?		+
Yaws	−				−
Granuloma Inguinale	−				−
Tularemia	−				−
Smallpox	+	Sporadic (1923–31)	2,523		−
Amebiasis	+	Scattered	?		−
Balantidium Dysentery	−				
Bacillary Dysentery	+	Spotted (1923–31)	6,387		+
Cholera	[3]	Epidemic in 1913			
Typhoid Fever	+	General (1923–31)	20,624[4]		+
Para-Typhoid Infection	+				
Sprue	−				−
Hill Diarrhea	−				−
Ascariasis	+	Scattered	?		
Hookworm Disease	+	Isle of Corfu	R		
Giardia Enteritis	−				−
Trichomonas Infection	−				−
Tropical Liver	−				−
Infantile Biliary Cirrhosis	−				−
Schistosomiasis	−				−
Urinary	−				−
Intestinal	−				−
Visceral	−				−
Far Eastern	−				−
Filariasis	−				−
F. bancrofti	−				−
Loa Loa	−				−
O. volvulus	−				−
F. perstans	−				−

TABLE 102

GREECE—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
F. demarquayi	−				−
F. ozzardi	−				−
Juxta-Articular Nodules	−				−
Elephantiasis	−				−
Chyluria	−				−
Dracontiasis	−				−
D. medinensis	−				−
Paragonimiasis	−				−
P. ringeri	−				−
P. westermanii	−				−
P. compactus	−				−
Clonorchiasis	−				−
C. sinensis	−				−
O. felineus	−				−
Fasciolopsis	−				−
F. hepatica	−				−
F. buskii	−				−
Cestodes	+	Scattered	?	+	−
Tænia saginata	+	Scattered	?	+	−
Tænia solium	+	Scattered	?	+	−
Dibothriocephalus latus	−				−
Hymenolepis nana	−				−
Sparganum mansoni	−				−
S. prolifer	−				−
Trichuris	+				−
T. trichiura	+				−
H. heptaticus	−				−
Trichinelliasis	−				−
T. spiralis	−				−
Climatic Bubo	−				−
Rhinosporidiosis	−				−
Goundou	−				−
Ainhum	−				−
Big Heel	−				−
Myiasis	+		R	+	−
Subcutaneous	+		R	+	−
Leucodermia	+				
Cheloid	+				
Albinism	+				
Pemphigue Contagiosus	+	Scattered			
Other Mycetoma	−				
Pityriasis Versicolor	+				−
Dhobie's Itch	−				−
Seborrhoea	+				
Pinta	−				−
Pellagra	+		R		
Scurvy	+		R		

II. Diseases Usually Considered as of Temperate Climates

Scarlet Fever	+	General (1923–31)	12,242		+
Diphtheria	+	General (1923–31)	5,637		+
Measles	+	General	?		
German Measles	+	General	?		

TABLE 102

GREECE—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Varicella	+	General	?		
Epidemic Meningitis	+	General (1923–31)	1,914		+
Infantile Paralysis	+	Scattered everywhere	298		+
Epidemic Encephalitis	+	Scattered (1923–31)	770		+
Syphilis of Central Nervous System	+				
Influenza	+		5,000[5,6]		+
Common Cold	+				
The Pneumonias	+				
Cholelithiasis	+				
Urinary Calculus	+				
Nephritis	+				
Diabetes	+				
Pernicious Anemia	+		R		−
Osteomyelitis	+				
Tuberculosis	+				+
Pulmonary	+				+
Bone	+				
Skin	+				
Malignancy (all forms)	+				
Trachoma	+	Several provinces	?		
Weil's Disease	+	Sporadic			
Tsutsugamushi Disease	−				−
Rabies	+	General		+	
Thyroid Disease (Goiter)	+	Northern Greece			
Rheumatic Fever	+				
Arthritis (Nonspecific)	+				
Rickets	+				
Dental Caries	+				
Toxemias of Pregnancy	+				
Cardio-Vascular Diseases	+				
Hypertension	+				
Valvular Lesions	+				
Aneurysm	+				
Myocarditis	+				

[1] 1927–1928.
[2] Not since 1930.
[3] Not since 1930.
[4] Typhoid and para-typhoid.
[5] Deaths.
[6] Deaths per annum from 1924–31.

REPUBLIC OF HAITI

Haiti, formerly a French Colony, has been independent since 1804. In 1915 it was decided by treaty with the United States that the latter, by means of advisors, would aid Haiti in establishing an orderly government. This has now been accomplished in a satisfactory manner. The area of Haiti is estimated at 10,204 English square miles. In 1927 it was estimated that the population numbered approximately 2,300,200. The majority of the popu-

lation is composed of negroes and there are great numbers of Mulatto-Haitians, the descendants of former French settlers. French is the official language, though most of the people speak a dialect which is spoken of as Creole French. The religion is Roman Catholic. In 1910 education was made compulsory. About $1,000,000 are spent annually for education in the several lycées, primary schools, farm schools, etc.

The revenue of Haiti amounted in 1931–32 to $6,333,336 and the expenditures to $6,333,336. The imports during 1931 amounted to $9,576,318 and the exports to $8,963,419. The chief industry in Haiti is agriculture. Coffee is the most important crop. Coco, cotton, tobacco, sugar, rum and logwood are also produced. Many minerals are also present in Haiti, including gold, silver, copper, iron, antimony, tin, sulphur, coal, kaolin, nickel, gypsum, etc. In 1930–31 there were 1,313,725 tons of shipping entered and cleared in the ports of Haiti.

According to Dr. Rulx Leon, who has kindly supplied us with information regarding health conditions in Haiti, the following diseases are regarded as of public health importance: Malaria, leprosy, syphilis, yaws, amebiasis, typhoid fever, hookworm disease, ascariasis, septic sore and tuberculosis. Syphilis is present largely in the towns and yaws is present chiefly in the country districts. There is involved in this question the long debated theory that yaws and syphilis are one and the same disease, a view not generally held as yet by most medical men. It is interesting to note that Dr. Leon estimates that of each of these diseases there are in the neighborhood of 100,000 cases in Haiti. The reader is referred to Part V for a statement regarding yaws as a world public health problem and in particular for the views expressed for this survey by Admiral Charles S. Butler. Further information regarding the incidence and distribution of diseases in Haiti may be found in Table 103.

"World Weather Records" report a mean pressure (700 mm. plus) over the ten year period 1921–30, of 57.88 and a mean temperature for the same period of 26.4°C. The mean total precipitation for this period in millimeters was 1295.6.

TABLE 103

HAITI

Reported by: Dr. Rulx Leon *Period:* Questionnaire dated July, 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General	40,000	+	+
Benign tertian	+			+	+
Quartan	+			+	+
Subtertian	+			+	+

TABLE 103

HAITI—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Blackwater Fever	+	Certain towns in north and south	10	+(?)	−
Piroplasmosis	−				−
Leishmaniasis	−				−
Kala-azar	−				−
Oriental Sore	−				−
Espundia	−				−
Relapsing Fever	−				−
S. recurrentis	−				−
S. duttoni	−				−
S. venezuelense	−				−
S. berberum	−				−
Rat-Bite Fever	−				−
Yellow Fever	[1]	Port-au-Prince			−
Dengue Fever	+	General	62	+	−
Pappataci Fever	−				−
Plague	−			+	−
Typhus Fever	−				−
Trypanosomiasis	−				−
African Human	−				−
T. gambiense	−				−
T. rhodesiense	−				−
South American	−				−
T. cruzi	−				−
Oroya Fever	−				−
Undulant Fever	−				−
Leprosy	+	Especially in Port-au-Prince	40		+
Syphilis	+	Especially in towns	100,000		+
Yaws	+	Especially in the country	100,000		+
Granuloma Inguinale	?				
Tularemia	?				
Smallpox	[2]				
Amebiasis	+	General	100		+
Balantidium Dysentery	+	General	60		−
Bacillary Dysentery	+	General	35		−
Cholera	?				
Typhoid Fever	+	General	40		+
Para-Typhoid Infection	+	General	20		
Sprue	+	Cape	2		−
Hill Diarrhea	?				
Ascariasis	+	General	4,000		+
Hookworm Disease	+	General	800		+
Giardia Enteritis	+	General	10		−
Trichomonas Infection	+	General	2,400		−
Tropical Liver	+	General	80		−
Infantile Biliary Cirrhosis	?				
Schistosomiasis	?				
Urinary	?				
Intestinal	?				
Visceral	?				
Far Eastern	?				

TABLE 103

HAITI—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Filariasis	+			+	−
F. bancrofti	+	General	50	+	−
Loa Loa	−				−
O. volvulus	−				−
F. perstans	−				−
F. demarquayi	−				−
F. ozzardi	−				−
Juxta-Articular Nodules	+	Port-au-Prince	2		−
Elephantiasis	+	Port-au-Prince and Cape Hatien	50		−
Chyluria	+	General	5		−
Dracontiasis	?				
D. medinensis	?				
Paragonimiasis	?				
P. ringeri	?				
P. westermanii	?				
P. compactus	?				
Clonorchiasis	?				
C. sinensis	?				
O. felineus	?				
Fasciolopsis	?				
F. hepatica	?				
F. buskii	?				
Cestodes	+	General	540		−
Tænia saginata	+	General	300		−
Tænia solium	+	General	140		−
Dibothriocephalus latus	?				
Hymenolepis nana	+	General	10		−
Sparganum mansoni	?				−
S. prolifer	?				
Trichuris	+	General	3,000		+
T. trichiura	+	General			+
H. heptaticus	?				
Trichinelliasis	?				
T. spiralis	?				
Climatic Bubo	?				
Rhinosporidiosis	?				
Goundou	+	Coyes-Milot	2		−
Ainhum	+	Port-au-Pain, Port-au-Prince	2		−
Big Heel	?				
Myiasis	+	General	10		−
Subcutaneous	−				−
Blood sucking	−				−
Intestinal	−				−
Larva Migrans	−				−
Leech Infection	−				−
Leucodermia	+	General	5		−
Cheloid	+	General	15		−
Ulcus Tropicum	+	General	200		−
Albinism	+	General	4		−
Septic Sore	+	General	500		+
Pemphigus Contagiosus	+	General	10		−

TABLE 103

HAITI—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Ulcerating Dermatitis	+	General	30		−
Madura Foot	+	General	3		−
Other Mycetoma	+	General	1		−
Blastomycosis	?				
Mossy Foot	+	General	20		−
Pityriasis Nigra	?				
Pityriasis Versicolor	+	General	30		−
Dhobie's Itch	+	General	50		−
Seborrhoea	+	General	200		−
Pinta	+	Plains or cul-de-sac	120		−
Tinea Imbricata	+	General	105		−
Trichosporosis	?				
Trichomycosis	?				
Acarine Dermatomycosis	+	General	1,000		−
Epidemic Dropsy	?				
Peripheral Neuritis	+	General	10		−
Beriberi	?				
Pellagra	+	General	10		−
Scurvy	?				
General Malnutrition or Undernutrition	+	General	1,000		+
Heat Stroke	?				
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	?				
Diphtheria	+	General	5		−
Measles	+	General	15		−
German Measles	?				
Varicella	+	General	100		−
Epidemic Meningitis	Not since 1927	Epidemic			
Infantile Paralysis	+	General	5		−
Epidemic Encephalitis	?				
Syphilis of Central Nervous System	+	General	100		−
Influenza	+	General	500		
Common Cold	+	General	6,000		
The Pneumonias	+	General	120		
Cholelithiasis	+	General	5		
Urinary Calculus	+	General	3		−
Nephritis	+	General	134		−
Diabetes	+	General	8		−
Pernicious Anemia	+	General	1		−
Osteomyelitis	+	General	8		−
Tuberculosis	+	General	700		+
Pulmonary	+	General	500		+
Bone	+	General	200[3]		+
Skin	+	General			+
Malignancy (all forms)	+	General	38		−
Trachoma	+	General	64		−
Weil's Disease	?				−
Tsutsugamushi Disease	?				−
Rabies	+	General	1	+	−

TABLE 103

HAITI—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Unusual Skin Disease	?				
Thyroid Disease (Goiter)	+	General	60		—
Rheumatic Fever	+	General	670		—
Arthritis (Nonspecific)	+	General	150		—
Rickets	+	General	10		—
Dental Caries	+	General	100		—
Toxemias of Pregnancy	+	General	13		—
Cardio-Vascular Diseases	+	General	129		—
Hypertension	+	General	100		—
Valvular Lesions	+	General	40		—
Aneurysm	+	General	3		—
Myocarditis	+	General	10		—

[1] Not for 40 years.
[2] Not since 1921.
[3] Figure for bone, skin and other tissue.

HOLLAND

While Holland is not included in the tropical belt, this nation has had such direct contact with her tropical possessions for such a long period that the question of the incidence of tropical diseases within her borders is of some importance in this study. To Holland the importance of this question has also been manifest, since an institution for the study of these diseases in Amsterdam has been one of the most active of this type. Besides training personnel for public health and medical work abroad, this institution has studied the various medical problems at home. We are not particularly concerned here with the social-economic setting of Holland as we are with such settings in the tropical countries and so will deal briefly with the diseases which are found in Holland which fall into the groups with in our survey.

The Minister Van Sociale Zaken has very kindly placed information at our disposal which indicates that about fifteen per cent of the population along the coast have malaria of the benign tertian form. Subtertian malaria is imported as are cases of blackwater fever from the colonies. Leishmaniasis is also imported. A few cases of rat-bite fever occur. Other diseases which occur from time to time, usually imported, are plague, typhus fever, trypanosomiasis, undulant fever (sporadic), leprosy, yaws, etc. Bacillary dysentery, amebiasis and typhoid fever are present. Ascariasis is a rural disease and is rather common in both adults (25 per cent) and children (50 per cent). Schistosomiasis and filariasis are imported, as are cases of elephantiasis and chyluria. Blastomycosis infections and cases of beriberi are imported now and then, though they are rare. The diseases usually considered as of temperate climates will be of interest and further details regarding these may be found in Table 104.

TABLE 104
HOLLAND

Reported by: De Minister Van Sociale Zaken *Period:* Questionnaire dated May, 1934[1]

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+			+	+
Benign tertian	+	Coast	[2]	+	+
Quartan	+	Formerly			
Subtertian	+	Imported cases			
Blackwater Fever	+	Imported cases			
Leishmaniasis	+				
Kala-azar	+	Imported cases			
Oriental Sore	+	Imported cases			
Relapsing Fever	−				−
Rat-Bite Fever	+		R	+	−
Yellow Fever	−				−
Dengue Fever	−				−
Pappataci Fever	−				−
Plague	+	Imported only		+	
Typhus Fever	+	Island of Urk. Epidemic at end of war	R	+	+
Trypanosomiasis	−				−
African Human					
T. gambiense	+	Congo area	1		
Oroya Fever	−				−
Undulant Fever	+	Rural, sporadic	27	+	+
Leprosy	+	Imported	100		+
Syphilis	+				+
Yaws	+	Imported	R		
Granuloma Inguinale	+	Imported	R		
Smallpox	+		R		
Amebiasis	+	Imported, seaports	[3]		−
Balantidium Dysentery	+		R		
Bacillary Dysentery	+	General	415		+
Cholera	+	Imported. Last time 1909	R		−
Typhoid Fever	+	General	473		+
Para-Typhoid Infection	+		C		−
Sprue	+	Mostly imported			−
Hill Diarrhea	−				−
Ascariasis	+	Rural	[4]		+
Hookworm Disease	+	Few imported. South Limburg formerly	R		−
Giardia Enteritis	?		15%		
Trichomonas Infection	+		R		
Tropical Liver	?				
Infantile Biliary Cirrhosis	−				−
Schistosomiasis	+	Imported	R		
Filariasis	+				
F. bancrofti	+	Imported	R		
Loa Loa	+	Imported	R		
Juxta-Articular Nodules	+	Imported	R		
Elephantiasis	+	Imported	R		
Chyluria	+	Imported	R		
Dracontiasis	−				−

TABLE 104

HOLLAND—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Paragonimiasis	−				−
Clonorchiasis	−				−
Fasciolopsis	−				−
Cestodes	+				
Tænia saginata	+	Mostly rural. Seen in cattle at slaughterhouse			−
Tænia solium	+	Amsterdam slaughterhouse	R		
Dibothriocephalus latus	−				−
Hymenolepis nana	+		R		
Trichuris	+				
T. trichiura	+	Mostly rural areas, less common in cities	[5]		−
Trichinellias	+				
T. spiralis	+	Occasional outbreak			−
Climatic Bubo	+	Imported, seaports			
Rhinosporidiosis	−				−
Goundou	−				−
Ainhum	−				−
Big Heel	−				−
Myiasis	[6]				−
Leucodermia	?				
Cheloid	+		Uc		
Ulcus Tropicum	−				−
Albinism	+		Uc		
Septic Sore	?				
Pemphigus Contagiosus	+				−
Ulcerating Dermatitis	?				
Madura Foot	−				−
Other Mycetoma	−				−
Blastomycosis	+	Imported	R		
Mossy Foot	−				−
Pityriasis Nigra	−				−
Pityriasis Versicolor	+		C		−
Dhobie's Itch	+				
Seborrhoea	+				
Pinta	−				−
Tinea Imbricata	−				−
Trichosporosis	+				
Trichomycosis	+				
Acarine Dermatomycosis	+		R		
Epidemic Dropsy	−				−
Peripheral Neuritis	+		R		
Beriberi	+	Imported	R		
Pellagra	[6]				
Scurvy	+	General	R		−
Heat Stroke	+		R		

II. Diseases Usually Considered as of Temperate Climates

Scarlet Fever	+	General	10,572		+
Diphtheria	+	General	4,261		+
Measles	+	General	173[7]		+

TABLE 104

HOLLAND—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
German Measles	+	?	?		−
Varicella	+	?	?		−
Epidemic Meningitis	+	Scattered	137		+
Infantile Paralysis	+	Scattered	145		+
Epidemic Encephalitis	+	Scattered	47		+
Syphilis of Central Nervous System	+	?	229[7]		+
Influenza	+	General	1,746[7]		+
Common Cold	+	General	?		
The Pneumonias	+	General	5,380[7]		+
Cholelithiasis	+	?	214[7]		
Urinary Calculus	+	?	69[7]		
Nephritis	+	?	2,573[7]		+
Diabetes	+		1,427[7]		+
Pernicious Anemia	+	?	219[7]		
Osteomyelitis	+	?	93[7]		−
Tuberculosis	+				
Pulmonary	+	General	3,671[7]		+
Bone	+	General	91[7]		+
Skin	+	General	14[7]		+
Malignancy (all forms)	+	General	10,257[7]		+
Trachoma	+	?	?		
Weil's Disease	+	Mostly western province	153		+
Tsutsugamushi Disease	−				−
Rabies	−				−
Unusual Skin Disease	?				
Thyroid Disease (Goiter)	+	Certain areas	?		+
Rheumatic Fever	+	?	133[7]		+
Arthritis (Nonspecific)	+	?	172[7]		+
Rickets	+	?	45[7]		+
Dental Caries	+	?	?		+
Toxemias of Pregnancy	+	General	73[7]		+
Cardio-Vascular Diseases	+	?			+
Hypertension	+	?	?		+
Valvular Lesions	+	?	1,012[7]		+
Aneurysm	+	?	67[7]		+
Myocarditis	+	?	6,825[7]		+

[1] Data for the most part are for 1933.
[2] 15 per cent of population.
[3] 10–28 per cent of population.
[4] 25–50 per cent of population.
[5] Island of Terschelling, 38 per cent adults, 73 per cent children; Amsterdam, 5 per cent children.
[6] Not known.
[7] Deaths.

REPUBLIC OF HONDURAS

In 1821 Honduras declared its independence of Spain and set up the Republic of Honduras. The country has an area of about 44,275 English square miles and the population, in 1930, was 859,761. About 35,000 of these belong to the aboriginal tribes. The Roman Catholic religion is the main

religious sect but freedom is granted to all creeds. Education is entirely secular and is free and compulsory from the ages of 7 to 15. In 1928 there were 93,576 children of school age and less than half of these were receiving instruction. In 1929–30 there were 1,527 schools with 1,953 teachers and 57,359 students. There were 13 secondary schools with 609 students. The normal schools had 1,107 students and the commercial schools had 415 students. At Tegucigalpa there is a National University with Faculties of Law, Medicine and Engineering. There is also a technical school, a military school and a school of jurisprudence (at Comayagua).

The revenue during 1932–33 amounted (estimates) to 15,400,199 lempiras and the expenditures were placed in the budget at the same figure. The imports, in 1930–31, amounted to 20,582,845 lempiras and the exports to 40,056,173 lempiras. The chief product is the banana crop. About 28,-960,948 bunches were exported in 1930–31. Coconuts, coffee, other fruits, tobacco, sugar and mahogany are also grown. Honduras is also a cattle producing country. The mineral resources include gold, silver, copper, lead, zinc, iron, antimony and coal. Straw hats and cigars are manufactured for local consumption and also for export.

According to the "Boletin Sanitario" for 1934 the following diseases of interest to our survey were present in Honduras: malaria (5,033 deaths), leprosy (23 deaths), syphilis, amebiasis (416 cases), bacillary dysentery (187 deaths), ascariasis, hookworm disease and various respiratory diseases, including influenza, the pneumonias and tuberculosis. Further details may be found in Table 105.

No data are available to us concerning weather conditions in Honduras.

TABLE 105

REPUBLIC OF HONDURAS

Reported by: Boletin Sanitario *Period:* 1932–1933[1]

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General, endemic; chiefly coastal and low interior	5,033[2]	+	+
Leprosy	+		23[2,3]		+
Syphilis	+		17[2,4]		+
Smallpox	+	Different sections	210[2]		+
Amebiasis	+		416		+
Balantidium Dysentery	+		1		
Bacillary Dysentery	+		187[2,5]		+
Typhoid Fever	+		80[2,6]		
Para-Typhoid Infection	+				
Ascariasis	+		528[2,7]		+

TABLE 105

REPUBLIC OF HONDURAS—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Hookworm Disease	+		183		+
Giardia Enteritis	+		21		
Trichomonas Infection	+		162		
Cestodes	+		54[8]		
Trichuris	+		726		
II. Diseases Usually Considered as of Temperate Climates					
Diphtheria	+		4[2]		
Measles	+		6[2]		
Epidemic Meningitis	+		3[2,9]		
Epidemic Encephalitis	+		5[2,10]		
Influenza	+	Endemic	92[2]		
The Pneumonias	+		239[2]		+
Cholelithiasis	+		109[2]		
Nephritis	+		501[2,11]		
Tuberculosis	+	North coast			+
Pulmonary	+		142[2]		+
Malignancy (all forms)	+		34[2]		
Rabies	+		15[12]		
Rheumatic Fever	+		80[2,13]		
Rickets	+		41[2]		
Cardio-Vascular Diseases	+		3[2]		

[1] All deaths are for year 1932. All other figures taken from laboratory findings for year August 1, 1932 to July 31, 1933.
[2] Deaths.
[3] Figure includes fistulae and ulcers.
[4] 50 per cent of the bloods examined are Kahn positive.
[5] "Dysentery."
[6] Includes para-typhoid.
[7] 554 cases diagnosed in laboratory.
[8] Taenia.
[9] "Simple tabardillo."
[10] "Encephalitis."
[11] Bright's disease.
[12] People given Pasteur treatment.
[13] Includes chronic rheumatism and gout.

ITALY

Italy, of course, lies well north of the Tropic of Cancer but this country is of interest to our survey, chiefly because of the high incidence of malaria within its borders. Parts of the country also have other so-called tropical diseases and for these reasons we have included tables dealing with this area. The population of Italy in 1933 was 41,806,000. The total area of the Kingdom is 119,713 square miles and the population per square mile (including Sicily and Sardinia), in 1931 was 344.0. In 1931 there were 276,740 marriages, 976,140 legitimate births, 51,498 illegitimate births, 37,059 stillborn deaths, 606,489 other deaths and a surplus of births for the year of 421,149. Other statistical data are available in the usual source reference works.

According to the "Bollettino Sanitario" for 1933 there were 203,219 cases of malaria in Italy. During the same year there were 202 cases of Kala-azar, chiefly in Sicily. Other diseases listed include undulant fever, leprosy (16 cases), syphilis, smallpox, amebiasis (551 cases), bacillary dysentery (875 cases), typhoid fever (32,866 cases), hookworm disease, pellagra and various diseases usually considered as of temperate climates. For further details see Table 106.

"World Weather Records" record the following data for pressure (700 mm. plus), temperature (in degrees C.) and precipitation (in millimeters) at the following stations in Italy:

STATION	PRESSURE	TEMPERATURE	PRECIPITATION
Catania	56.8	18.3	582.5
Milano	48.7	13.4	776.4
Rome	56.2	16.9	812.6
Sassari	41.7	15.5	585.5

All the above data represent mean values recorded over a period of years from 1921 to 1930.

TABLE 106

ITALY

Reported by: Bollettino Sanitario *Period:* 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+		203,219	+	+
Benign tertian				+	+
Quartan				+	+
Subtertian				+	+
Leishmaniasis	+			+	+
Kala-azar	+	Sicilia chiefly	202	+	+
Yellow Fever	[1]				−
Plague	[2]				−
Typhus Fever	[3]			+[4]	−
Undulant Fever	+	Sicilia, Toscana, Emilia	1,997	+	+
Leprosy	+		16		−
Syphilis	+		201		+
Smallpox	+		1,621		+
Amebiasis	+	Sicilia and Sardegna	551		+
Balantidium Dysentery					
Bacillary Dysentery	+	Veneto, Toscana, Lombardia, Emilia	875		+
Cholera	[1]				−
Typhoid Fever	+		32,866		+
Para-Typhoid Infection	+		5,704		+
Hookworm Disease	+		135		
Pellagra	+	Veneto and Lombardia	298		+

TABLE 106

ITALY—*Concluded*

II. Diseases Usually Considered as of Temperate Climates

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Scarlet Fever	+		20,786		+
Diphtheria	+		25,749		+
Measles	+		88,944		+
Varicella	+		11,561		+
Epidemic Meningitis	+		588		+
Infantile Paralysis	+	Northern and central Italy	847		+
Epidemic Encephalitis	+	Northern Italy chiefly	110		+
Influenza	+		113,333		+
Rabies	+		6[5]	+	

[1] Not since 1920.
[2] Not since 1927.
[3] Not since 1928.
[4] 68 cases "summer fever" or Brill's disease. Carducci called cases exanthematic fever and when studied by Pecori, he claimed it to be identical to Brill's. Research disclosed that the tick was transmitter.
[5] 5,128 people bitten by animals which were rabid or suspected.

REPUBLIC OF LIBERIA

Liberia began through the interest of American philanthropic societies to provide a place of abode for freed slaves. In 1822 a settlement was begun on the West Coast of Africa and in 1847 the Free and Independent Republic of Liberia was formed. Liberia has an area of 43,000 square miles, more or less, with about 350 miles of coast line. The total population is estimated at about 1,000,000 persons, all of African race. The religons are Protestant and the governmental educational system is supplemented by mission schools. In 1930 there were 169 schools (51 Government) and the total number of students was 7,588. The Government maintains a college having 9 professors and less than one hundred students.

In 1930–31 the revenue amounted to $492,029, and the expenditures to $1,000,665. The imports for 1931 amounted to $858,742 and the exports to $679,885. The chief imports are rice, cotton goods, gin, tobacco, building materials, clothing and fish. The exports include coffee, piassava fiber, palm oil, palm kernels, rubber and ivory. In 1931 there was a total tonnage of 1,650,082 entered and cleared.

According to Dr. R. G. Fuszek, Director of Health and Sanitation, the diseases of public health importance in Liberia include malaria, blackwater fever, yellow fever, trypanosomiasis, leprosy, syphilis, yaws, smallpox, amebiasis, hookworm disease, schistosomiasis, filarasis and tuberculosis. Further details may be found in Table 107.

There are no data available in "World Weather Records" regarding weather conditions in Liberia.

TABLE 107

LIBERIA

Reported by: R. G. Fuszek *Period:* 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General		+	+
Benign tertian	+			+	
Quartan	+			+	
Subtertian	+		C	+	+
Blackwater Fever	+				+
Piroplasmosis	−				−
Leishmaniasis	−				−
Kala-azar	−				−
Oriental Sore	−				−
Espundia	−				−
Relapsing Fever	−				−
Rat-Bite Fever	−				−
Yellow Fever	[1]			+	+
Dengue Fever	−				−
Pappataci Fever	−				−
Plague	−			+	−
Typhus Fever	−				−
Trypanosomiasis	+	Mostly Fernando County	4[2]	+	+
African Human	+				
T. gambiense	+				
T. rhodesiense	−				−
South American	−				−
T. cruzi	−				−
Oroya Fever	−				−
Undulant Fever	−				−
Leprosy	+		?		+
Syphilis	+				+
Yaws	+	General			+
Granuloma Inguinale	+		R		
Tularemia	−				−
Smallpox	+				+
Amebiasis	+				+
Balantidium Dysentery	−				−
Bacillary Dysentery	+		R		
Cholera	−				−
Typhoid Fever	+		R		
Para-Typhoid Infection	−				−
Sprue	+		R		
Hill Diarrhea	−				−
Ascariasis	+				
Hookworm Disease	+				+
Giardia Enteritis	+		R		
Tropical Liver	+		R		
Infantile Biliary Cirrhosis	−				−
Schistosomiasis	+		R	+	+
Urinary	+			+	
Intestinal	+			+	
Visceral	−				−
Far Eastern	−				−

TABLE 107

LIBERIA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Filariasis	+			+	+
F. bancrofti	+			+	
Loa Loa	+			+	
O. volvulus	+		R	+	
F. perstans	+			+	
F. demarquayi	−				−
F. ozzardi	−				−
Juxta-Articular Nodules	+				−
Elephantiasis	+				
Chyluria	−				
Dracontiasis	+		R	+	−
D. medinensis	+			+	
Paragonimiasis	−				
Clonorchiasis	−				−
Fasciolopsis	−				−
Cestodes	+	Indigenous. Few Europeans. Mostly Syrians		+	−
Tænia saginata	+			+	
Tænia solium	+			+	
Dibothriocephalus latus	−				−
Hymenolepis nana	−				−
Sparganum mansoni	−				−
S. prolifer	−				−
Trichuris	+				−
Trichinelliasis	−				−
Climatic Bubo	+				−
Rhinosporidiosis	−				−
Goundou	−				−
Ainhum	+		C		−
Big Heel	−				−
Myiasis	+		2[3]		−
Subcutaneous	+				
Leech Infection	−				−
Leucodermia	+				−
Cheloid	+				−
Ulcus Tropicum	+				?
Albinism	+				−
Septic Sore	−				−
Pemphigus Contagiosus	−				−
Ulcerating Dermatitis	+				−
Madura Foot	+		R		−
Other Mycetoma	+		R		−
Blastomycosis	+				−
Mossy Foot	−				−
Pityriasis Nigra	−				−
Pityriasis Versicolor	+				−
Dhobie's Itch	+				−
Seborrhoea	+				−
Pinta	−				−
Tinea Imbricata	−				−
Trichosporosis	−				−
Trichomycosis	+		R		−
Acarine Dermatomycosis	−				−
Epidemic Dropsy	−				−

TABLE 107

LIBERIA—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Peripheral Neuritis	+		R		–
Beriberi	+		R		–
Pellagra	–				–
Scurvy	–				–
General Malnutrition or Undernutrition	+		R		–
Heat Stroke	+		R		–
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	–				–
Diphtheria	+		R		–
Measles	+				–
German Measles	+				–
Varicella	+				–
Epidemic Meningitis	–				–
Infantile Paralysis	–				–
Epidemic Encephalitis	–				–
Syphilis of Central Nervous System	–				–
Influenza	+				–
Common Cold	+				–
The Pneumonias	+				–
Cholelithiasis	+				–
Urinary Calculus	+		R		–
Nephritis	+				–
Diabetes	+		R		–
Pernicious Anemia	–				–
Osteomyelitis	–				–
Tuberculosis	+				+
Pulmonary	+				
Bone	+				
Skin	+		R		
Malignancy (all forms)	+				?
Trachoma	–				–
Weil's Disease	–				–
Tsutsugamushi Disease	–				–
Rabies	–				–
Unusual Skin Disease	+		C[4]		–
Thyroid Disease (Goiter)	+		R		–
Rheumatic Fever	+				–
Arthritis (Nonspecific)	+				–
Rickets	+				–
Dental Caries	+				–
Toxemias of Pregnancy	+		R		–
Cardio-Vascular Diseases	+				–
Hypertension	+				
Valvular Lesions	+				
Aneurysm	+				
Myocarditis	+				

[1] Not since 1929.
[2] In 20 years. Only 1 outside Fernando County.
[3] In 20 years.
[4] Various fungoid diseases, not malignant but persistent.

REPUBLIC OF PANAMA AND THE CANAL ZONE

Panama, formerly a department of Colombia, was recognized by the United States as an independent republic in 1903 and by Colombia in 1914. The region is 480 miles in length and 37 to 110 miles in width. The total area is 32,380 square miles and the population in 1930, excluding the Canal Zone, was 467,459, of which nearly 250,000 are whites, 69,583 negroes, 42,897 Indians and 4,138 Orientals. About 40,000 British subjects, mostly colored, are on the Isthmus. Panama City is the capital with a population of over 80,000. The country is divided into nine provinces.

Catholicism is the religion of the Isthmus but freedom in religious beliefs exists. Protestantism prevails in the Canal Zone. Elementary education is compulsory. There are 598 primary schools maintained by the Govern-. ment with 57,592 students and 1,688 teachers. Education is coeducational. The Institute National has 626 students and a normal school for girls had, in 1930, 576 students. Secondary schools had 2,175 students in 1929–30. In 1926 Colombia, Ecuador, Panama, Peru and other Latin-American countries agreed to support a Pan-American University in Panama but this has not been realized as yet. The Gorgas Memorial Institute of Tropical Medicine was established in recent years and has been carrying on an active program of research.

The revenue of Panama, in 1931–32, was 19,961,353 balboas and the expenditures amounted to 18,500,934 balboas. About five-eighths of the country is unoccupied and only a small part of the land is cultivated. The most important product is bananas, which constitute two-thirds of the total exports. In 1931, 2,113,971 stems were exported, chiefly to the United States. Other products include caoutchouc, coffee, mahogany, copaiba, sarsaparilla and ipecacuanha. Sugar production is growing and cattle raising and pearl fishing are also important. The total imports for 1931 amounted to 13,492,-459 balboas and the exports amounted to 2,721,435 balboas.

Data regarding health conditions on the Isthmus have been furnished us by Dr. E. R. Gentry, Colonel J. F. Siler, Dr. D. P. Curry and Dr. Herbert C. Clark. Among the diseases of public health importance are malaria, blackwater fever, typhus fever, leprosy, syphilis, yaws, smallpox, amebiasis, the typhoid fevers, ascariasis, hookworm disease, myiasis, tropical ulcer, pemphigus contagiosus, dhobie's itch, pellagra, general malnutrition and undernutrition, diphtheria, influenza, the common cold, the pneumonias and tuberculosis in various forms.

TABLE 108

PANAMA

Reported by: Drs. E. R. Gentry, J. F. Siler, D. P. Curry and H. C. Clark *Period:* 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General, low levels	50% Pop.	+	+
Benign tertian	+	General, low levels	?[1]	+	+
Quartan	+	General, low levels	?[2]	+	+
Subtertian	+	General, low levels	?[3]	+	+
Blackwater Fever	+	General, low levels	66[4] 3,777 P.M.	+(?)	+
Piroplasmosis	+	In animals		+	−
Leishmaniasis	+				−
Kala-azar	?				
Oriental Sore	+	General. Rural and forest areas	6		−
Relapsing Fever	+[5]	General. Rural and R. de P.	?	+	−
S. recurrentis	+	General			
S. duttoni	+	General	R	+	−
S. venezuelense	+	General	R	+	−
Yellow Fever	+		0	+	−
Dengue Fever	+(?)	3 small outbreaks		+	−
Pappataci Fever	+(?)	Atlantic end of Canal Zone	40–50	+	+
Plague	[6]		2	+	−
Typhus Fever	+	Imported (?) Pacific end of Canal Zone	3	+	+
Trypanosomiasis	+	Rural areas of Canal Zone, R. de P.	R	+	−
African Human	−				−
T. gambiense	−				−
T. rhodesiense	−				−
South American	+	Rural areas of Canal Zone, R. de P.		+	−
T. cruzi	+	Province of Panama, Chagas Basin	10	+	−
Oroya Fever	−				−
Undulant Fever	[7]		?		−
Leprosy	+	General. Palo Seco Leper Colony	100		+
Syphilis	+	High urban, low rural	(?) 20% Pop.		+
Yaws	+	High rural, low urban	400	?	+
Granuloma Inguinale	+	General	R	?	−
Tularemia	−				−
Smallpox	+	Infrequent epidemics. Endemic in remote areas	0		+
Amebiasis	+	General rural	12–29% Pop.		+
Balantidium Dysentery	+	Rural	1–2% Pop.		−

TABLE 108

PANAMA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Bacillary Dysentery	+	R. de P. Sporadic in Canal Zone	R		−
Cholera	−				
Typhoid Fever	+	R. de P. Sporadic in Canal Zone	R		+
Para-Typhoid Infection	+	Rural regions and unsanitated towns	R		+
Sprue	−				−
Hill Diarrhea	−				−
Ascariasis	+	General rural. R. de P.	[8]		+
Hookworm Disease	+	General rural. R. de P.	20–80% Pop.		+
Giardia Enteritis	+(?)	General rural	2% Pop.		−
Trichomonas Infection	+	General, sporadic	20% Pop.		−(?)
Tropical Liver	−(?)				
Schistosomiasis	−(?)	Imported	R	−	−
Filariasis	+			+	−
F. bancrofti	+	Sporadic, imported	R	+	−
F. ozzardi	+	Indians, Darién Province	31% Pop.	+(?)	−
Juxta-Articular Nodules	+	Rural, sporadic	?[9]	?	−
Elephantiasis	−(?)	Sporadic, imported	R		−
Chyluria	−(?)				
Dracontiasis	−(?)				
Paragonimiasis	−				
Clonorchiasis	+				
C. sinensis	+	Certain Chinese	5–6	−	−
Fasciolopsis	−				−
Cestodes	+				
Tænia saginata	+	General, sporadic	R	+	+
Tænia solium	+	General	R	+	+
Dibothriocephalus latus	+(?)	Terminal cities	R	+	−
Hymenolepis nana	+(?)	?	R	+	−
Trichuris	+				
T. trichiura	+	General rural	40% Pop.		−
H. heptaticus	−				−
Trichinelliasis	−(?)	Imported	R	+	−
Climatic Bubo	+(?)	General (?)	R	?	−
Rhinosporidiosis	−(?)				
Goundou	−(?)				
Ainhum	+	W. Indian Negroes mostly	R		−
Big Heel	?				
Myiasis	+				
Subcutaneous	+	General, rural	1–5% Pop.	+	+
Blood sucking	+	General, rural	1/2% Pop.	+	+
Intestinal	?				
Larva Migrans	+	Rural, sporadic	3	+(?)	−
Leech Infection	+(?)	Swamp workers and sanitary laborers	R		−

TABLE 108

PANAMA—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Leucodermia	+	Sporadic	R		−
Cheloid	+	Negroid rural	1–5%		−
Ulcus Tropicum	+	Plantation labor	1%	?	+
Albinism	+	Indians, San Blas Arch.	C		−
Septic Sore	+	Sporadic			−
Pemphigus Contagiosus	+	City children	C	?	+
Ulcerating Dermatitis	+	Sporadic			−
Madura Foot	+		1		
Other Mycetoma	+		5		
Blastomycosis	+		1		
Mossy Foot	+		3		
Pityriasis Nigra	?				
Pityriasis Versicolor	+	Sporadic	C		−
Dhobie's Itch	+	General	C		+
Seborrhoea	+	General	?		−
Pinta	+	Spotted, Darién Province	10%(?)		−
Tinea Imbricata	+	Especially rural regions	1–5% Pop.		
Trichosporosis	+	Darién Province	R		
Trichomycosis	+		?		−
Acarine Dermatomycosis	+	Sporadic			−
Epidemic Dropsy	−				−
Peripheral Neuritis	+	General, sporadic			−
Beriberi	+	Pearl fishermen	0		−
Pellagra	+	Mostly negro women, sporadic	R		+
Scurvy	+	Infantile and institutional	R		−
General Malnutrition or Undernutrition	+	General			+
Heat Stroke	+	Sporadic	R		−

II. Diseases Usually Considered as of Temperate Climates

Scarlet Fever	+	Sporadic, urban	R		−
Diphtheria	+	Sporadic, urban	R		+
Measles	+	Urban	50–100		+
German Measles	+	Occasional mild epidemics			+
Varicella	+	Sporadic. Urban and rural	R		+
Epidemic Meningitis	+	Sporadic, usually imported	R		+
Infantile Paralysis	+	Sporadic	R		−(?)
Epidemic Encephalitis	+	Sporadic, from ships	R		−(?)
Syphilis of Central Nervous System	+	Usually urban	?		+
Influenza	+	General, epidemic			+
Common Cold	+	General			?
The Pneumonias	+	General, colored	[10]		+
Cholelithiasis	+	General	[11]		−
Urinary Calculus	+	Sporadic, general	[12]		−
Nephritis	+	General	[13]		−

TABLE 108

PANAMA—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Diabetes	+	General	C		−
Pernicious Anemia	+	Sporadic	R		−
Osteomyelitis	+		R		−
Tuberculosis	+	General, natives and colored aliens	[14]		+
Pulmonary	+		C[15]		+
Bone	+		R[15]		+
Skin	+	Sporadic	R[15]		+
Malignancy (all forms)	+	General, Indians excluded	[16]		+
Trachoma	+	Imported	4		−(?)
Weil's Disease	+	Usually rural	R		−
Tsutsugamushi Disease	−(?)				
Rabies	+	Imported	1[17]		−
Thyroid Disease (Goiter)	+	General, Darién Province. Veraguas	C		
Rheumatic Fever	+	General	R		−
Arthritis (Nonspecific)	+	General	R		−
Rickets	+	Negro poor in cities			+
Dental Caries	+	General			+
Toxemias of Pregnancy	+	General sporadic			+
Cardio-Vascular Diseases	+	General, colored	[18]		+
Hypertension	+	General, colored	C		+
Valvular Lesions	+	General, colored	C		+
Aneurysm	+	General	C		+
Myocarditis	+	General	C		

Dengue-like fever, sporadic, cases (?), vector present, etiology unknown, under investigation. Apparently protozoal origin.

Pyelitis and pyelonephritis, acute, common (more in Americans than in temperate climates), under investigation.

[1] 28 per cent malaria in low levels; 60 per cent in high is benign tertian and quartan.
[2] 2 per cent malaria in low levels.
[3] 70 per cent malaria in low levels; 40 per cent of malaria in high levels.
[4] Deaths.
[5] Also type found in animals which has been transferred from marmoset to man.
[6] Not since 1905.
[7] Not diagnosed.
[8] 42 per cent in Chagres.
[9] 1–2 per cent population with yaws.
[10] 928 in 5,113 post mortems.
[11] 2–3 per cent of post mortems.
[12] 8 in 1,500 post mortems.
[13] 333 in 5,713 post mortems.
[14] 917 in 5,713 post mortems.
[15] From 917 tuberculosis autopsies, 549 were pulmonary, 36 were bone and 16 skin.
[16] 99 in 5,713 post mortems.
[17] One case in 24 years.
[18] 229 in 5,713 post mortems.

THE CANAL ZONE

The treaty providing for the construction and maintenance of an interocean canal was signed between the United States and Panama in 1903. The area of the Canal Zone is 552.8 square miles. The area of Gatun Lake, when

at its normal elevation of 85 feet above sea level, is 163.4 square miles. The summit elevation of the canal is 85 feet above sea level and it is 50.72 statute miles long from deep water in the Pacific to deep water in the Caribbean. The civil population of the Canal Zone was, in 1932, 30,980, of whom 8,416 were Americans. The capital investment for all purposes in the Canal up to 1932 was $533,106,009. The Canal was opened to commerce in August, 1914. During 1932 a total of 4,506 vessels passed through the Canal both ways representing a total tonnage of 19,807,998 and the tolls levied for the year totaled $20,707,377.

According to the Report of the Health Department for 1931 health conditions in the Canal Zone are unusually good. Malaria is still present, there being slightly over 2,000 cases of all types for the year. Other diseases, such as relapsing fever, typhus fever, oriental sore, amebiasis, bacillary dysentery, typhoid fever, ascariasis, hookworm disease, filariasis, myiasis, beriberi, pellagra, scurvy and respiratory diseases, were present in small numbers (see Table 109 for detailed information).

"World Weather Records" report that the mean pressure (29 inches plus) for the ten year period 1921–30, was 0.820. For the same period the mean temperature at Colon, was 81.2°F. and the average total precipitation was 126.59 inches.

TABLE 109

THE PANAMA CANAL

Reported by: Report of the Health Department *Period:* 1931

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+		2,117	+	+
Benign tertian	+		329	+	+
Quartan	+		8	+	+
Subtertian	+		768	+	+
Leishmaniasis	+				
Oriental Sore	+		1		
Relapsing Fever	+		1[1]	+	
Yellow Fever	+		0	+	
Dengue Fever	+			+	
Pappataci Fever	+			+	
Plague	+		0	+	
Typhus Fever	+	Sporadic	2	+	+
Leprosy	+	Palo Seco Leper Colony	99		+
Syphilis	+		289		+
Smallpox	+		2		
Amebiasis	+		48		+
Bacillary Dysentery	+		4		
Cholera	+		0		
Typhoid Fever	+		17		+
Para-Typhoid Infection	+		1		
Ascariasis	+		15[2,3]		

TABLE 109

THE PANAMA CANAL—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Hookworm Disease	+		128		
Filariasis	+		1	+	−
Chyluria	+		1		
Cestodes	+		4		
Trichuris	+				
T. trichiura	+		3[2,4]		
Myiasis	+		1[5]		
Dhobie's Itch	+		3		
Acarine Dermatomycosis	+		12[6]		
Beriberi	+		1[2]		
Pellagra	+		9[2]		
Scurvy	+		1[2]		
Heat Stroke	+		5		
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+		20		
Diphtheria	+		116		+
Measles	+		488		+
German Measles	+		5		
Varicella	+		174		+
Epidemic Meningitis	+		9		+
Infantile Paralysis	+		2		
Influenza	+		51		+
The Pneumonias	+		328[2]		+
Cholelithiasis	+		16		
Urinary Calculus	+		50		
Nephritis	+		116[2]		
Diabetes	+		59		
Pernicious Anemia	+		3		
Osteomyelitis	+		28		
Tuberculosis	+		372[2]		+
Pulmonary	+		350[2]		+
Bone	+		4		
Skin	+		1		
Malignancy (all forms)	+		107[2]		
Trachoma	+		0		
Thyroid Disease (Goiter)	+		8		
Rheumatic Fever	+		9		
Arthritis (Nonspecific)	+		101		
Rickets	+		2		
Dental Caries	+		157		
Toxemias of Pregnancy	+		14		
Cardio-Vascular Diseases	+				
Hypertension	+		101		
Aneurysm	+		7		
Myocarditis	+		5[2]		

[1] *S. Obermeieri.*
[2] Deaths.
[3] Case figures from autopsies.
[4] Autopsies.
[5] Skin.
[6] Scabies.

REPUBLIC OF PARAGUAY

Paraguay has been an independent republic since 1811. The area of Paraguay proper or the "oriental section" is approximately 159,834 square kilometers or 61,647 square miles. The area known as the Chaco, of about 100,000 square miles in extent and lying between the Paraguay and Pilcomayo Rivers, is claimed by Paraguay but disputed by Bolivia. Since 1928 the two countries have carried on an intermittent war over this difference. For this reason it has been difficult for our Committee on the Survey to obtain much information concerning health conditions in the two countries. In 1930, the population of Paraguay was estimated at 857,337, including 67,500 in the Chaco. The population in the so-called "oriental section" consists mostly of mestizos (mixed whites and Indian), Indian and European (Spanish). There are few negroes in Paraguay. The capital of Paraguay is Asuncion, having a population of 91,156 (1931). The people are bilingual, speaking both Spanish and Guarani (Indian).

The Roman Catholic religion is the religion of the State but other religions are tolerated. Education is essentially compulsory where schools are available. In 1931 there were 1,572 Government and private primary schools with 108,741 students and 1,911 teachers. A group of 48 private schools had 4,372 students with 178 teachers. In addition there are a National College, a University and six normal schools.

The revenue of Paraguay in 1931–32 amounted to 5,704,080 gold pesos and the expenditures to 5,703,004 gold pesos. During 1931 the imports amounted to 10,080,732 gold pesos and the exports to 12,856,585 gold pesos. A large part of the country is devoted to cattle raising, there being about 4,000,000 head of cattle in the country. Other products are timber, tobacco, logs, tropical fruits (oranges and tangerines), petit-grain oil for perfumes, grain, cotton, sugar and rice. Iron, manganese, copper and other minerals are found in abundance. The most important imports include cotton and woolen goods, wheat, flour and petrol.

According to Dr. Cayetano Masi, who has kindly sent us some notes regarding health conditions in Paraguay (through the Pan American Union in Washington), the following diseases are among those present: malaria, leprosy, syphilis, yaws, granuloma inguinale, amebiasis, bacillary dysentery, typhoid fever, hookworm disease, tropical ulcer and most of the diseases usually considered as of temperate climate origin. Further data, though somewhat meager, may be found in Table 110.

"World Weather Records" report that, for the ten year period 1921–30, at Montevideo, there was a mean pressure (700 mm. plus) of 58.6. For this same period there was a mean temperature of 16.4°C. and a mean precipitation of 1077.2 millimeters.

TABLE 110

PARAGUAY

Reported by: Dr. Cayetano Masi *Period:* Notes dated February, 1935

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	General		+	+
Benign tertian	+	General	C	+	+
Quartan	+		R	+	−
Subtertian	+	General	C	+	+
Blackwater Fever	+	Northern country		+(?)	+
Piroplasmosis	+	In imported cattle		+	−
Leishmaniasis	+	Northern country		+	−
Kala-azar	−				−
Oriental Sore	+			+	−
Espundia	−				−
Relapsing Fever	−			?	−
S. recurrentis	−				−
S. duttoni	−				−
S. venezuelense	−				−
S. berberum	−				−
Rat-Bite Fever	−				−
Yellow Fever	−				−
Dengue Fever	+		R	+	−
Pappataci Fever	−			+[1]	−
Plague	[2]			+	−
Typhus Fever	−			+	−
Trypanosomiasis	−			?	−
African Human	−				−
T. gambiense	−				−
T. rhodesiense	−				−
South American	−				−
T. cruzi	−				−
Oroya Fever	−				−
Undulant Fever	−[3]				−
Leprosy	+	General	[4]		+
Syphilis	+	General			+
Yaws	+				+
Granuloma Inguinale	+	Seen in hospitals			+
Tularemia	−				−
Smallpox	+	General	270		+
Amebiasis	+	Sporadic			+
Balantidium Dysentery	+				−
Bacillary Dysentery	+				+
Cholera	[5]				−
Typhoid Fever	+	Among soldiers			+
Para-Typhoid Infection	+				+
Sprue	−				−
Hill Diarrhea	−				−
Ascariasis	+	General			−
Hookworm Disease	+	General			+
Giardia Enteritis	+		32		−
Trichomonas Infection	−				−
Tropical Liver	−				−
Infantile Biliary Cirrhosis	−				−
Schistosomiasis	−				−
Urinary	−				−
Intestinal	−				−
Visceral	−				−
Far Eastern	−				−

TABLE 110

PARAGUAY—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Filariasis	−				−
F. bancrofti	−				−
Loa Loa	−				−
O. volvulus	−				−
F. perstans	−				−
F. demarquayi	−				−
F. ozzardi	−				−
Juxta-Articular Nodules	−				−
Elephantiasis	−				−
Chyluria	−				−
Dracontiasis	−				−
D. medinensis	−				−
Paragonimiasis	−				−
P. ringeri	−				−
P. westermanii	−				−
P. compactus	−				−
Clonorchiasis	−				−
C. sinensis	−				−
O. felineus	−				−
Fasciolopsis	−				−
F. hepatica	−				−
F. buskii	−				−
Cestodes	+				−
Tænia saginata	+				−
Tænia solium	+				−
Dibothriocephalus latus	−				−
Hymenolepis nana	+				−
Sparganum mansoni	−				−
S. prolifer	−				−
Trichuris	+				−
T. trichiura	+				−
H. heptaticus	−				−
Trichinelliasis	−				−
T. spiralis	−				−
Climatic Bubo	+	In hospitals			−
Rhinosporidiosis	+		R		−
Goundou	−				−
Ainhum	−				
Big Heel	−				−
Myiasis	+				−
Subcutaneous	+				−
Blood sucking	−				−
Intestinal	+				−
Larva Migrans	+				−
Leech Infection	−				−
Leucodermia	+				−
Cheloid	+		R		−
Ulcus Tropicum	+	General			+
Albinism	+				−
Septic Sore	−				−
Pemphigus Contagiosus	−				−
Ulcerating Dermatitis	+				−
Madura Foot	+		R		−
Other Mycetoma	−				−
Blastomycosis	+				−
Mossy Foot	−				−

TABLE 110

PARAGUAY—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Pityriasis Nigra	−				−
Pityriasis Versicolor	+				−
Dhobie's Itch	−				−
Seborrhoea	−				−
Pinta	−				−
Tinea Imbricata	−				−
Trichosporosis	+				−
Trichomycosis	+				−
Acarine Dermatomycosis	+				−
Epidemic Dropsy	−				−
Peripheral Neuritis	−				−
Beriberi	−				−
Pellagra	−				−
Scurvy	+	In soldiers			−
General Malnutrition or Undernutrition	+				−
Heat Stroke	+				−
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+				−
Diphtheria	+				−
Measles	+				−
German Measles	+				−
Varicella	+				−
Epidemic Meningitis	+		R		−
Infantile Paralysis	+		R		−
Epidemic Encephalitis	+		R		−
Syphilis of Central Nervous System	+				−
Influenza	+				−
Common Cold	+				−
The Pneumonias	+				−
Cholelithiasis	+				−
Urinary Calculus	+				−
Nephritis	+				−
Diabetes	+				−
Pernicious Anemia	+				−
Osteomyelitis	+				−
Tuberculosis	+				+
Malignancy (all forms)	+				−
Trachoma	+				−
Weil's Disease	+		R		−
Rabies	+				−
Thyroid Disease (Goiter)	+				−
Rheumatic Fever	+				−
Arthritis (Nonspecific)	+				−
Rickets	+				−
Dental Caries	+				−
Toxemias of Pregnancy	+				−
Cardio-Vascular Diseases	+				−
Hypertension	+				−
Valvular Lesions	+				−
Aneurysm	+				−
Myocarditis	+				−

[1] May be confused with dengue fever. [2] Not since 1928.
[3] Its presence doubtful. [4] One per 1,000 population. [5] Not for 50 years.

REPUBLIC OF PERU

The independence of Peru from Spain was finally gained in 1824. The country has an area of 481,698 square miles, though together with the Provinces and various departments there is a grand total of 532,047 English square miles. The population, according to the census of 1876 (the last), was 2,699,-106 but the estimates of 1927 give a total of 6,147,000. The Roman Catholic religion is the religion of the State, though freedom of belief exists. Elementary education is obligatory and free between ages 7 to 14. In 1930, there were 3,562 primary schools in Peru with 6,200 teachers and 342,016 students. There were also 36 secondary schools, special schools for Indians, travelling schools and several schools of agriculture, arts and trades, and engineering, as well as universities of higher learning. In 1932, there were appropriated 9,469,848 soles for education.

The revenue of Peru, in 1932, was estimated at 96,928,296 soles and the expenditures were the same figure. About 80 per cent of the people engage in agriculture and produce cotton, sugar, coffee, wool, hides and skins. Wheat and rice are also grown in quantity. Wild rubber from the Amazon region is declining on account of competition of plantation rubber. Balata is also decreasing. Tobacco, wines and spirits, olives, ramie and maize are all produced. Silk culture is progressing and other products such as coco, dyes, cocaine, cinchona and other medicinal plants are produced. In addition to these products Peru also has guano deposits, copper, petroleum, gold and iron as well as a few other minerals, such as vanadium, silver, lead and zinc. The imports during 1931 amounted to 97,939,496 soles and the exports to 197,-417,166 soles. During the same year 5,789,659 tons of shipping entered and cleared the four principal ports of Peru.

According to Dr. Luis Vargas Prada the diseases of public health importance in Peru include malaria, leishmaniasis, plague, typhus fever, oroya fever, undulant fever, smallpox, amebiasis, typhoid fever, influenza and tuberculosis. It is interesting to note that leprosy is apparently not present in this country. Further information may be found in Table 111.

"World Weather Records" report a mean pressure (22 inches plus) over a period from 1896 to 1925, of 0.488. The mean temperature over a period from 1913 to 1925 was 58.5°C.

TABLE 111

PERU

Reported by: Dr. Luis Vargas Prada *Period:* Figures for 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Seacoast valleys	10,400	+	+
Leishmaniasis	+	Forest regions		+	+
Yellow Fever	−				−

TABLE 111

PERU—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Plague	+	Provinces of Lambayeque, Liberhar, Lima	107	+	+
Typhus Fever	+	Mountain regions	800	+	+
Oroya Fever	+	Some mountain valleys	?		+
Undulant Fever	+		113	+	+
Leprosy	−				−
Syphilis	+				+
Smallpox	+	Some mountain regions	339		+
Amebiasis	+	Various regions	1,301		+
Typhoid Fever	+	Some regions	295		+
Para-Typhoid Infection	+	More limited regions	55		
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+	Variable	44		
Diphtheria	+	Variable	65		+
Measles	+	Variable. Epidemics	1,780		+
Influenza	+	Variable	1,796		+
Tuberculosis	+	Coast regions	?		+

SPAIN

Spain, like Holland, Yugoslavia, Greece and one or two other localities, is of interest to us not because of its proximity to the tropics but because of the incidence of several so-called tropical diseases within its borders. Spain is a country having an area of 190,050 square miles; including the Balearic and Canary Islands, the area is 196,607 square miles. The estimated population, in 1931, was 23,656,300, which gives a density of population per square mile of 120.3.

According to the Director-General of Health of Spain, the following diseases of particular interest to this survey were present in Spain during recent years: malaria, leishmaniasis, relapsing fever, rat-bite fever, plague, typhus fever, undulant fever, leprosy, smallpox, typhoid fever, syphilis, trachoma, influenza and tuberculosis. Further details may be found in Table 112.

"World Weather Records" report that the mean annual pressure (700 mm. plus) over the ten year period, 1921–30, was 05.8. The mean temperature for the same period in Madrid was 13.6°C. and the mean annual precipitation at the same locality was 410.4 millimeters.

TABLE 112

SPAIN

Reported by: Director-General of Health *Period:* Recent Years. Questionnaire

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Everywhere except in north and northwest	304[1]	+	+
Benign tertian	+	Everywhere except in north and northwest		+	+
Quartan	+	Most important focus Delta del Ebro		+	−
Subtertian	+	Everywhere except in north and northwest		+	+
Blackwater Fever	−				−
Piroplasmosis	?				−
Leishmaniasis	+	Everywhere except in north and northwest		+	+
Kala-azar	+	Everywhere except in north and northwest	830	+	+
Oriental Sore	+	Chiefly Mediterranean Country	R	+	−
Espundia	−				−
Relapsing Fever	+	Everywhere except in north and northwest	763[2]	+	−
Rat-Bite Fever	+	?	R	+	−
Yellow Fever	−			+	−
Dengue Fever	+			+	−
Pappataci Fever	?			+	−
Plague	+	Sporadic. Barcelona and Canary Islands	10[1]	+	
Typhus Fever	+	Sporadic. Isolated cases	7[1]	+	
Trypanosomiasis	−				−
African Human	−				−
T. gambiense	−				−
T. rhodesiense	−				−
South American	−				−
T. cruzi	−				−
Oroya Fever	−				−
Undulant Fever	+	General		+	+
Leprosy	+				+
Syphilis	+	General	634[1]		+
Yaws	−				−
Granuloma Inguinale	−				−
Tularemia	−				−
Smallpox	+	Sporadic everywhere	7[1]		
Amebiasis	+				−
Balantidium Dysentery	+		R		−
Bacillary Dysentery	+	Sporadic. Rare epidemics			−

TABLE 112

SPAIN—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Cholera	−				−
Typhoid Fever	+	General	3,100[1,3]		+
Para-typhoid Infection	+	General	[3]		+
Sprue	−				−
Hill Diarrhea	−				−
Ascariasis	+	General	?		−
Hookworm Disease	+	Provinces of Nuvicia and Valencia. Lead mines			+
Giardia Enteritis	+	?	?		−
Trichomonas Infection	+	?	?		−
Tropical Liver	−				−
Infantile Biliary Cirrhosis	−				−
Schistosomiasis	−				−
Urinary	−				−
Intestinal	−				−
Visceral	−				−
Far Eastern	+				−
Filariasis	−				−
F. bancrofti	−				−
Loa Loa	−				−
O. volvulus	−				−
F. perstans	−				−
F. demarquayi	−				−
F. ozzardi	−				−
Juxta-Articular Nodules	−				−
Elephantiasis	−				−
Chyluria	−				−
Dracontiasis	−				−
D. medinensis	−				−
Paragonimiasis	−				−
P. ringeri	−				−
P. westermanii	−				−
P. compactus	−				−
Clonorchiasis	−				−
C. sinensis	−				−
O. felineus	−				−
Fasciolopsis	+				
F. hepatica	+	Cattle	?	+(?)	−
F. buskii	−				−
Cestodes	+				
Tænia saginata	+	General	?	+	−
Tænia solium	+	General	?	+	−
Dibothriocephalus latus	?				
Hymenolepis nana	+	General	?		−
Sparganum mansoni	−				−
S. prolifer	−				−
Trichuris	+	General	?		−
T. trichiura	+	General	?		−
H. heptaticus	−				−
Trichinelliasis	+	Sporadic, everywhere	R	+	−
T. spiralis	+	Sporadic, everywhere	R	+	−
Climatic Bubo	−				−
Rhinosporidiosis	−				−
Goundou	−				−
Ainhum	−				−

TABLE 112

SPAIN—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Big Heel	−				−
Myiasis	+		R		−
Subcutaneous	−				−
Blood sucking	−				−
Intestinal	−				−
Larva Migrans	−				−
Leech Infection	−				−
Leucodermia	−				−
Cheloid	−				−
Ulcus Tropicum	−				−
Albinism	−				−
Septic Sore	−				−
Pemphigus Contagiosus	−				−
Ulcerating Dermatitis	−				−
Madura Foot	−				−
Other Mycetoma	−				−
Blastomycosis	−				−
Mossy Foot	−				−
Pityriasis Nigra	−				−
Pityriasis Versicolor	+	?			−
Dhobie's Itch	−				−
Seborrhoea	+	?			−
Pinta	−				−
Tinea Imbricata	−				−
Trichosporosis	−				−
Trichomycosis	−				−
Acarine Dermatomycosis	−				−
Epidemic Dropsy	−				−
Peripheral Neuritis	−				−
Beriberi	−				−
Pellagra	+	Northwestern provinces[4]			−
Scurvy	−				−
General Malnutrition or Undernutrition	−				−
Heat Stroke	−				−
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+		1,820[5]		+
Diphtheria	+		2,096		+
Measles	+		18,095		+
Varicella	+		1,830		+
Epidemic Meningitis	+		115		+
Infantile Paralysis	+		115		+
Epidemic Encephalitis	+		10		
Influenza	+		25,566		+
Tuberculosis	+				+
Pulmonary	+		11,536		+
Trachoma	+		2,404		+
Rabies	+		6	+	

[1] Deaths
[2] Spanish relapsing fever.
[3] Figure for typhoid and paratyphoid.
[4] Corina, Lugo, Orense, Pontenedra and Asturias.
[5] Figures taken from capitals and chief towns over 20,000 population.

SIAM

Siam, a country of 200,234 square miles lying within the tropical belt just south of the Tropic of Cancer, has been a constitutional monarchy since 1932. The country is divided into 10 circles (Monthons), of which nine have each a Lord-Lieutenent; the Circle of Krungdeb is under a Lord Prefect. The Government possesses full jurisdictional and fiscal autonomy, subject to certain temporary limitations imposed by treaties.

The Census taken in 1929 gives a population of 11,506,207 and the latest estimate of population available (1931) is 11,684,000. The population consists of Siamese (10,493,304), Chinese (445,274), Indians and Malays (379,618), Cambodians (60,668), Annamites (5,321), Shans (27,505), Burmese (4,880), Europeans and Americans (1,920), Japanese (295) and others (87,422). The prevailing religion is Buddhism, though Mohammedans and Christians are also present. Elementary education is compulsory and for the most part is free. In 1930 there were 267 Government schools with 31 governmental provincial teachers' training schools. There were 5,201 local elementary schools. In addition there were 969 private schools. The Chulalankarana University was founded at Bangkok in 1917 and consists of faculties of Medicine, Arts and Sciences, Engineering and Civil Service.

The total revenue for 1932–33 amounted to £ 6,805,818 and expenditures amounted to £ 6,768,651. In 1929 it was estimated that 83.05 per cent of the people were engaged in agriculture, 1.10 per cent in fishery and 2.19 per cent in the industries. The chief produce of the country is rice. In 1931–32 there were 6,453,040 acres under rice cultivation, yielding 4,036,238 tons of rice. Other minor products are para-rubber, coconuts, tobacco and pepper. Livestock consists of elephants, horses and ponies, bullocks and buffaloes. Teak wood industry is important in the forest lands which compose most of Upper Siam. The mineral resources of Siam consist of tin, tungsten, coal and iron, zinc, manganese, antimony, lead, copper, molybdenum, rubies, sapphires and silver.

The exports for 1931–32 amounted to £12,200,622 and the imports to £9,082,622. The principal imports were cotton goods, gunny bags, foodstuffs, metal manufactures, tobacco, kerosene, machinery and treasure. The chief exports were rice, tin and teak. The largest export trade is with Hong Kong, Singapore, Penang and the British Malay States. In 1931–32 over 1,000,000 tons of shipping entered and cleared Bangkok.

Among the important diseases in Siam Dr. Phya Boriraksh, Acting Director of the Department of Health, mentions malaria (three forms), plague, leprosy, syphilis, yaws, smallpox, bacillary dysentery, cholera, typhoid fever, hookworm, diarrhoea and enteritis, beriberi, diphtheria, measles, chicken pox, epidemic meningitis, influenza, the pneumonias, urinary calculus, tuberculosis, malignancy, trachoma and rabies.

According to the study conducted by the Health Organization of the League

of Nations there were, in 1930–31, 40,265 deaths from malaria in Siam. In 1929 the malaria mortality rate, according to this report, was 359 per 100,000 inhabitants. The report also states that in 1930–31 there were 7,904 cases of this disease treated. However, this covers only those cases treated with quinine from governmental sources and the actual number treated through other agencies (according to Drs. E. C. Cort and MacDaniels) was far in excess of this figure. Malaria is regarded as one of the most important public health problems in this country. (The questionnaire and medical report data refer only to deaths from this disease). According to present laws regarding the reporting of infectious diseases only four, viz., cholera, smallpox, plague and cerebro-spinal meningitis, are reportable. Because of this the Acting Director of Health found it impossible to furnish us with much information regarding the incidence of the various diseases included in our questionnaire. The report of the Department of Health also lacks this information. In a separate list of other causes of death Dr. Phya Boriraksh lists 11,222 deaths as due to congenital debility, icterus and sclerema. For the period covered in the questionnaire there were 14 deaths due to plague; 9,666 deaths due to amebic, balantidium and bacillary dysentery; 897 deaths caused by typhoid fever; and 20,261 listed as due to diarrhoea and enteritis. During this period there were twelve deaths due to cholera, 1,279 to beriberi, 2 to pellagra and 293 caused by scurvy. The respiratory infections also took their toll, there being 1500 deaths caused by influenza and 2,704 deaths due to the pneumonias. There were 10,674 deaths caused by pulmonary tuberculosis and 176 due to tuberculosis of the intestines and peritoneum. The data indicate that there were 510 deaths due to urinary calculi and we have been informed from other responsible sources that urinary stones are exceedingly common in Siam. The precise reason for this is unknown but the water supply is suspected as playing a rôle on account of its high calcium content and it is possible also that this condition may be related to a vitamin deficiency. This problem needs thorough and careful investigation. Pernicious anemia accounted for 1,207 deaths. There were only two deaths reported as due to sprue. In the Report of the Department of Health for 1928 (which is the only one made available to us by the Acting Director) the total number of deaths was given as 152,672 and the total births as 313,366. The birth-rate is given in this report as 32 and the death-rate at 16 per 1000 of population.

No data are avilable in "World Weather Records" on Siam.

TABLE 113

SIAM

Reported by: Phya Boriraksh, Acting Director, Department of Health

Period: Questionnaire dated January, 1934

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	North, east and south	36,492[1]	+	+
Benign tertian	+	North, east and south		+	+
Quartan	+	North, east and south		+	+
Subtertian	+	North, east and south		+	+
Blackwater Fever	+	Scattered			
Leishmaniasis	+			+	
Kala-azar	+	Scattered		+	−
Rat-Bite Fever	+	Scattered	R		
Yellow Fever	−				−
Dengue Fever	+	Scattered		+	−
Plague	+	Scattered	14[1]	+	+
Typhus Fever	+	Scattered	2[1]	+	
Leprosy	+	Scattered	405[1]		+
Syphilis	+	Urban	396[1]		+
Yaws	+	Scattered	257[1]		+
Granuloma Inguinale	+	Central	R		
Smallpox	+	Northeastern	5[1]		+
Amebiasis	+	Scattered			
Balantidium Dysentery	+	Scattered			
Bacillary Dysentery	+	Scattered	9,666[1,2]		+
Cholera	+	Scattered	12[1]		+
Typhoid Fever	+	Urban	897[1,3]		+
Para-Typhoid Infection	+	Scattered			+
Sprue	+	Scattered	2[1]		
Ascariasis	+	Scattered			
Hookworm Disease	+	Scattered	4[1]		+
Giardia Enteritis	+		20,261[1,4]		
Infantile Biliary Cirrhosis	+(?)	Scattered	47[1]		
Filariasis					
F. bancrofti	+	Parts of south		+	
Juxta-Articular Nodules	+	Scattered			
Elephantiasis	+	Parts of south			
Chyluria	+	Scattered	27[1]		
Paragonimiasis					
P. westermanii	+	Central	0		−
Clonorchiasis					
O. felineus	+	Central	0		−
Cestodes					
Tænia saginata	+	North	C	+	
Tænia solium	+	North	C	+	
Trichuris					
T. trichiura	+	Scattered			
Rhinosporidiosis	+	Scattered	R		
Myiasis					
Intestinal	+	Central	0	+	−
Leucodermia	+	Scattered			
Cheloid	+	Scattered			
Ulcus Tropicum	+	Scattered			
Albinism	+	Scattered			
Septic Sore	+	Scattered			

TABLE 113

SIAM—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Madura Foot	+	Southeast	0		−
Tinea Imbricata	+	Parts of north			
Peripheral Neuritis	+	Scattered			
Beriberi	+	Scattered	1,279[1]		+
Pellagra	+	Scattered	2[1]		
Scurvy	+	Scattered	293[1]		+
General Malnutrition or Undernutrition	+	Scattered			
Heat Stroke	+	Rural			
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+	Scattered	9[1]		
Diphtheria	+	Scattered	63[1]		+
Measles	+	Scattered	1,581[1]		+
German Measles	+	Scattered			
Varicella	+	Scattered			+
Epidemic Meningitis	+	Central	12[1]		+
Infantile Paralysis	+	Scattered			
Syphilis of Central Nervous System	+	Urban	7[1]		
Influenza	+	Scattered	1,500[1]		+
Common Cold	+	Scattered			
The Pneumonias	+	Scattered	2,704[1]		+
Cholelithiasis	+	Scattered	1[1]		
Urinary Calculus	+	North and east	510[1]		+
Nephritis	+	Scattered	512[1]		
Diabetes	+	Scattered	14[1]		
Pernicious Anemia	+	Scattered	1,207[1,5]		
Osteomyelitis	+	Scattered			
Tuberculosis			10,859[1]		+
Pulmonary	+	Urban	10,674[1]		+
Bone	+	Urban	176[1]		+
Skin	+	Urban			
Malignancy (all forms)	+	Scattered	391[1]		
Trachoma	+	Scattered			+
Rabies	+	Scattered	172[1]	+	+
Thyroid Disease (Goiter)	+	Parts of north			
Rheumatic Fever	+	Scattered	132[1]		
Arthritis (Nonspecific)	+	Scattered			
Rickets	+	Scattered	3[1]		
Dental Caries	+	Scattered			
Toxemias of Pregnancy	+	Scattered			
Cardio-Vascular Diseases	+	Scattered	1,199[1]		
Hypertension	+	Scattered			
Valvular Lesions	+	Scattered			
Aneurysm	+	Scattered			
Myocarditis	+	Scattered			

TABLE 113

SIAM—*Concluded*

Reported by: Report of Department of Public Health *Period:* 1928

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+		42,251[6]	+	+
Benign tertian				+	+
Quartan				+	+
Subtertian				+	+
Plague	+	11 provinces	235	+	+
Typhus Fever	+	Bangkok	0[6]	+	−
Leprosy	+	Lobpuri	5[6]		
Syphilis	+	Bangkok	264		+
Yaws	+		304[6]		+
Smallpox	+	33 provinces	579		+
Amebiasis	+				
Balantidium Dysentery	+				
Bacillary Dysentery	+		6,016[6,7]		+
Cholera	+	Epidemic	6,229		+
Typhoid Fever	+	Bangkok	?[8]		
Para-Typhoid Infection	+	Bangkok	261[6,8]		+
Ascariasis	+		7,314		
Hookworm Disease	+		19,880		+
Cestodes	+		2,607[9]	+	
Trichuris					
T. trichiura	+		3,325		
Beriberi	+	Lobpuri[10] and Bangkok	325[6,11]		+

II. Diseases Usually Considered as of Temperate Climates

Scarlet Fever	+	Bangkok	1[6]		
Diphtheria	+	Bangkok	18[6]		
Measles	+	Bangkok	24[6]		
Varicella	+	Lobpuri	3[6]		
Epidemic Meningitis	+	3 provinces	26		
Influenza	+	Bangkok	37[6]		
The Pneumonias	+	Bangkok	942[6]		+
Nephritis	+	Bangkok	212[6]		
Tuberculosis	+		6,747[6]		+
Pulmonary	+		6,669[6]		+
Bone	+				
Malignancy (all forms)	+	Bangkok	33[6]		
Trachoma	+	Lobpuri	6[6]		
Rabies	+		107[6]	+	
Cardio-Vascular Diseases	+	Bangkok	121[6]		

[1] All these statistics are the number of *deaths* for the year April, 1931–April, 1932.
[2] All dysenteries.
[3] Typhoid and para-typhoid.
[4] Diarrhea and enteritis.
[5] All anemias.
[6] Deaths.
[7] Deaths due to all dysenteries.
[8] All typhoids. 54.60 per 100,000 population.
[9] Listed as tapeworm.
[10] Only 3 of these in Lobpuri.
[11] 67.36 per 100,000 population.

TURKEY

Turkey, like Spain, Yugoslavia, Greece and one or two other localities, is of interest because of the prevalence of certain of the so-called tropical diseases in considerable numbers within its borders. Turkey has an area estimated at 762,736 square kilometers. In 1927, when the first general census was taken, the population was 13,648,270.

According to the Ministry of Health and Social Assistance of Turkey the following diseases are regarded as of public health importance: Malaria, oriental sore, typhus fever, syphilis, smallpox, the typhoid infections, ascariasis, scarlet fever, diphtheria, measles, influenza and tuberculosis. Further information may be found in Table 114.

No data are avilable in "World Weather Records" regarding weather conditions in Turkey.

TABLE 114

TURKEY

Reported by: Ministry of Health and Social Assistance

Period: Questionnaire dated December, 1933

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Practically everywhere[1]	324,129	+	+
Benign tertian	+	Practically everywhere	62.7%	+	+
Quartan	+	Practically everywhere	9.9%	+	+
Subtertian	+	Practically everywhere	27.4%	+	+
Blackwater Fever	+		R		
Leishmaniasis	+			+	
Kala-azar	+		R	+	
Oriental Sore	+	South and southwest		+	+
Espundia	−				
Relapsing Fever	+			+	
S. recurrentis	+[2]		3	+	
S. duttoni	−				−
Rat-Bite Fever	[3]		2	+	
Yellow Fever	−				−
Dengue Fever	1929, +	Little epidemic along Mediterranean coast		+	
Pappataci Fever	+	Nearly everywhere. Small epidemics in summer		+	−
Plague	[4]				
Typhus Fever	+	Few scattered cases in winter	92	+	+
Trypanosomiasis	−				−
African Human	−				−
T. gambiens	−				−
T. rhodesiense	−				−
South American	−				−
T. cruzi	−				−

TABLE 114
TURKEY—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Oroya Fever	−				−
Undulant Fever	+	Smyrna and Istanbul	1–2	+	−
Leprosy	+	Leproserie d'Istanbul	100		+
Syphilis	+	General	1.4% Pop.		+
Yaws	−				−
Granuloma Inguinal	−				−
Tularemia	−				−
Smallpox	+		180		+
Amebiasis	+	South	341		+
Balantidium Dysentery	+		R		
Bacillary Dysentery	+		R		
Cholera	−				−
Typhoid Fever	+	General. Small and short epidemics	1,821		+
Para-Typhoid Infection	+	General. Small and short epidemics	158		+
Sprue	−				−
Hill Diarrhea	−				−
Ascariasis	+	Village children			+
Hookworm Disease	+	West coast of Black Sea. Natives elsewhere			+
Trichomonas Infection	+	Southern provinces			
Schistosomiasis	+			+	
Urinary	+	Natives of Syria and Egypt	R	+	
Intestinal	−				−
Visceral	−				−
Far Eastern	−				−
Filariasis	−				−
F. bancrofti	−				−
Loa Loa	−				−
O. volvulus	−				−
F. perstans	−				−
F. demarquayi	−				−
F. ozzardi	−				−
Juxta-Articular Nodules	−				−
Elephantiasis	−				−
Chyluria	−				−
Dracontiasis	−				−
D. medinensis	−				−
Paragonimiasis	−				−
P. ringeri	−				−
P. westermanii	−				−
P. compactus	−				−
Clonorchiasis	−				−
C. sinensis	−				−
O. felineus	−				−
Fasciolopsis	−				−
F. hepatica	−				−
F. buskii	−				−
Cestodes	+				−
Tænia saginata	+	Mostly villages		+	−
Tænia solium	+		R	+	−
Dibothriocephalus latus	+		R	+	−
Hymenolepis nana	−				−
Sparganum mansoni	−				−
S. prolifer	−				−

TABLE 114

TURKEY—*Continued*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Trichuris	−				−
T. trichiura	−				−
H. heptaticus	−				−
Trichinelliasis	−				−
T. spiralis	−				−
Climatic Bubo	−				−
Rhinosporidiosis	−				−
Goundou	−				−
Ainhum	−				−
Big Heel	−				−
Myiasis	−				−
Subcutaneous	−				−
Blood sucking	−				−
Intestinal	−				−
Larva Migrans	−				−
Leech Infection	−				−
Leucodermia	−				−
Cheloid	−				−
Ulcus Tropicum	−				−
Albinism	−				−
Septic Sore	+				−
Pemphigus Contagiosus	−				−
Ulcerating Dermatitis	−				−
Madura Foot	−				−
Other Mycetoma	−				−
Blastomycosis	−				−
Mossy Foot	−				−
Pityriasis Nigra	−				−
Pityriasis Versicolor	+	Istanbul	180		−
Dhobie's Itch	−				−
Seborrhoea	+	Occasional			−
Tinea Imbricata	−				−
Trichosporosis	+	General	C		−
Trichomycosis	+		2		−
Acarine Dermatomycosis	+	Istanbul	18		−
Epidemic Dropsy	−				−
Peripheral Neuritis	+		R		−
Beriberi	−				−
Pellagra	+		R		−
Scurvy	+		R		−
General Malnutrition or Undernutrition	+		0		−
Heat Stroke	+		R		−
II. Diseases Usually Considered as of Temperate Climates					
Scarlet Fever	+	General. Winter epidemics	1,790		+
Diphtheria	+	Seasonal epidemics	1,048		+
Measles	+	Epidemics in villages	4,502		+
German Measles	+				−
Varicella	+	Occasional epidemics	42		+
Epidemic Meningitis	+	Seasonal epidemics	904		+
Infantile Paralysis	+		R		−
Epidemic Encephalitis	+		3		−
Syphilis of Central Nervous System	+	Mostly natives			−

TABLE 114

TURKEY—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Influenza	+	Epidemic in 1931	C		+
Common Cold	+	General in winter			−
The Pneumonias	+				−
Cholelithiasis	+		R		−
Urinary Calculus	+		R		−
Nephritis	+	General			−
Diabetes	+	Mostly in cities			−
Pernicious Anemia	+	Isolated cases			−
Osteomyelitis	+	Isolated cases			−
Tuberculosis	+				+
Pulmonary	+	Mostly in cities	C		+
Bone	+				+
Skin	+				−
Malignancy (all forms)	+	Mostly in cities			+
Trachoma	+	Mostly in south and southeast			+
Weil's Disease	+		2		−
Tsutsugamushi Disease	−				−
Rabies	+	General	15	+	+
Unusual Skin Disease	+				−
Thyroid Disease (Goiter)	+	Mountainous regions			−
Rheumatic Fever	+	Seasonal outbreaks in seacoast cities			−
Arthritis (Nonspecific)	+		R		−
Rickets	+	City children			+
Dental Caries	+	Mostly in cities			+
Toxemias of Pregnancy	+				−
Cardio-Vascular Diseases	+				+
Hypertension	+				+
Valvular Lesions	+				+
Aneurysm	+		R		−
Myocarditis	+				−

[1] Ankara, Ayden, Bursa, Antalya, Adana, Eskishéhii, Konya, Samsoun and Kodjaéli.
[2] Since World War.
[3] Not since 1926
[4] Not since 1929.

REPUBLIC OF VENEZUELA

The Republic of Venezuela was formed in 1830. The area of Venezuela is 393,874 square miles and the population was estimated in 1926 at 3,026,878. The seat of Government is Caracas, which has a population of nearly 200,000. The language spoken is Spanish. The country is divided into a Federal District, twenty states and territories. The Roman Catholic religion is the State religion but other beliefs are tolerated. The revenue during 1932–33 was 150,000,000 bolivars and the expenditures were 142,963,514 bolivars. The imports, in 1930, amounted to 363,858,456 bolivars and the exports to 762,494,232 bolivars. The country is divided into agricultural, pastoral and forest zones. Among the important products are coffee, coco, sugar-cane,

maize, cotton, beans, copaiba, vanilla and caoutchouc. There are about 5,000 coco plantations and 600 sugar plantations. The forests include some 600 species of wood. Oxen, sheep, goats, horses, mules, asses and pigs are raised. Venezuela is also rich in metals and minerals which include gold, copper, magnesite, coal and salt. Asphalt is also exported. Venezuela is today the second petroleum producing country of the world, having produced in 1932 115,319,859 barrels.

Elementary education is free and compulsory. In 1931 there were 2,154 public primary schools with 3,316 teachers and 113,781 students. There were 18 secondary schools with 215 teachers and 1,029 students. There are also several schools for higher learning, such as the Central University in Caracas.

We have been furnished information regarding health conditions in Venezuela through the courtesy of Dr. H. Toledo Trujillo and among the diseases of public health importance are malaria, leprosy, syphilis, smallpox, amebiasis, bacillary dysentery, typhoid fever, hookworm disease, beriberi, the pneumonias and tuberculosis. See Table 115 for further information.

The only data regarding weather conditions in Venezuela which are available in "World Weather Records" refer to total precipitation. Over the ten year period, 1921–30, the mean total precipitation was 826 millimeters.

TABLE 115

VENEZUELA

Reported by: Dr. H. Toledo Trujillo *Period:* Figures for 1932

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Everywhere except Caracas	5,318[1]	+	+
Benign tertian	+			+	+
Quartan	+			+	+
Subtertian	+			+	+
Relapsing Fever	[2]	Estado Fachvia			
S. venezuelense	+		0		
Yellow Fever	[3]	Coro (Estado Falcon)			
Plague	[4]	Los Rosos (Estado Miranda)			
Leprosy	+	Miranda, Esparta, Sucre, Fachvia, Zamora and Zulia	46[1]		+
Syphilis	+	General	400[4]		+
Smallpox	+	Fachvia and Frujillo	2[4]		+
Amebiasis	+	General	800[4]		+
Bacillary Dysentery	+	General	66[4]		+
Typhoid Fever	+	General	433[4]		+
Para-Typhoid Infection	+	General	39[4]		+
Hookworm Disease	+	Everywhere except Caracas	282[4]		+
Beriberi	+	Apine and Bolivar	44[4]		+

TABLE 115

VENEZUELA—*Concluded*

II. Diseases Usually Considered as of Temperate Climates

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Scarlet Fever	+	General	10[4]		
Diphtheria	+	General	56[4]		
Measles	+	General	119[4]		+
Common Cold	+	General	532[4,5]		+
The Pneumonias	+	General	1,674[4]		+
Urinary Calculus	+	General	29[4]		
Nephritis	+	General	670[4,6]		
Tuberculosis	+	General	3,519[4]		+
Pulmonary	+	General	3,144[4]		+
Bone	+	General	375[4,7]		+
Skin	+	General			

[1] Deaths.
[2] Not since 1931.
[3] Not since 1918.
[4] Not since 1928.
[5] "Grippe."
[6] Including Bright's disease.
[7] Bone and skin figures together.

YUGOSLAVIA

In this survey we have considered two or three countries which are located in the subtropics proper but which have a greater or lesser incidence of one or more of the so-called tropical diseases and therefore have been considered in this study. Yugoslavia is one of these countries. We are not particularly concerned here with the social-economic background of the country, since the tropical disease picture is limited, but certain facts giving a setting for the diseases which will be mentioned as important health problems, will no doubt be of interest. Yugoslavia is a country having an area of 248,665 square kilometers. In 1931 the total population was given in the census of that year as 13,930,918 people of whom 7,036,357 were females and 6,894,561 were males. The density of population is 56.02 per square kilometer.

Among the diseases of public health importance, according to Dr. Bojan Pirc, Chief Statistician of the Central Institute of Hygiene in Belgrade, are malaria, syphilis, bacillary dysentery, typhoid fever, trachoma and tuberculosis. Scarlet fever, diphtheria and measles are also very common. Of chief interest to us is the fact that in 1932 there were reported about 500,000 cases of malaria in Montenegro, South Serbia and Dalmatia. The report also indicates about 70 cases of leprosy. Further details will be found in Table 116.

No data are avilable in "World Weather Records" for Yugoslavia.

TABLE 116
YUGOSLAVIA

Reported by: Dr. Bojan Pirc *Period:* All figures given are for 1932

I. Tropical Diseases

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Malaria	+	Montenegro, South Serbia, Dulmstior	500,000	+	+
Benign tertian	+			+	+
Quartan	+			+	+
Leishmaniases	+				
Kala-azar	+		7	?	−
Relapsing Fever	+				
S. recurrentis	1				−
Pappataci Fever	+	Zona Kotoesna	?		−
Typhus Fever	+				
Undulant Fever	+	Salmacia	?		
Leprosy	+	Montenegro, Zosna	70		
Syphilis	+	Endemic Zosma, East Serbia, general	50,000 (?)		+
Smallpox	2				
Bacillary Dysentery	+	General	2,656		+
Typhoid Fever	+	General	6,908		+
Para-Typhoid Infection	+	General	363		
Ascariasis	+		?		−
Hookworm Disease	+				
Giardia Enteritis	?				
Trichomonas Infection	+		?		−
Filariasis	+	South Serbia	?		−
Cestodes	+		?		
Tænia solium	+		?		
Dibothriocephalus latus	+		?		
Hymenolepis nana	+		?		
Sparganum mansoni	?				
S. prolifer	?				
Trichuris	+				
T. trichiura	+		?		
H. heptaticus	?				
Trichinelliasis	+		?		
Ulcus Tropicum	+	South Serbia	?		
Septic Sore	?				
Madura Foot	+	Sporadic	1	?	−
Pityriasis Versicolor	+			?	−
Seborrhoea	+		C	?	−
Beriberi	?				
Pellagra	+		?		−
General Malnutrition or Undernutrition	?				

II. Diseases Usually Considered as of Temperate Climates

Scarlet Fever	+	General	7,383		+
Diphtheria	+	General	10,158		+
Measles	+	General	6,956		+
German Measles	+	General	?		−
Varicella	+	General	?		−
Epidemic Meningitis	+	General	122		+

TABLE 116

YUGOSLAVIA—*Concluded*

DISEASE	PRESENT OR ABSENT NOW OR PREVIOUSLY	DISTRIBUTION	APPROXIMATE NUMBER OF CASES	IS VECTOR OR INTERMEDIATE HOST (*if any*) PRESENT	CONSIDERED IMPORTANT HEALTH PROBLEM OR NOT
Infantile Paralysis	+	General	201		+
Epidemic Encephalitis	+	General	5		−
Syphilis of Central Nervous System	+	General	?		
Influenza	+	General	?		−
Common Cold	+	General	?		−
The Pneumonias	+	General	?		
Cholelithiasis	+	General	?		
Urinary Calculus	+		?		
Nephritis	+		?		
Diabetes	+		?		
Pernicious Anemia	+		?		
Osteomyelitis	+		?		
Tuberculosis	+		36,000[3]		+
Pulmonary	+		?		+
Bone	+		?		
Skin	+		?		
Malignancy (all forms)	+		?		
Trachoma	+	Vijorretina, Croatia, Slovacia, Slowenia	50,000		+
Rabies	+		20[3]		
Unusual Skin Disease	?				
Thyroid Disease (Goiter)	+	Endemic in Slovenia, South Serbia, Zosna	?		
Rheumatic Fever	+		?		
Arthritis (Nonspecific)	+		?		
Rickets	+		?		
Dental Caries	+		?		
Toxemias of Pregnancy	+		?		
Cardio-Vascular Diseases	+		?		
Hypertension	+		?		
Valvular Lesions	+		?		
Aneurysm	+		?		
Myocarditis	+		?		

[1] Not since 1929.
[2] Not since 1927.
[3] Deaths.

PART FIVE

SUMMARIES OF SELECTED DISEASES (WITH SPECIAL ARTICLES)

In this section we have included a group of short articles contributed by leading authorities on certain diseases. Each article is followed by a summary chart which includes all the countries studied in this survey and the number of cases or deaths for each disease under consideration. If no report was received from a particular country, it has been omitted from the table for that disease. In each instance we have employed the largest figure available where both minimum and maximum estimates are given. By referring to the original data given under the specific country it may be determined whether the figure represents cases or deaths. While the survey questionnaire requested data on *cases*, in many instances such data were not available and data on deaths have been recorded.

The following articles and summary charts follow:

MALARIA: Mark F. Boyd, M.D., International Health Division, Rockefeller Foundation

BACILLARY DYSENTERY: Richard P. Strong, M.D., Harvard University Medical School

AMEBIASIS: Charles F. Craig, M.D., Tulane University School of Medicine

TYPHOID FEVER (including the paratyphoid fevers): Frederick P. Gay, M.D., College of Physicians & Surgeons, Columbia University

TUBERCULOSIS: William C. White, M.D., National Tuberculosis Association

BRUCELLOSIS: Alice C. Evans, National Institute of Health

DENGUE FEVER: J. F. Siler, M.D., United States Army Medical School

YELLOW FEVER: Wilbur A. Sawyer, M.D., International Health Division, Rockefeller Foundation

TYPHUS FEVER: R. E. Dyer, M.D., National Institute of Health

LEPROSY: George W. McCoy, M.D., National Institute of Health

SYPHILIS: Alan M. Chesney, M.D., School of Medicine, Johns Hopkins University

YAWS: Charles S. Butler, M.D., United States Navy Medical Corps

TRACHOMA: Louis A. Julianelle, M.D., School of Medicine, Washington University

TULARAEMIA: Edward Francis, M.D., National Institute of Health

CLONORCHIASIS: Richard P. Strong, M.D., Harvard University Medical School

SCHISTOSOMIASIS: Ernest Carroll Faust, Ph.D., Tulane University School of Medicine

FILARIASIS: Francis W. O'Connor, M.R.C.S., College of Physicians & Surgeons, Columbia University

BERIBERI: Edward B. Vedder, M.D., School of Medicine, George Washington University

MALNUTRITION AND UNDERNUTRITION: Donald H. Cook, Ph.D., School of Tropical Medicine, San Juan, Puerto Rico

CHEMOTHERAPY: Chauncey Leake, Ph.D., School of Medicine, University of California

MALARIA

MARK F. BOYD, M.D.

International Health Division, Rockefeller Foundation

Malaria is at present endemic in comparatively restricted areas of the United States. The principal endemic area, in which the endemic prevalence may be regarded as low or moderate, occurs in the southeastern states, east of the line marking the mean annual precipitation of 30 inches. Towards the interior, it is largely delimited by the division between the Atlantic Coastal Plain and the Piedmont Plateau and extends along the Atlantic coast as far north as Boston. In the northern portion of this range, tertian malaria is almost the sole form encountered, a few cases of quartan occurring. To the south of the Chesapeake Bay considerable incidence of estivo-autumnal malaria is observed. Malaria does not appear to have a normal endemicity in the Piedmont Plateau, although extensive epidemics have been observed about the hydro-electric impoundings which have been the cause of considerable concern to the public health authorities. During the period of early settlement, this endemic area was considerably extended to the north, occupying the whole of the upper valley of the Mississippi and southern Canada, about as far north as the summer isotherm of 70°F. During the past 50 years, however, the disease has almost entirely receded from this area. Minor endemic areas are to be found in the irrigated regions of New Mexico, the central valley of California and the valley of the Columbia River.

Since the comparatively low endemicity encountered in the endemic areas in the southeastern states is not accompanied by a high degree of community immunity, these areas experience at irregular intervals fairly intense epidemics of malaria during the summer and autumn months. While these vary greatly in severity, some may be very prostrating to a community, and may also be accompanied by considerable mortality, attributable to the estivo-autumnal parasite. Extensive anti-malaria operations in the last 15 to 18 years have very largely eliminated endemic malaria in the cities and towns of this area, although it continues to be a problem in many of the rural communities.

In general, I am inclined to think that this condition of affairs will persist until there are radical improvements in the housing facilities at the disposal of the rural inhabitants, both white and black, of this area. A large proportion of these are very inadequate structures, the screening and mosquito proofing of which is practically impossible. It is my opinion that when for these structures there are substituted mosquito proof dwellings, malaria will largely, if not altogether, disappear from this endemic area.

Note by Director of Studies:

According to the study by the Health Organization of the League of Nations entitled "Enquiry into the Quinine Requirements of Malarial Countries and the World Prevalence of Malaria," the 65 countries reporting show a total of 17,750,760 cases of malaria treated during the last year of the study. This report also states:

"The proportion of malaria cases treated to the population and to the total number of cases of other diseases treated affords a valuable index of the prevalence of malaria in countries with a highly developed medical service.

"It is a striking fact that, in certain tropical countries such as Indo-China, Ceylon, the Straits Settlements, the Federated Malay States, etc., malaria alone accounts for from 10 to 56.9 per cent of the total number of cases of infectious diseases treated in hospitals or dispensaries.

"In countries where the prevalence of malaria is known, the number of cases treated reflects the extent, and even the intensity, of the anti-malarial work, provided the quantity of quinine used is taken into account. In India, for instance, out of 100 million malaria cases—a moderate estimate—only from 8 to 10 millions are treated, and the quantity of quinine distributed does not exceed 2 grammes per annum per case treated. This demonstrates that the campaign against malaria must be developed if the millions of cases that still escape all treatment are to be reached, and that the treatment itself must be intensified. We have given the example of India because it is the largest of the malarial countries that have given us fairly full particulars; but there are many other countries where the conditions of treatment are similar."

Of recent interest are current press dispatches concerning a virulent outbreak of malaria in Ceylon (See Appendix). As late as April 3, 1935 a press dispatch states that, during this recent outbreak, as many as 54,000 persons have succumbed to malaria since November, 1934.

It will be noted that in the summary chart which follows we have had reports of malaria from various countries of the world, accounting for a total of 8,468,663 cases but there can be no question but what this number represents only a part of the real picture of this disease. There are many countries, for example, which report the presence of malaria but give no indication of its prevalence. There are other countries which report certain numbers of cases *known to exist* but at the same time these countries recognize that their malaria cases far exceed the number in the official records. We need only to call attention to India in this respect (see above) where 1,460,254 cases are reported but the study quoted above states that between eight and ten million cases of malaria are actually treated. In this survey the fact stands out that, from the standpoint of numbers of cases, malaria apparently occupies the most important position of all diseases in the world today.

TABLE 117

Summary of incidence of Malaria

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
United States of America:		Tanganyika Territory	32,245
15 Selected States	54,300	Nyasaland Protectorate	9,787
Hawaii	0	Zanzibar Protectorate	8,369
Puerto Rico	53,222	Somaliland Protectorate	262
Virgin Islands	500	Colony of Nigeria	33,771
Canal Zone (see Panama)		Gold Coast Colony	106,303
Guam	0	Colony of Gambia	818
Philippine Islands	74,000	Sierra Leone	4,859
Samoan Islands	0	Basutoland	7
		Bechuanaland Protectorate	617
The British Empire:		Southern Rhodesia	+(?)
Kenya Protectorate	28,507	Northern Rhodesia	1,286
Uganda Protectorate	48,702		

TABLE 117—*Concluded*

PLACE	NUMBER OF CASES
Union of South Africa	301,508
The Anglo-Egyptian Sudan	167,896
Mauritius	44,632
Seychelles	4
Palestine	2,984
Empirate of Trans-Jordan	15,000
Cyprus	12,976
Gibraltar	+(?)
Maltese Islands	4
Sarawak	285
Brunei	927
British North Borneo	1,577
Ceylon	1,538,890
India and Dependencies	1,460,254
Straits Settlements and Federated Malay States	26,798
Burma	383,114
Johore	16,528
Kedah and Perlis	3,118
Kelantan	16,945
Trengganu	10,718
Hong Kong	9,868
Fiji and Western Pacific	2
British Solomon Islands	47
Commonwealth of Australia	16
Bahamas	7
Barbados	0
Bermuda	0
British Guiana	25,000
British Honduras	498
Jamaica	7,769
Cayman Islands	+(?)
Antigua	2,511
Dominica	3,000
Montserrat	7
Virgin Islands	542
Grenada	6,603
St. Lucia	2,247
St. Vincent	942
Trinidad and Tobago	2,883
Republic of France:	
Syria and Lebanon	+(?)
Morocco	343
Madagascar	104,986
Reunion	150
West Africa & Sahara	78,698
Equatorial Africa	10,400
French Indo-China	20,048
Pacific Group	112
Guadeloupe	+(?)
Martinique	+(?)
Atlantic Group (others)	
Guyane	5,837
St. Pierre	
Miquelon	
Indian Ocean Group	2,887
The Netherlands:	
Dutch East Indies	+(?)
Other Countries:	
Abyssinia	+(?)
Albania	250,000
Argentina	128,660
Bolivia	+(?)
Brazil	+(?)
Chile	+(?)
China	+(?)
Colombia	10,669
Belgian Congo	+(?)
Costa Rica	200,000
Dominican Republic	399
Egypt	1,165
Greece	2,000,000
Haiti	40,000
Holland	+(?)
Honduras	5,033
Italy	203,219
Liberia	+(?)
Panama and Canal Zone	+(?)
Paraguay	+(?)
Peru	10,400
Spain	304
Siam	42,251
Turkey	324,129
Venezuela	5,318
Yugoslavia	500,000
Total	8,468,663

BACILLARY DYSENTERY

RICHARD P. STRONG, M.D.

Harvard University Medical School

In connection with the survey of bacillary dysentery, it is noteworthy that, while this disease is not limited to any particular part of the world, in tropical and subtropical countries it occurs more frequently and often in more virulent form. Large epidemics are also more common in such countries. The occurrence of the disease, particularly in epidemic form, is influenced by the

sanitation of the region, being more prevalent in communities where fly suppression and sewage and garbage disposal are not properly controlled. Even in more temperate climates the disease is apt to occur during the warmer months of the year. Sellards (1921) has pointed out that the disease has never given rise to any great pandemics.

The disease was encountered in severe epidemic form in the Philippine Islands shortly after American occupation (1899–1900) and numerous severe outbreaks have been reported from Japan. Indeed the disease in epidemic form has been more commonly reported from Japan than from any other country, where, according to Shiga and others, the mortality is often high (from 20 per cent to 50 per cent). However, outbreaks have been not uncommon in many parts of the tropics, notably in India, Indo-China, China, Ceylon, Malaya, the Philippines, Java, northern Brazil, Haiti, Panama, Egypt, Syria, Palestine and in parts of the French and Belgian Congo.

In its epidemic form it has been particularly a disease of armies. In the American Civil War, the South African War, the Philippine campaigns, the Russian-Japanese War and especially in the World War, it was very prevalent. In this last war, while it occurred on all the fronts, it was the most important disease in the British armies in the eastern Mediterranean area, Macedonia and Gallipoli. In Macedonia Leddingham reported a rate of bacillary dysentery of 15 to 83 per 10,000 and in Gallipoli it was said to be responsible for more than 100,000 casualties.

In the United States and northern Europe the disease has not prevailed in severe epidemic form, though numerous small outbreaks as well as sporadic cases have been reported and studied. The outbreaks have occurred especially in insane asylums, orphanages or other public institutions, and often in young children. Strains of dysentery bacilli have frequently been isolated from cases of so-called summer diarrhoea of infants, though in many other cases Morgan's bacillus has been encountered. Zinsser and Bayne-Jones (1934) point out that the Morgan bacilli are more closely allied to *B. coli* than to the dysentery or typhoid or paratyphoid groups of bacilli.

Several small outbreaks of bacillary dysentery have been reported from New York State since 1928 (Gilman, Coleman and Leahy). That the disease is not prevalent is evident from the fact that in 1932 only 20 cases of dysentery of all forms were reported from New York City and in 1933 only 89 cases. Whether endemic foci of bacillary dysentery exist in the southern United States, as they apparently do in some areas in France (Tours, Chalons), has not been carefully studied. Kemp and Haberman (1934) during an epidemic of acute bacillary dysentery in Dallas, Texas, made cultures from the stools of 58 cases; from 26 of these dysentery bacilli were obtained.

Climate. In India, as Rogers has particularly pointed out (1928, 1930), the minimum prevalence of bacillary dysentery is in the dry cold weather of January and February. A slight rise occurs in March with an increase of the

monthly temperature, and a slight fall in the hottest months of May and June, but the main rise takes place in the rainy season from late in June to September. On the whole the seasonal distribution corresponded well with periods of fly dissemination. Leddingham's investigations in Mesopotamia made during the War also show that while, in general, the disease prevails more in the warmer months, its incidence is more influenced by the occurrence of the fly season. He found that the first epidemic rise, in that area with very low rainfall, followed about two weeks after the March commencement of the first fly season. A partial decline of dysentery took place in the very hot months of July and August when the flies disappeared. A second dysentery maximum followed the second fly season in November.

Diffusion. The occurrence and distribution of the disease is often influenced more by hygienic than by geographical conditions. In this respect, as well as in its mode of communication, it resembles typhoid fever. The dysentery bacilli are usually ingested with food or drink to which they have gained access directly or indirectly from the feces of cases of bacillary dysentery, sometimes from carriers of the bacilli. In a disease where the movements are frequent and fluid, or in milder cases not under treatment in hospitals, the diffusion of the dysentery organism in infectious material is much more likely to occurr than in typhoid fever. Thus transmission from man to man by hands, and indirect contamination of food or water, is possible during epidemics. However, the dysentery bacilli are frequently not present in very large numbers in the dejecta and the disease is probably not widely spread in this manner. Fly transmission is usually of much greater importance and is likely to occur in the tropics, especially among the inhabitants of rural villages or troops in camp where open latrines are employed, and kitchens, food and mess tables, etc., are unscreened. Dysentery bacilli will live for several days in the intestine of the fly and be passed in the dejecta. They may remain alive also for considerable time in moist soil, and the local water supplies may be contaminated with fecal material, which has given rise to sharp outbreaks. In the Philippine Islands in 1899–1900 probably numerous infections occurred from men filling their canteens (contrary to instructions) with infected water collected on the march or about temporary camps.

Carriers. The disease may also be spread by carriers as the investigations of Conradi, Shiga and others have demonstrated. Carriers among cooks and handlers of food may be obviously especially dangerous. Shiga has particularly emphasized the fact that it is through carriers that infection survives during the inter-epidemic periods in Japan. R. C. Connor and Bates believe that the spread of the disease in Panama is wholly due to carriers. Duval and Shorer have found dysentery bacilli in the dejecta of healthy children in connection with the study of summer diarrhoea of infants, and Martha Wollstein has isolated dysentery bacilli from the intestine at autopsy of children who had not suffered with symptoms of dysentery, immediately or shortly

after death. Bowman in 1910 found in two of our laboratory monkeys in the Philippines, spontaneous bacillary dysentery, and dogs have also been found infected in a few instances, as noted recently by Dold in China, but it is not believed that the disease is commonly spread by animals.

Differentiation and distribution of different types of bacilli. The differentiation of the strains of the dysentery group which differ serologically is of some importance from the standpoint of diagnosis, prophylactic inoculation and treatment.

With reference to distribution of the different strains of bacilli of the dysentery group (Shigella) it may be noted that Shiga discovered *Bacillus dysenteriæ* (*Shigella dysenteriæ*) in 1898 in an epidemic of dysentery of Japan. This organism was subsequently shown (first by Drigalski and Lentz) not to ferment mannite. In March, 1900, Flexner isolated in Manila another strain of dysentery bacilli which was later shown to ferment mannite. In May, 1910 Strong also isolated in the Philippines other strains of dysentery bacilli and reported with Musgrave upon a bacteriological and pathological study of 111 cases of dysentery with autopsies, 31 of which were of the bacillary dysentery type. At the same time a bacteriological study was made of 71 clinical cases of *Bacillus dysenteriæ*. Among the dysentery bacilli isolated from these cases in the Philippine Islands, some were subsequently found to ferment mannite (Flexner type) (V race of Andrewes and Inman, 1919); others were found not to ferment mannite (Shiga type); while a third type was found not to ferment mannite but to ferment saccharose [Strong type of Lentz (1902), H type of Ohno (1906), W type of Andrewes and Inman (1919)].

In 1900 and 1901 Kruse also isolated dysentery bacilli in Germany and first distinguished culturally between several types. In 1903 Hiss and Russell isolated in the United States another strain of dysentery bacillus which also fermented mannite but which did not ferment maltose. Gay (1903), working in Flexner's laboratory, found that the dysentery bacilli which he studied fell into two types according to certain cultural bacteriolytic and agglutinating reactions. In 1904 Hiss published a classification of the dysentery bacilli based upon fermentation reactions and agglutination tests, dividing the organisms described above into four main groups, and found that strains from many sources could be distributed among these groups. Lentz and Martini (1902, 1913) also separated the dysentery organisms into these same four groups.

Shiga in a further study likewise divided the dysentery bacilli by cultural reactions and serum tests into five types. The first four types agreed entirely with those of Hiss; the fifth type differed from the fourth in that after 24 hours it gave an acid reaction in mannite but this gradually disappeared, the medium subsequently becoming alkaline. He regarded this fifth type as an intermediate one between the acid (fermenting) and non-acid dysentery bacilli. This classification of Hiss, Lentz and Shiga has been in general use and is

generally accepted. However, still other types of dysentery bacilli have since been described and recent investigations carried out during the World War have suggested other classifications.

Duval in 1904, Kruse in 1907 (the Kruse-E type) and Sonne in 1915, have all described, as a cause of dysentery, bacilli which ferment lactose (*B. dispar* Andrewes, 1918) and it has been suggested that a fifth main group of dysentery bacilli may include the dulcite-fermenting *Bacillus alcalescens* (Glynn and Robinson, 1918). Zinsser and Bayne-Jones (1934) believe that the evidence that *Bacillus alcalescens* is pathogenic is not convincing. They, however, include the organism in their last table giving the differential characteristics of dysentery bacilli. The Schmitz bacillus, which is differentiated from the Shiga bacillus in this table by the production of indole, is classified as a separate organism.

The bacilli of the four classical types (of Hiss, Shiga and Lentz) are not necessarily confined to different geographical regions. The investigations in the Philippine Islands of Flexner, Strong and Ohno have shown that at least three of these types of organisms occur there and Amako (1905), in the study of an epidemic in the town of Kobe in which dysentery bacilli were isolated in 526 cases, found all of these four types of dysentery as well as the fifth type of Shiga. In one case two different types were found in the same patient. In six families in which there were 25 patients, he found two different types. Such investigations show that even a local epidemic may be caused by different types of the dysentery organism, and in large outbreaks it is not unlikely that several types of dysentery bacilli may be encountered.

Shiga points out that the dysentery epidemic in Tokyo previous to 1904 was caused almost entirely by the non-acid type. However, Futaki (1904) found that, during the epidemic which spread through the capital of Japan in that year, in 100 cases studied, all were of the acid type and only two of the non-acid type. In the same year in Manchuria, Chosen and Port Arthur, Hata found a greater number of cases infected with the non-acid type.

Ohno (1906) in the Philippine Islands, working upon a large number of freshly-isolated strains, believed that he could distinguish fifteen varieties among seventy-four strains of dysentery bacilli studied. He did not consider that there was great advantage in separating the bacilli into two distinct groups—mannite and non-mannite fermenting—as he found that the groupings of the different organisms according to the differences in their powers of causing fermentation does not always correspond to that which results from differences observed in agglutinative and bacteriolytic action with specific immune sera.

Pacheco (1925) found in Bahia, Brazil, 80 per cent of the cases studied were caused by organisms of the Shiga type and 10 per cent of the Y type; the remaining 10 per cent were not bacillary in nature.

Ten Broeck and Norbury in 1916, in a study of infectious diarrhoea in

infants in Boston, found that 76 per cent belonged to the type of Hiss-Y, 13 per cent to the Flexner and 10 per cent to the Strong type.

During and since the World War a large number of strains of dysentery bacilli have been collected and studied, and some of these studies give additional information of the distribution of the different types of bacilli.

The investigations of Leddingham (1920) showed that 55 per cent of the cases in Mesopotamia were due to mannite-fermenting bacilli (Flexner strains) and 45 per cent to non-mannite fermenting strains (Shiga strains). In Malaya, Fletcher (1927) found in dysentery cases a much greater prevalence of Flexner strains than of Shiga ones, while in the Belgian Congo L. van Hoof found that, in bacillary dysentery which was endemic there with occasional epidemics, the infecting organism was generally due to the Hiss-Y organism.

De Assis (1934), in a review of bacillary dysentery as it occurs in Brazil, states that the organisms isolated in epidemic and endemic bacillary dysentery are: (1) the bacillus of Shiga; (2) the bacilli of the group of Flexner containing the type Strong, Y and Hiss; (3) the bacillus of Schmitz, distinguishable from the Shiga bacillus by its production of indole and its serological reactions; and (4) the bacillus of Sonne, or Castellani-Kruse-Sonne bacillus.

Kemp and Haberman (1934), in the study of 58 cases of bacillary dysentery in Texas, found that among 26 cultures of dysentery bacilli obtained, 16 were identified as *Shigella paradysenteriæ* var. Flexner, 5 as *Shigella dispar* Andrewes and 5 as *Shigella paradysenteriæ* var. Sonne.

While many strains of dysentery bacilli were studied during the War, much of the work was performed in field laboratories and the time obviously was not as propitious as was desirable for deliberate study. Other investigations were carried on in European laboratories upon convalescents after their return from the war area.

Andrewes and Inman (1919), in the study of a large number of strains mostly from individuals who had served on the western front, divided these organisms into five main races which were designated as V, W, X, Y and Z, respectively, but with sub-groups designated as VZ and WX. Their V race, they state, corresponds with most of the strains kept as typical Flexner strains in European laboratories. However, they found that no well-known strain of the classical types which had reached them fell into either their X or Z groups. The so-called Y of the Oxford laboratory belonged to their W group. Their Y group corresponds to the typical bacillus of Hiss and Russell, while the Strong type is included in their W group. They point out that it is of course unlikely that their observations have covered all the serological varieties of the Flexner group.

The investigations of Glynn and Robinson (1918) were based upon the study of the excreta of 2,360 cases of enteritis received from the eastern Mediterranean area, the great majority of whom were convalescent. They point out that the work is unavoidably incomplete and regret that they had no opportunity to study acute cases.

Their investigations support the fact shown by Shiga, Barber, Ten Broeck, and more recently emphasized by Martin (1917) and others, that mutation of bacteria may complicate the classification of dysentery bacilli, especially as it seems to affect maltose and saccharose particularly. In their classification they include under "Flexner-Y strains" some organisms which fermented saccharose. They found 31 "Flexner-like strains" which when first isolated produced acid in saccharose ("Strong type").[1] Apparently they did not prepare sera of all the classical types of the dysentery bacilli, and test the agglutinability of the organisms isolated with all these sera. With a Flexner serum they found that only 4 early saccharose fermentors agglutinated out of 19 tested; whereas 45 of the 90 strains which were apparently non-saccharose fermentors agglutinated with this serum. They frequently encountered "*Bacillus* Morgan" and *Bacillus fæcalis alcaligenes*, but were unable to express themselves regarding the production of dysentery by these organisms. Rajchman and Weston, on the other hand, found 3 out of 9 strains of mannite-fermenting organisms produce acid and saccharose, and agglutinate in high titer.

From these and other investigations it seems evident that the group of mannite-fermenting or Flexner dysentery bacilli is very heterogeneous, and indeed some observers have pointed out that it may be necessary to employ a duplicate alphabet to designate all the races which have been reported as different or which have been given different letters or numbers. In Germany Sartorius and Reploh (1931 and 1932) have recognized 11 races and Kemper divides them into 10 or 12 races, which he designates by the letters A, BC, D, F, F, G, H, X, X, DX, Y_2, Y_1. He concludes his publication with the statement that he attempted to discover by means of the Castellani cross-agglutination absorption method whether there were any further relationships between the races of Flexner dysentery bacilli. He found that there was apparently a close relationship between the races D—DX—X, F—Y_1—Y_2, H—A—(F)[1], H—X—DX, L—(F), in addition to the already well known relationship A—BC—H.

However, Shiga in his last publication (1933) has entered a plea for greater unification of the types, and points out that under his grouping the names allotted are simple and the claims to priority are also taken in consideration. In this article he gives the table on p. 387.

[1] Unfortunately they confused in their study an organism of the *Flexner* type isolated by the writer years ago in Manila, and studied subsequently of Ohno. This culture, they state, was obtained by "Frazer from the Director of the Bureau of Science," Manila. It fermented mannite but did not ferment either saccharose, maltose or dextrose. Obviously it was not of the original "Strong" type.

Classification of dysentery bacilli

According to Lentz	1 Shiga-Kruse bacillus	2 Schmitz bacillus	3 Flexner group			4 Kruse-Sonne bacillus
			Flexner	Y	Strong	
Litmus mannite	Blue	Blue	Red	Red	Red	Red
Indole	−	+	+	±	±	+
Milk	No coagulation	No coagulation	No coagulation			Coagulation
Litmus lactose	Blue	Blue	Blue			Red
Special toxin	+	−	−	−	−	−
According to Shiga	(1) *B. dysenteriæ*	(2) *Bacillus meta-dysenteriæ*	(3) *B. para-dysenteriæ*			

In diagnosis by the agglutination test, owing to the existence of the different races or types of dysentery bacilli, the test should be made with a member of each type. For the same reason, if treatment of the disease with serum is employed, a polyvalent serum prepared with a representative of each type of organism offers advantages unless the type causing the epidemic or the individual case is previously known. If a univalent serum is employed, it may be deficient in antibodies of one or another of the types of infecting bacilli. Sellards has again emphasized the importance of these facts in 1921. Shiga (1923), in his report on the standardization of serum to the League of Nations, gives a table showing the relation between the different types and their agglutinating properties.

Vaccination. Vaccination against bacillary dysentery by the subcutaneous inoculation of the killed organisms has been generally found unsatisfactory, and usually considerable discomfort has been caused by the injections. Shiga's results of some 10,000 cases, in which subcutaneous vaccinations with killed cultures and antiserum were made, showed on the whole slight reduction in morbidity, though there was a lowered mortality. Since the suggestion of Besredka (1919), human vaccination by mouth with killed cultures of dysentery bacilli have been studied or employed by Kanai (1921), Japan; Nicolle and Conseil (1922), Tunis; Anglade (1924) and Pascal (1924), France; Antonovsky (1924), Russia; Gauthier (1924), Greece. All of these observers have reported favorable results. Enlows (1925) has shown that immunity in rabbits could be obtained by oral vaccination in about 50 per cent of the animals. Finally, Tanabe (1932), in the immunization of the Japanese army, has also reported favorable results by the oral administration of antidysenteric tablets containing dried dysentery bacilli.

However, the entire subject of oral vaccination in dysentery must still be regarded as in the experimental stage.

Also, it is desirable that a further study of the etiology of tropical dysentery should be made in which the newer methods of cultivation and isolation are employed, for the writer has observed cases of acute fatal dysentery (not caused by animal parasites) from which it has not been possible to isolate any of the bacilli of the dysentery group.

TABLE 118

Summary of Incidence of Bacillary Dysentery

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
United States of America:		Hong Kong	96
15 Selected States	6,915	Fiji and Western Pacific	1,176
Hawaii	5	British Solomon Islands	10
Puerto Rico	(?)	Commonwealth of Australia	44
Virgin Islands	0	Bahamas	10
Canal Zone (see Panama)		Barbados	2
Guam	Rare	Bermuda	5
Philippine Islands	13,000	British Guiana	3
Samoan Islands	3	British Honduras	64
The British Empire:		Jamaica	8
Kenya Protectorate	696	Antigua	174
Uganda Protectorate	426	Dominica	194
Tanganyika Territory	116	Montserrat	+(?)
Nyasaland Protectorate	28	Virgin Islands	+(?)
Zanzibar Protectorate	116	Grenada	0
Somaliland Protectorate	1	St. Lucia	+(?)
Colony of Nigeria	160	St. Vincent	0
Gold Coast Colony	152	Trinidad and Tobago	15
Colony of Gambia	60		
Sierra Leone	4	*Republic of France:*	
Basutoland	64	Syria and Lebanon	+(?)
Bechuanaland Protectorate	12	Morocco	200
Southern Rhodesia	300	Equatorial Africa	+(?)
Northern Rhodesia	43	French Indo-China	500
Union of South Africa	1,000	Pacific Group	127
The Anglo-Egyptian Sudan	264	Guadeloupe	0
Mauritius	537	Martinique	0
Seychelles	73	Atlantic Group (others)	
Palestine	405	Guyane, St. Pierre, Miquelon	442
Empirate of Trans-Jordan	30	Indian Ocean Group	447
Cyprus	388	*The Netherlands:*	
Gibraltar	1	Dutch East Indies	1,187
Maltese Islands	1		
Sarawak	60	*Other Countries:*	
Brunei	69	Abyssinia	+(?)
British North Borneo	74	Albania	+(?)
Ceylon	1,698	Bolivia	+(?)
India and Dependencies	150,271	Brazil	909
Straits Settlements and Federated Malay States	1,565	Chile	+(?)
Burma	30,232	China	+(?)
Johore	1,037	Colombia	108
Kedah and Perlis	70	Belgian Congo	305
Kelantan	6	Costa Rica	+(?)
Trengganu	119	Dominican Republic	89
		Egypt	1,994

TABLE—*Concluded*

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
Greece	6,387	Paraguay	+(?)
Haiti	35	Spain	+(?)
Holland	415	Siam	9,666
Honduras	187	Turkey	+(?)
Italy	875	Venezuela	66
Liberia	+(?)	Yugoslavia	2,656
Panama and Canal Zone	4	Total	238,401

AMEBIASIS

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The term "amebic dysentery," indicating as it does a disease entity, should be no longer used to designate infection with *Endamoeba histolytica*, but the term "amebiasis" should be substituted. Amebic dysentery is only a symptom-complex of amebic infection, occurring in comparatively few cases of infection with this parasite, while hundreds of infections with it are accompanied by attacks of diarrhoea and other symptoms having to do with the gastro-intestinal tract. Thus the statistics of amebiasis as given in this work are probably greatly vitiated by the fact that the prevalence of amebic dysentery, the symptom complex, has been enumerated rather than the prevalence of amebiasis. However this may be, it is evident that amebiasis is of world-wide distribution and the following tables, giving its incidence in foreign countries and in our own, illustrate very forcibly the importance of this infection and its wide distribution.

Table 119 gives the results of surveys as to the incidence of amebiasis in foreign countries, the name of the observer, the locality, the total number examined, and the per cent of positive cases being given.

It will be noted that the percentage of infection varies greatly in different countries, being highest in those countries in which there is a native population among which hygienic measures are difficult of enforcement and personal hygiene is poor.

Table 120 gives the results of various surveys that have been made by competent observers in different parts of the United States and well illustrates the incidence of infection to be expected in these localities.

As will be seen, this table includes surveys showing a high incidence of infection with *Endamoeba histolytica* as well as those showing a very low incidence and I believe that it is fair to conclude from the figures that approximately 10 per cent of the population of the United States are infected with this parasite. While the vast majority of the infected are carriers without symptoms, the potential danger to health from infection is considerable and makes amebiasis a public health problem of some magnitude. It is believed that amebiasis constitutes one of our most important problems in preventive

medicine and well merits intensive study. It may be truly stated that no one knows at present just how much ill health and chronic invalidism are caused by invasion of the tissues of the intestine by this parasite but enough is known to warrant proper treatment of every infection discovered and routine examinations of the feces in order to discover these infections.

The importance of a more thorough study of the distribution and incidence of infection with *Endamoeba histolytica* and of the symptom complex known as amebic dysentery is well illustrated by the fact that in this survey of the geographical distribution of disease, amebic dysentery is recorded as occurring in only 5 of the 15 states included in the Survey, although it is known to occur in all of them and in some, as Louisiana and Tennessee, to be of frequent occurrence. Amebiasis and amebic dysentery should be made notifiable, for the failure to report this infection in the Health Reports of the various states explains why amebiasis is apparently not present in so many that are known to be heavily infested. In Louisiana amebiasis is very common and amebic dysentery constantly observed, yet the Biennial Report of the State Board of Health for 1932–33 does not list a single case of amebiasis or amebic dysentery.

TABLE 119

Incidence of infection with Endamoeba histolytica in foreign countries

OBSERVER	LOCALITIES	NUMBER EXAMINED	PERCENTAGE POSITIVE
Allan and Charlotte	Near East troops	31,000	9.80
	Troops & civilians	7,000	10.50
	Western Front troops	5,000	8.90
Andrews	Fresnilo, Mexico	2,302	12.90
Brug	Java natives	150	23.00
	Java Europeans	100	27.80
Carter, Mackinnon, Mathews and Smith	Mediterranean Area troops	4,068	12.10
	Hospital, New Zealand	612	11.00
Connell	Yucatan	854	19.50
Dobell	Mediterranean Area	7,021	16.90
Dobell, Gettings and Jepps	Dysentery convalescents in England	1,300	12.00
Epstein	Leningrad	1,404	25.30
	Kola Peninsula	900	60.60
	Azerbaidjan	1,146	32.50
	Georgia	570	17.70
	Turkestan	1,064	35.00
Faust	Peking		3.30
	Shansi		18.10
	Peking	60	20.00
Faust and Wassell	Yangtze Valley, China, general patients	359	2.50
	Intestinal diseases	57	50.87
Hiyeda	Manchuria	790	15.90
Jepps	Hospital patients, England	357	7.75
	Chinese and Malays	1,034	14.50
	Peking. Chinese	816	29.50
Kessel and Svenson	Europeans	221	16.50
	Santa Marta	367	50.00

TABLE 119—*Concluded*

OBSERVER	LOCALITIES	NUMBER EXAMINED	PRECENTAGE POSITIVE
James	Hospital cases, India	1,165	10.10
MacAdam and Keelan	Hospital cases, Mesopotamia	1,894	16.26
Mathews and Smith	Hospital patients, England	450	1.50
	Army recruits	202	2.97
	Asylum patients	207	9.70
McCulloch	Kano	149	36.24
	Katsina	351	11.96
Philipschenco	Leningrad, Food-handlers	400	22.75
Remlinger	Military Hospital, Fez	1,620	40.00
Smith and Matthews	Hospital patients, England	250	8.00
Turner and Taylor	War hospital. Enteritis group	3,277	15.40
Wenyon	British troops, Egypt	1,979	5.30
	Native cooks, Egypt	87	11.50
Williams and Thomas	Haiti domestics	109	50.00
Williams, Wildman and Curtis	Hospital patients, Haiti	2,069	16.26
Young	Troops, Brazil	251	27.50
Tao	China	9,533	10.49

TABLE 120

Surveys of infection with Endamoeba histolytica in the United States

OBSERVER	LOCALITY	NUMBER EXAMINED	NUMBER POSITIVE	PER CENT POSITIVE
Wenrich, Stabler and Arnett	Students, Univ. of Penn.	401	18	4.5
Boeck	From all parts of United States	8,209	333	4.1
Craig	Physicians, all parts of U. S.	189	24	12.7
Cresswell and Wallace	Tacoma, Washington	1,032	60	0.58
Faust	Rural Virginia	460	92	20.0
Faust	New Orleans, La.	1,100	158	13.7
Giffin	Mayo Clinic	1,700	79	4.5
Hardy and Spector	Chicago, Illinois	161	25	15.5
Hinshaw and Shavers	Philadelphia (patients)	358	4	1.1
Johnson and Iverson	San Francisco, Calif. (food-handlers)	747	22	3.0
Kofoid, Kornhauser and Plate	U. S. Soldiers, Home Service	576	25	4.3
Kofoid and Swezy	Foreign Service	2,300	297	12.8
Magath and Ward	Students, Univ. of California	154	36	53.0
Meleney	Mayo Clinic	457	36	7.9
Meleney, Bishop and Leathers	Rural Tennessee	4,987	861	17.3
Milam and Meleney	Tennessee	20,237	2,305	11.4
Bundesen, Rawlings and Fishbein	Rural Community in Tennessee	374	136	38.0
Sanford	Hotel in Chicago	364	86	23.6
Sistrunk	Mayo Clinic	5,000	535	22.5
Wight	Mayo Clinic	145	25	17.2
Andrews and Paulson	Veterans Bureau	1,341	92	6.8
Reed and Johnston	Baltimore, Md.	522	2	0.2
	San Quentin Prison, Calif.	1,000	92	9.2
Totals		51,634	5,231	10.13

TABLE 121

Summary of incidence of amebiasis

PLACE	NUMBER OF CASES
United States of America:	
15 Selected States	595
Hawaii	Rare
Puerto Rico	(?)
Virgin Islands	0
Canal Zone (see Panama)	
Guam	22
Philippine Islands	500
Samoan Islands	Rare
The British Empire:	
Kenya Protectorate	0
Uganda Protectorate	446
Tanganyika Territory	794
Nyasaland Protectorate	240
Zanzibar Protectorate	24
Somaliland Protectorate	0
Colony of Nigeria	3,806
Gold Coast Colony	761
Colony of Gambia	59
Sierra Leone	173
Basutoland	16
Bechuanaland Protectorate	35
Southern Rhodesia	8
Northern Rhodesia	65
Union of South Africa	50
The Anglo-Egyptian Sudan	2,289
Mauritius	5,308
Seychelles	13
Palestine	379
Empirate of Trans-Jordan	17
Cyprus	29
Gibraltar	0
Maltese Islands	1
Sarawak	34
Brunei	13
British North Borneo	129
Ceylon	3,157
India and Dependencies	200,512
Straits Settlements and Federated Malay States	1,273
Burma	No rep.
Johore	199
Kedah and Perlis	150
Kelantan	106
Trengganu	87
Hong Kong	209
Fiji and Western Pacific	9
British Solomon Islands	+(?)
Commonwealth of Australia	3
Bahamas	4
Barbados	1
Bermuda	0
British Guiana	28
British Honduras	50
Jamaica	67
Cayman Islands	No rep.
Antigua	No rep.
Dominica	9
Montserrat	1
Virgin Islands	No rep.
Grenada	5
St. Lucia	0
St. Vincent	0
Trinidad and Tobago	123
Republic of France:	
Syria and Lebanon	235
Morocco	34,518
Madagascar	7,701
Reunion	+(?)
West Africa & Sahara	24,509
Equatorial Africa	410
French Indo-China	3,000
Pacific Group	277
Guadeloupe	+(?)
Martinique	+(?)
Atlantic Group (others) Guyane, St. Pierre, Miquelon	188
Indian Ocean Group	614
The Netherlands:	
Dutch East Indies	+(?)
Other Countries:	
Abyssinia	+(?)
Albania	+(?)
Brazil	544
Chile	+(?)
China	+(?)
Colombia	3,568
Belgian Congo	6,489
Costa Rica	25,000
Egypt	+(?)
Greece	+(?)
Haiti	100
Holland	+(?)
Honduras	416
Italy	551
Liberia	+(?)
Panama and Canal Zone	+(?)
Paraguay	+(?)
Peru	1,301
Spain	+(?)
Siam	+(?)
Turkey	341
Venezuela	800
Total	332,361

TYPHOID FEVER (INCLUDING THE PARATYPHOID FEVERS)

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Typhoid fever is a vanishing disease and its disappearance is due largely to the application of methods that prevent the distribution of its essential agent in food and drink ingested by man. Before the typhoid bacillus was known, its precise mode of distribution and the channels of infection through which it reaches the human subject could only be indirectly assumed on empirical grounds. Until this knowledge was available and use made of it, typhoid fever was truly a devastating disease wherever youth of the most susceptible age was gathered together, as in army camps or in large cities. Even so recently as 1915 typhoid fever remained the ninth contributing cause of death in the United States, and ranked fifth among the acute infections, being exceeded only by tuberculosis, pneumonia, infantile diarrhoea and diphtheria.

It was estimated by Whipple that in 1900 there were 353,790 cases of typhoid fever in the United States, which with an average death rate of 10 per cent would give a mortality of 35.4 per 100,000 of population. Even this figure represents a reduction of the disease over previous epochs, because the safeguarding of water supplies in large cities had already begun. Typhoid fever has indeed been shown to be a true "sanitary index" of the purity of water and food in any given community and in cities it has been shown repeatedly that change to an uncontaminated water supply, or introduction of water filtration plants, are followed by a sharp drop in the incidence of this disease. From this fact it has resulted that typhoid fever has changed in geographical incidence from an urban to a rural disease, in temperate zones, and within certain limits, from a disease that was epidemic in form to one that is more frequently sporadic or occurring in small groups.

For twenty years the *Journal of the American Medical Association* has carefully computed the death rate from typhoid fever in the large cities of this country. In 1910 there were 4,637 deaths from this disease in 78 cities, whereas in 1930 there were only 554, with a corresponding diminution of the death rate of from 20.54 to 100,000 of population to 1.61. Coincidently we find that typhoid fever had dropped between 1915 and 1928 from the ninth to the twenty-sixth contributing cause of death.

It was long thought that typhoid fever was a comparatively rare disease in the tropics and that their inhabitants enjoyed a definite degree of relative immunity (Castellani and Chalmers). This can no longer be considered to be correct; the error was due to inaccurate diagnostic confusion of the enteric fevers with other diseases and particularly with malaria. It would appear from the article of Lantin and Ignacio that typhoid fever among the Filipinos occurs earlier in life than in temperate zones, which would account for the

further fact that tropical typhoid in these regions escapes detection owing to its mildness in children. In these Filipino cases, however, the complications were usually frequent and fatal. Certainly the sanitary conditions in the tropics are definitely lower than in temperate zones, as expressed in contamination of food and water, and in overcrowding. We may then expect an increasing recognition of typhoid fever in the warm regions of the world, together with a very gradual elimination of the factors that tend to the spread of the disease.

When one reviews recent epidemiological reports (1929–1931) from the League of Nations, Section on Hygiene, as regards the enteric fevers, it becomes evident that few firm conclusions can be drawn of a geocomparative sort except that the disease still exists in all parts of the world. Certain facts emerge however which may be briefly summarized as follows:

Typhoid fever, including in unequal measure the paratyphoid fevers, has steadily decreased as a cause of death during the last ten years in Europe, as for example in Germany, England, Belgium, Netherlands, Norway, Sweden and Switzerland. In Spain and Hungary, however, the disease has remained stationary. Fluctuations have occurred from year to year in a given country, due in large part to occurrence of carrier epidemics. It has also definitely decreased in Australia, New Zealand and, as we have seen, in the United States. The figures from tropical regions are too scattering to serve as a basis of any conclusion.

The morbidity figures are wholly inadequate to serve as a basis of comparison between countries, being of course most deficient in those areas, particularly in the tropics, where diagnosis and sanitary surveys are most ineffective.

There is an extraordinary difference in the case mortality in the various countries, again owing to differences in reporting; thus it is apparently highest in Egypt, Canada, Korea, Japan, Belgium and Switzerland over a term of years.

There seems little doubt in the minds of most authorities that antityphoid vaccination protects in measurable degree against the occurrence of typhoid fever under natural conditions. It is likewise clearly evident that not all those who have received even a complete series of inoculations are equally protected, and typhoid fever does occur in an appreciable number of instances among vaccinated individuals.

The most conclusive arguments, in our opinion, for the efficacy of typhoid vaccination are the following: Really controlled experiments were reported in the earlier days of typhoid vaccination both in armies, in civilian populations and in mixtures of the two groups. These true experiments, containing vaccinated and unvaccinated individuals under the same general chances of infection reported particularly from the English Army and by French investigators, in Algeria, Morocco, Tours, Avignon and Jargeau, are singularly convincing.

It is notable that, although the incidence of typhoid fever decreased regu-

larly under continued or increasing conditions of exposure in the British Army during the Great War, and was proportionate to the voluntary adoption of vaccination, the paratyphoid fevers at first showed only slight diminution until paratyphoid immunization was likewise recommended. In a similar way the marked diminution of typhoid fever in the German Army coincident with immunization against the typhoid bacillus alone, was not paralleled by a diminution in the occurrence of paratyphoid cases. This would indicate in our opinion that the agents of intestinal infections did not in themselves disappear but that the individuals were selectively protected against them by means of vaccination.

A most striking reversal in the sex incidence of typhoid fever in the susceptible age group has taken place in Germany, in France and in the United States since the World War. Whereas the disease occurs in an equal number of cases in male and female children, its incidence between the ages of 20 and 50 has always been greater in males than in females. Since the World War the incidence has not only been reversed but become markedly accentuated in its difference, that is to say, there have been many more cases among women than among men; and this changed resistance under civilian conditions of life in males must, it would seem, be due to army vaccination during the war.

Wholesale vaccination of the general population has never been practiced anywhere and the efficacy of the method depends on the proportion of the total number in a given community that is vaccinated. Vaccination does not guarantee protection, and unceasing watch on sanitary measures and the detection and elimination of the typhoid carrier still remain the best safeguards against the disease which is, we believe, destined to become an increasing rarity.

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TABLE 122

Summary of incidence of the typhoid fevers

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
United States of America:		Tanganyika Territory	47
15 Selected States	12,913	Nyasaland Protectorate	9
Hawaii	129	Zanzibar Protectorate	8
Puerto Rico	302	Somaliland Protectorate	2
Virgin Islands	0	Colony of Nigeria	34
Canal Zone (see Panama)		Gold Coast Colony	92
Guam	+(?)	Colony of Gambia	+(?)
Philippine Islands	1,800	Sierra Leone	13
Samoan Islands	6	Basutoland	258
The British Empire:		Bechuanaland Protectorate	1
Kenya Protectorate	118	Southern Rhodesia	105
Uganda Protectorate	41	Northern Rhodesia	50

TABLE 122—*Concluded*

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
Union of South Africa	9,010	Madagascar	37
The Anglo-Egyptian Sudan	194	Reunion	+(?)
Mauritius	85	West Africa & Sahara	+(?)
Seychelles	0	Equatorial Africa	+(?)
Palestine	1,435	French Indo-China	619
Empirate of Trans-Jordan	200	Pacific Group	23
Cyprus	140	Guadeloupe	+(?)
Gibraltar	19	Martinique	+(?)
Maltese Islands	367	Atlantic Group (others):	
Sarawak	6	Guyane, St. Pierre, Miquelon	20
Brunei	3	Indian Ocean Group	+(?)
British North Borneo	2		
Ceylon	2,791		
India and Dependencies	8,392	*The Netherlands:*	
Straits Settlements and Federated Malay States	620	Dutch East Indies	3,123
Burma	1,481		
Johore	159		
Kedah and Perlis	39	*Other Countries:*	
Kelantan	11	Abyssinia	+(?)
Trengganu	1	Albania	+(?)
Hong Kong	278	Bolivia	+(?)
Fiji and Western Pacific	141	Brazil	927
British Solomon Islands	0	Chile	851
Commonwealth of Australia	81	China	+(?)
Bahamas	34	Colombia	1,891
Barbados	250	Belgian Congo	56
Bermuda	8	Costa Rica	700
British Guiana	250	Dominican Republic	195
British Honduras	0	Egypt	2,992
Jamaica	929	Greece	20,624
Cayman Islands	6	Haiti	60
Antigua	6	Holland	477
Dominica	8	Honduras	80
Montserrat	8	Italy	38,570
Virgin Islands	14	Liberia	+(?)
Grenada	66	Panama and Canal Zone	18
St. Lucia	5	Paraguay	+(?)
St. Vincent	17	Peru	350
Trinidad and Tobago	269	Spain	3,100
		Siam	897
		Turkey	1,979
Republic of France:		Venezuela	472
Syria and Lebanon	+(?)	Yugoslavia	7,271
Morocco	485	Total	129,070

TUBERCULOSIS

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Tuberculosis is the most costly disease problem in the world. It is not only that we have tuberculosis in man, cattle, pigs, chickens and all the treasures of our zoological gardens, but that it is a disease so closely related to leprosy, Johne's disease and some of the Actinomyces infections that we can

speak of the whole group as the acid-fast disease group. The characteristic lesion of this whole group of diseases is a close relationship between the microörganisms causing them and the monocyte ameboid cell of the animal body. This parasite host-cell relationship constitutes the early lesions in all of these groups. As the disease progresses, however, other pathological changes take place in the masses of monocytes and bacteria, which need not concern us in this paper.

We may look with pride on a great reduction in the death rate and sickness caused by tuberculosis in the more highly civilized nations of the world. This reduction is due to many factors largely connected with the compaign of education, provision of sanatorium beds for the sick, and the destruction of infectious discharges, but also it must be coupled with the more cleanly habits of these races, such as pure water supply, sewage disposal, bathing, better wages and all round better living conditions.

An idea of the relation of beds available in sanatoria and death rate conditions in these countries may be found in Table 123A. Those with the most sanatorium beds have the lowest rate. It is difficult to measure the influence of other factors.

While all this is true of the more highly civilized nations little can be said for the progress of conditions surrounding tuberculosis in many tropical countries, nor for that matter among our own Indian and negro population where the death rate still remains exceedingly high. Such studies as have been made in the last few years by Colonel Cummins on the question of tuberculosis among the South African natives, by Borrel among the Seneglese troups who served in France during the War, by Opie in Manaica and by Townsend and Long in Puerto Rico, indicate what a tremendous problem still awaits us from the standpoint of epidemiology, economics and methods in handling this disease in these poorer places. Tuberculosis often takes the form of a true epidemic among these people when once an infectious case enters their population group. It is doubtful whether we will be able to control or suppress these great reservoirs of disease until we have, by education and improved living conditions, laid the foundation for methods that underlie the control of tuberculosis in the more prosperous civilizations. Such studies as are referred to above, however, lay the problem to be faced openly before us.

With our improved methods of the study of epidemiology based upon the tuberculin reaction and portable X-ray facilities, it should be possible to carry on numerous intensive studies similar to the above in many parts of the world and so add to our knowledge of the epidemiology of these diseases.

Through the efforts of the Research Division of the National Tuberculosis Association great progress has been made in isolating and standardizing for human use that part of the tubercle bacillus which gives us our diagnostic skin reaction, so that with uniformity in this field our results in different parts of the world will be more comparable than they have ever been before. Through

this Research Division also great progress has been achieved in standardizing and making uniform the physical process of taking X-ray pictures. As the variants are removed from study in these two fields the study in outlying and tropical parts of the world become increasingly more valuable.

Theobald Smith, whom we have recently lost by death, persistently advocated the typing of the tubercle bacillus strains responsible for these epidemic areas, a field which has scarcely been touched.

For some time it has been hoped that we could lay down a chemical basis for distinguishing the different members, not only of the tubercle bacillus family, but of the other acid-fast organisms responsible for disease, defining the chemical attributes of virulence and non-virulence and non-pathogenicity. While great progress has been made in isolating various fractions of different strains, the elusive fractions which would lend themselves to specificity of character in a strain or of producing specific anti-substances are still to be found; yet sufficient progress has been made to give hope in this type of research in the tropical areas after isolation in pure culture strains of disease organisms so destructive there.

Some progress has also been made in the living chemistry of the monocyte cell which, from the standpoint of the body, is so essential a part of the infection after the entrance of the microörganism. It should be possible in the various laboratories now being established in the tropical areas of the world to include such studies as these and other studies that would be useful to the whole world and helpful in our understanding of these maladies and lead us nearer to the day when we will have better means of control and cure than we now have.

TABLE 123

Summary of incidence of tuberculosis

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
United States of America:		Colony of Gambia	54
15 Selected States	39,583	Sierra Leone	237
Hawaii	842	Basutoland	559
Puerto Rico	7,267 to 30,000	Bechuanaland Protectorate	340
Virgin Islands	+(?)	Southern Rhodesia	173
Canal Zone (see Panama)		Northern Rhodesia	77
Guam	57	Union of South Africa	12,898
Philippine Islands	33,100	The Anglo-Egyptian Sudan	915
Samoan Islands	28	Mauritius	2,147
The British Empire:		Seychelles	+(?)
Kenya Protectorate	874	Palestine	598
Uganda Protectorate	807	Empirate of Trans-Jordan	204
Tanganyika Territory	1,311	Cyprus	369
Nyasaland Protectorate	220	Gibraltar	59
Zanzibar Protectorate	420	Maltese Islands	245
Somaliland Protectorate	423	Sarawak	92
Colony of Nigeria	1,208	Brunei	57
Gold Coast Colony	1,290		

TABLE 123—*Concluded*

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
British North Borneo	96	French Indo-China	5,089
Ceylon	6,437	Pacific Group	+(?)
India and Dependencies	94,089	Guadeloupe	+(?)
Straits Settlements and Federated Malay States	5,345	Martinique	+(?)
Burma	6,963	Atlantic Group (others):	
Johore	1,058	Guyane, St. Pierre, Miquelon	354
Kedah and Perlis	379	Indian Ocean Group	+(?)
Kelantan	105		
Trengganu	94		
Hong Kong	20,006	*The Netherlands:*	
Fiji and Western Pacific	286	Dutch East Indies	+(?)
British Solomon Islands	27		
Gilbert and Ellice Islands	+(?)	*Other Countries:*	
Commonwealth of Australia	3,004	Abyssinia	+(?)
Bahamas	70	Albania	+(?)
Barbados	142	Argentina	+(?)
Bermuda	11	Brazil	2,304
British Guiana	729	Chile	+(?)
British Honduras	45	China	+(?)
Jamaica	1,932	Colombia	4,310
Cayman Islands	+(?)	Belgian Congo	+(?)
Antigua	34	Costa Rica	25,000
Dominica	129	Dominican Republic	283
Montserrat	25	Egypt	+(?)
Virgin Islands	+(?)	Greece	+(?)
Grenada	37	Haiti	700
St. Lucia	54	Holland	3,671
St. Vincent	83	Honduras	142
Trinidad and Tobago	541	Liberia	+(?)
		Panama and Canal Zone	372
Republic of France:		Paraguay	+(?)
Syria and Lebanon	67	Peru	+(?)
Morocco	5,504	Spain	11,536
Madagascar	4,925	Siam	10,859
Reunion	+(?)	Turkey	+(?)
West Africa & Sahara	12,057	Venezuela	3,519
Equatorial Africa	+(?)	Yugoslavia	36,000
		Total	397,600

TABLE 123A

Tuberculosis hospitalization and mortality in various countries

COUNTRY	POPULATION		TUBERCULOSIS MORTALITY			HOSPITAL AND SANATORIA BEDS	BEDS AVAILABLE FOR EACH TEN DEATHS
	Inhabitants	Year	Deaths	Year	Rate per 100,000		
New Zealand	1,431,079	(1924)	736	(1924)	51	658	9
Canada	9,215,000	(1924)	7,675	(1924)	83	5,238	7
United States	112,078,611	(1924)	99,579	(1924)	89	73,715	7
England and Wales	38,746,000	(1924)	41,103	(1924)	106	20,750	5
Netherlands	7,358,368	(1925)	7,263	(1925)	99	3,000	4
Germany	62,365,478	(1925)	83,000	(1925)	133	35,000	4
France	39,209,518	(1921)	66,824	(1920)	170	29,171	3 to 4
Italy	40,116,700	(1924)	65,000		162	7,000	1
Czechoslovakia	13,928,726	(1921)	40,000	(1924)	250	5,291	1
Japan	59,736,704	(1925)	120,719	(1921)	213	3,000	[1]

[1] In Japan only one tuberculosis bed available for each forty deaths from that disease.

BRUCELLOSIS

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Brucellosis cases may be divided into two groups, according to their mode of infection: (1) those which become infected through the ingestion of raw milk or dairy products manufactured with raw milk or cream and (2) those which become infected by the handling of infected animals or infected carcasses. According to the available data from which an estimate may be made, it appears that in the United States the cases are approximately evenly divided between the two groups, for although a larger number of persons are exposed to infection through the digestive tract, the skin is the more vulnerable port of entry.

The means of preventing the disease in the first group is known. If all milk were efficiently pasteurized before consumption, the disease could be eradicated excepting from the farmers, veterinarians and slaughter-house workers, who must handle infected animals or fresh tissues from infected animals. The prevention of brucellosis in this group is a problem which depends on the control of the disease in domestic animals.

A French investigator, who has observed its spread inland from the Mediterranean littoral, has stated his opinion that brucellosis is in the course of evolution, and that it is a disease of the future. In the United States there is evidence to support that opinion, for it appears that the disease in swine is spreading in this country. It was not until 1914, seventeen years after Bang discovered the causal organism of contagious abortion in cattle, that a similar organism was found to be the cause of contagious abortion in swine. It seems that the long delay must have been due to lack of interest in an unimportant disease.

The first extensive study of infectious abortion in swine was made in Kentucky and reported in 1916. In that report the statement is made that only three outbreaks were investigated. Thirteen years later it was reported that about 50 per cent of hogs in Iowa gave evidence of infection. On the other hand, in New York State only 0.19 per cent of hogs were found to show evidence of infection. The uneven distribution of the disease in hogs suggests that the variety of the organism capable of infecting swine has been introduced comparatively recently.

Although each of the several varieties of the brucellosis organism has a predilection for a particular species of animals, either the caprine or the porcine variety may infect cattle, and through cows' milk they may be transferred to man.

Although the bovine variety seems to be distributed over the whole world, the caprine and porcine varieties, both more virulent for man than is the bovine variety, are not so widely distributed. The problem of preventing their spread would offer less difficulties than would their control after having

become established. The problem would be a different one in different countries, according to the present distribution of the several varieties of the organism. For example, most of the states of this country are almost free of the caprine variety and some are almost free of the porcine variety. The prevention of the spread of brucellosis and its control after becoming established are problems for live stock sanitary boards as difficult as any which challenge human intelligence.

There are two urgent brucellosis problems now before the medical profession. The first is the education of physicians to bear in mind brucellosis as constantly as tuberculosis when making clinical diagnoses. Progress in that direction is being made in the United States. The number of reported cases increased from 217 in 1927, the first year when any considerable number of cases were reported, to 1,787 in 1933. But we know that there must be many more cases than are reported, because those reported are unevenly distributed, being grouped in certain areas in which the physicians and health authorities have become interested in the disease. For several years New York State has reported annually more than ten per cent of the total reported human cases of brucellosis in the United States, although the more virulent porcine and caprine varieties of the causal organism are not common there. Further, although New York is reporting a greater number of human cases than any other State—a far greater number than most of them—, the statement has been made by a member of the staff of the New York State Department of Health that it is doubtful whether one-tenth of the cases that occur in that State are recognized.

Obviously the mild chronic form of the disease is the most difficult to diagnose correctly. Clinical examination may reveal no objective signs of disease in the chronic brucellosis patient. The diagnosis must depend on laboratory tests. If the cultivation of the causal organism fails, as commonly happens, the diagnosis must depend on a combination of three tests, the agglutination test, the opsonic test and the intradermal test. No one of these tests alone can be depended on to detect infection, and the combination of the results of the three tests does not always give as clear cut information as might be desired. The second brucellosis problem before the medical profession, therefore, is the perfection of a laboratory technic for the diagnosis of this disease.

TABLE 124

Summary of incidence of brucellosis

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
United States of America:		Philippine Islands	0
15 Selected States	358	Samoan Islands	0
Hawaii	10		
Puerto Rico	2	*The British Empire:*	
Virgin Islands	0	Kenya Protectorate	52
Canal Zone (see Panama)		Uganda Protectorate	2
Guam	0	Tanganyika Territory	0

TABLE 124—*Concluded*

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
Zanzibar Protectorate	0	Montserrat	0
Somaliland Protectorate	5	St. Vincent	0
Colony of Nigeria	1		
Gold Coast Colony	0	*Republic of France:*	
Colony of Gambia	+(?)	Syria and Lebanon	8
Bechuanaland Protectorate	2	Morocco	3
Southern Rhodesia	10	Equatorial Africa	0
Northern Rhodesia	1	French Indo-China	0
Union of South Africa	100	Guadeloupe	0
The Anglo-Egyptian Sudan	25	Martinique	0
Mauritius	0	*Other Countries:*	
Seychelles	0	Albania	+(?)
Palestine	5	Brazil	2
Empirate of Trans-Jordan	3	Chile	+(?)
Cyprus	2	China	+(?)
Gibraltar	1	Belgian Congo	0
Maltese Islands	1,725	Costa Rica	1
Ceylon	27	Egypt	7
India and Dependencies	+(?)	Greece	91
Straits Settlements and Federated Malay States	9	Haiti	0
Hong Kong	0	Holland	27
Fiji and Western Pacific	10	Italy	1,997
British Solomon Islands	0	Liberia	0
Bahamas	9	Panama and Canal Zone	0
Barbados	+(?)	Paraguay	0
Bermuda	3	Peru	113
British Guiana	0	Spain	+(?)
		Turkey	2
		Yugoslavia	+(?)
		Total	4,613

DENGUE FEVER

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Dengue fever, known under may different synonyms in various parts of the world (Dandy fever, break bone fever, denguero, bouquet, chapenonada, seven day fever, dunga, bonon, etc.) has been recognized as a definite disease entity since the 18th Century.

Perhaps the most clear cut and comprehensive of the earlier descriptions of the disease as a clinical entity is that of Dr. Benjamin Rush relating to a severe epidemic of dengue occurring in Philadelphia, Pennsylvania, during the summer and fall of 1780. About the same time Bylon recorded his observations relating to a severe epidemic occurring in Batavia, Java, in 1779.

Since the 18th Century innumerable epidemics of dengue have occurred in tropical and subtropical climes throughout the world and it is known to be endemic in many tropical countries, for example, the Orient, Central America and the Carribean Sea area. Some students of the history of the disease suggest that its original home was the Carribean Sea area.

In some parts of the tropics it still is difficult to differentiate dengue from

other diseases of known and unknown etiology prevailing in such regions, for example, Phlebotomus or sandfly fever. For this reason some writers place all fevers having the general characteristics of dengue in the same general category, their differentiation being based on clinical observation and the presence of the insect transmitting host, if known.

Prior to the demonstration of the method of transmission of malaria and more particularly so of yellow fever, nothing definite was known concerning the etiology or method of transmission of dengue. It had been known for many years that dengue fever and yellow fever prevailed in the same geographical areas in some parts of the world, and the elucidation of the method of transmission of yellow fever stimulated interest in the dengue fever problem.

As early as 1903 some mosquito biting experiments made by Graham[1] in Beyrouth and Lebanon suggested that the method of transmission was by mosquitoes. In 1906 Bancroft[2] conducted some mosquito transmission experiments in Australia, using the so-called yellow fever mosquito (*Aedes ægypti*) as the transmitting agent, and though he was working in an area in which dengue fever prevailed, in the light of our present knowledge of the disease, it is quite apparent that he succeeded in transmitting the disease with infected *Aedes ægypti* mosquitoes.

Another important contribution was made by Craig and Ashburn[3] of the Medical Corps of the Army in 1907 when they succeeded in producing dengue fever in volunteer military personnel in the Philippines by the inoculation of filtrates of blood from patients in the acute stages of an attack, thus demonstrating that the causative agent is an ultramicroscopic one and falls in the group of filterable viruses.

From 1917–1919, inclusive, Cleland, Bradley and McDonald,[4] working in Australia, were able to definitely demonstrate, in controlled experiments, that *Aedes ægypti* was a transmitting agent and they were unable to produce the disease through the bites of *Culex quinquefasciatus* (the highly domesticated household mosquito of common occurrence throughout the world).

The Army of the United States of America has been particularly interested in dengue fever for many years because of temporary disability and non-effectiveness resulting from attacks of the disease in military replacements soon after their arrival in the Philippine Islands. The Medical Department of the United States Army, for many years, maintained a Research Board in the Philippine Islands, and in 1924 the Board as then constituted (Lt. Colonel J. F. Siler, Major M. W. Hall and Major A. P. Hitchens[5]) planned and carried out a somewhat extensive series of experiments relating to the transmission of dengue by mosquitoes. Enlisted personnel of the military service volunteered as experimental subjects. Among the 64 volunteers used dengue was produced, under adequately controlled conditions, in 52 instances (81 per cent).

Briefly, the following facts were ascertained:

a. Previous reports of the transmission of dengue fever by *Aedes ægypti* were amply confirmed (47 instances).

b. Culex quinquefasciatus was eliminated as a possible transmitting agent (7 attempts to transmit all of which were negative).

c. The patient with dengue fever can infect the mosquito in the late incubationary stage of the disease (6 to 18 hours prior to the onset of symptoms, as manifested by elevation of body temperature above normal) and ordinarily continues to be infective to Aedes mosquitoes during the first three days of illness.

d. When the mosquito draws blood from an individual during the first three days of his illness, under conditions ordinarily encountered in nature, the virus must remain in the mosquito for a somewhat definite period of time before the mosquito is capable of infecting a human being through its bites. Under the conditions existing when the Board carried out its experiments (cool, dry season in the tropics), this time interval was found to be from 11 to 14 days.

e. After the infected mosquito has become capable of transmitting the virus to human beings it retains that capacity throughout the remainder of its life (experimental dengue in humans was produced with mosquitoes infected 62, 66 and 75 days previously).

f. The virus causing dengue fever is not carried from the infected mosquito through its eggs to the next succeeding generation.

g. For all practical purposes the incubation period of dengue fever in human beings may be considered as being from 4 to 6 days, inclusive.

h. An attack of dengue is followed by a period of increased resistance to the infection (at least for several weeks or months), but the duration of the immunity was found to be exceedingly variable. There was no evidence of racial immunity. The permanent population living in areas of endemicity develops a high degree of immunity, the most logical explanation being that it results from somewhat frequent, repeated, mild attacks.

Since 1924 much additional investigative work has been done on the mechanism of transmission of dengue fever, the principal points brought out being as follows:

In 1928 Schule[6] of the United States Army Medical Department Research Board in Manila, Philippine Islands, reported transmitting the disease with *Aedes ægypti* mosquitoes as early as the eighth day after ingestion of the active virus, and suggested that the virus matures more rapidly in mosquitoes when the atmospheric temperature and humidity are relatively high.

In 1928 Simmons, St. John and Reynolds[7] of the United States Army Medical Department Research Board, working in Manila, Philippine Islands, added much to our knowledge of the mechanism of transmission, the more important points being as follows:

An additional species of the Aedes group of mosquitoes—*Aedes albopictus*—found to be of common occurrence in Manila, P. I., was demonstrated to be a transmitting agent, the mechanism of transmission being the same as for *Aedes ægypti*; native populations living in mountainous sections beyond the range of Aedes, when subjected to the bites of infected Aedes, were found to be highly susceptible, whereas comparable elements of the population living in the coastal lowlands around Manila showed a high degree of immunity; dengue could be transmitted to certain species of monkeys provided they were secured from geographical areas in which dengue fever did not occur endemically or epidemically; the virus of dengue fever when applied to the intact or excoriated skin surfaces of human beings failed to produce an attack of the disease, differing in this respect from the yellow fever virus which is highly virulent when applied in the same manner; it was possible to transmit dengue from an individual in the acute stage of the disease to non-immune persons in a mechanical manner, provided large numbers of mosquitoes were permitted to bite the infected individual, that their feedings were interrupted and that the insects were immediately applied to the non-immune, but the results obtained suggested that the conclusion may be drawn that doubtless but rarely is the disease transmitted in this manner in nature; dengue fever was produced under given conditions in non-immune individuals by the injection of filtrates obtained from macerated and finely ground infected Aedes in suspension; their experimental investigations and studies of recurrent attacks of dengue fever in individuals who previously had suffered attacks indicated that an initial attack of dengue frequently conferred a somewhat high degree of immunity, certainly for a period of several months to more than a year, and they were of the opinion that usually the immunity conferred was of much longer duration than generally has been believed to be the case.

Other workers in various parts of the world, for example, Cleland, Bradley and McDonald[8], Manoussakis[9], Blanc, Caminopetros and Manoussakis[10], Blanc and Caminopetros[11], Blanc, Caminopetros, Dumas and Saenz[12] and Morishita, Taiwan, Igakkai and Zasshi[13], have added much to our knowledge of the epidemiology ascertained concerning the insect transmitting agents, mechanism of transmission, filterability of the virus and newer concepts of immunity.

To those conversant with the work done in connection with the solution of the problem of the method of transmission of yellow fever and the mechanism of its transmission it will be quite evident that the insects concerned in the spread of dengue fever and the mechanism of its transmission parallel quite closely those of yellow fever, the only essential difference being that the virus of yellow fever is more highly virulent and the immunity conferred by an attack is more solid and lasting.

It has been demonstrated conclusively that at least two species of Aedes (*Aedes ægypti* and *Aedes albopictus*) can and do transmit dengue and doubtless

other species eventually will be incriminated, as has been the case with yellow fever.

The statement is justified that, theoretically, dengue fever may become endemic or epidemic in any area in which species of the Aedes mosquito closely associated with man are of common occurrence, in which a susceptible population resides and into which dengue is introduced. Such areas may be defined as tropical and subtropical ones, roughly between parallels 32° 47′ N. and 23° 23′ S.

From a practical point of view it may be stated that the *Aedes ægypti* is by far the most important insect transmitter of both dengue fever and yellow fever throughout the world because of its world-wide distribution and its close association with man.

Dengue fever differs from yellow fever in that an attack practically never terminates in death *per se*. For this reason the necessary funds for the prosecution of anti-mosquito compaigns and other control measures are not made available to public health officials in the face of an epidemic of dengue fever, as would be done were the epidemic one of yellow fever. This is highly regrettable as epidemics of dengue are very explosive in character, attack large proportions of non-immune populations, result in temporary disability and loss of earning power for periods of ten days to three or four weeks and sometimes temporarily cripple industry.

The validity of these statements is evidenced by our experience in the United States. Dengue fever is endemic in southern Texas along the Mexican border and from time to time explosive epidemics occur, extending throughout the state and to other states. For example, it is estimated that more than three-fourths of the population of Austin, Texas, had dengue in the summer of 1885 and in Galveston, Texas, in 1897 at least half the population came down with the disease.

During recent years two very explosive and wide-spread epidemics have occurred, one in the United States and one in Greece.

The first of these occurred in 1922 in the southern United States beginning in Texas, where it attacked more than a half million persons, and extended rapidly across the southern tier of states to the Atlantic seaboard. It is estimated that between one million and two million persons had dengue fever during this epidemic.

In 1927–1928 a most virulent, wide-spread, explosive epidemic occurred in Greece, during the course of which approximately a million cases occurred. The epidemic began in Athens, Greece, in the late summer of 1927, smouldered during the winter months and by the fall of 1928 had run its course, having attacked about 90 per cent of the population.

During the late summer of 1934 an epidemic occurred in the region of Miami, Florida. The mosquito control measures taken by the State Health Officials in conjunction with the somewhat cold winter in that section doubtless eliminated the possibility of its further spread.

Public health officials throughout the world, for many years, have been greatly concerned with the manner in which improvements in methods and rapidity of transportation are influencing the spread of transmissible diseases, and much investigative work in this connection has been done, particularly so in connection with yellow fever. Some conception of the changes that have occurred in this respect may be visualized by referring to changes in the rapidity of dissemination of cholera. For many centuries pilgrimages to the Ganges at Benares, India, have been the custom and it was from this center that cholera formerly was spread to various parts of Asia and western Europe.

It is said that in the days when travel was by caravan a period of about three years elapsed between the occurrence of a cholera epidemic in India and its spread to northern Russia. With the devlopment of more efficient means of transporation this time interval was gradually reduced to three months. With the advent of fast steamship and railway lines the time interval was reduced still further to three weeks. Now that express air plane services are available, theoretically it would be possible for individuals harboring virulent cholera organisms to cover the same distance in about three days.

In the case of diseases transmitted by insects, in many respects, the same situation now exists. It is possible for certain disease-transmitting species of insects, for example, mosquitoes, or for individuals in the incubationary or acute stages of dengue or yellow fever to travel long distances in relatively short period of time. When such insects or such individuals finally come to rest, either the infected insect or the infected individuals may serve as an original focus from which a wide-spread epidemic may result, provided the insect serving as transmitting agent is of common occurrence in the new area and that the population residing in the area is made up of non-immunes.

Though the major problems relating to the etiology and method of transmission of dengue fever have been solved, much investigative work remains to be done and it also is highly desirable that the interest of the public and of public health officials be concentrated on c mpaigns having in view the eradication of the highly domesticated species of Aedes mosquitoes.

Through the accomplishment of such control measures a two-fold purpose will have been served, namely, the prevention of the introduction and spread of both yellow fever and dengue fever in geographical areas in which the transmitting mosquitoes commonly are found and in which non-immune populations reside.

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TABLE 125

Summary of incidence of dengue fever

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
United States of America:		British Solomon Islands..	+(?)
15 Selected States	59	Bahamas	+(?)
Hawaii	0	Barbados	+(?)
Puerto Rico	C?	Bermuda	0
Virgin Islands	0	British Guiana	0
Canal Zone (see Panama).		Montserrat	0
Guam	+(?)	St. Lucia	0
Philippine Islands	500	St. Vincent	0
Samoan Islands	0	Trinidad and Tobago	0
The British Empire:		*Republic of France:*	
Kenya Protectorate	+(?)	Syria and Lebanon	+(?)
Uganda Protectorate	1	West Africa & Sahara	+(?)
Tanganyika Territory	2	Equatorial Africa	+(?)
Zanzibar Protectorate	3	French Indo-China	106
Somaliland Protectorate.	5	Guadeloupe	0
Colony of Nigeria	20	Martinique	0
Gold Coast Colony	1	Indian Ocean Group	+(?)
Colony of Gambia	+(?)		
Bechuanaland Protectorate	0	*The Netherlands:*	
Southern Rhodesia	0	Dutch East Indies	+(?)
Union of South Africa	500		
The Anglo-Egyptian Sudan	2	*Other Countries:*	
Mauritius	0	Albania	+(?)
Seychelles	0	Bolivia	+(?)
Empirate of Trans-Jordan	0	Brazil	+(?)
Cyprus	0	Chile	+(?)
Gibraltar	0	China	+(?)
Sarawak	3	Belgian Congo	+(?)
Ceylon	11	Costa Rica	0
India and Dependencies..	71	Egypt	1,287
Straits Settlements and Federated Malay States.	167	Greece	1,500,000
Johore	15	Haiti	62
Kedah and Perlis	2	Holland	0
Kelantan	0	Liberia	0
Trengganu	1	Panama and Canal Zone.	+(?)
Hong Kong	76	Paraguay	+(?)
Fiji and Western Pacific.	48	Spain	+(?)
		Siam	+(?)
		Turkey	+(?)
		Total	1,502,942

YELLOW FEVER

WILBUR A. SAWYER, M.D.

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Among the tropical diseases deserving attention as public health problems yellow fever stands in the first rank when measured by these criteria: the seriousness of the disease, the number of people attacked or threatened, the present availability of effective control measures and the prospect of more widely applicable preventive methods as the reward of research.

The old-time devastating epidemics in the temperate zone are so far in the past that their recurrence is scarcely feared. And yet it is known that numerous cities in the subtropics breed enough Aegypti mosquitoes to spread yellow fever if introduced. The danger of bringing from an endemic area an infected mosquito or a person in the incubation period has recently been increased by the greater speed of travel. The problem of keeping the disease out of the potential epidemic cities can be met in part by precautionary mosquito control and governmental quarantine restrictions. The risk has been reduced by an international sanitary convention relating to air travel and also by rigid mosquito control in some of the tropical cities visited by aeroplanes and ships. As long as endemic areas exist, however, there will be danger of occasional unexpected outbreaks in infectible cities, like the epidemic of 1928 and 1929 in Rio de Janeiro.

Unfortunately it has not proved to be a simple matter to destroy yellow fever at its source by eliminating all endemic areas. The regions in which the infection keeps itself alive are much greater than was suspected before experimental animals became available for yellow fever investigations. Through tests of immunity and pathological examinations, the two great endemic areas of the world have now been revealed and their boundaries approximately established. One of them extends from Senegal in West Africa to the upper reaches of the Nile, and the other occupies practically the whole of the Amazon Valley and reaches for short distances into other watersheds. Within and near these endemic areas the disease is moving about irregularly and is occasionally lighting up epidemics in towns or cities which have lost much of their immunity or have brought in many susceptibles.

The vastness of the endemic areas does not explain sufficiently why the simple methods which banished yellow fever from many of its old haunts are not adequate to clean up those regions. It now seems probable that the disease is transmitted and perpetuated in parts of the endemic areas by vectors different from the single one encountered in Havana and Panama and the epidemic cities in general. In South America, at least, it has been conclusively shown that yellow fever can spread as an epidemic in the absence of *Aedes ægypti* and in sparsely inhabited rural areas. In such places the control of the infection through the usual attack on the Aegypti mosquito in its larval stage is obviously inapplicable. Vaccination of the general population is not yet practicable, as the effective method devised for the protection

of laboratory workers, field investigators and other highly exposed persons is not yet practical for the immunizing of whole populations.

Here is an inspiring challenge to workers in tropical medicine. The unknown vectors must be discovered and the epidemiology of jungle yellow fever, as Dr. Soper calls it, must be worked out in detail. The laboratories have the problem of perfecting a vaccine which will be not only safe but also available to large numbers of persons. When these goals have been reached, the devising of a satisfactory method of control under the new conditions should follow. In the meanwhile, the rigorous application of the long-tested method of control through suppression of *Aedes ægypti* may be depended upon to keep yellow fever away from the cities or to suppress epidemics which have made a start.

TABLE 126

Summary of incidence of yellow fever

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
United States of America:		British Guiana	0
15 Selected States	0	British Honduras	0
Hawaii	0	Montserrat	0
Puerto Rico	0	Grenada	0
Virgin Islands	0	St. Vincent	0
Canal Zone (see Panama)		Trinidad and Tobago	0
Guam	0		
Philippine Islands	0	*Republic of France:*	
Samoan Islands	0	Syria and Lebanon	0
		Morocco	+(?)
The British Empire:		West Africa & Sahara	42
Kenya Protectorate	0	Equatorial Africa	+(?)
Uganda Protectorate	0	French Indo-China	0
Tanganyika Territory	0	Guadeloupe	+(?)
Zanzibar Protectorate	0	Martinique	0
Colony of Nigeria	20		
Gold Coast Colony	4	*The Netherlands:*	
Colony of Gambia	+(?)	Dutch East Indies	0
Sierra Leone	0		
Bechuanaland Protectorate	0	*Other Countries:*	
Southern Rhodesia	0	Albania	0
Northern Rhodesia	?	Bolivia	+(?)
Union of South Africa	0	Brazil	5
The Anglo-Egyptian Sudan	0	Chile	0
Mauritius	0	China	0
Seychelles	0	Colombia	+(?)
Empirate of Trans-Jordan	0	Belgian Congo	0
Cyprus	0	Costa Rica	0
Gibraltar	0	Egypt	0
Ceylon	0	Greece	0
India and Dependencies	0	Haiti	0
Straits Settlements and Federated Malay States	0	Holland	0
Kelantan	0	Italy	0
Hong Kong	0	Liberia	0
Fiji and Western Pacific	0	Panama and Canal Zone	0
British Solomon Islands	0	Paraguay	0
Bahamas	0	Peru	0
Barbados	0	Spain	0
Bermuda	0	Siam	0
		Turkey	0
		Venezuela	0
		Yugoslavia	0
		Total	71

TYPHUS FEVER

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The discovery in recent years that typhus fever is widespread in the world in a rodent reservoir from which it is transmitted to man by rat fleas has presented a new public health problem in connection with this disease. With the work on rats and rat fleas it seems logical to assume for the moment that typhus may be maintained in a rodent reservoir throughout the world and that human cases contracted through rat fleas represent only an accidental intrusion and that only when these flea-borne cases occur in a louse-infested, crowded population does the subsequent infection of lice make human epidemics possible. Further experimental work and study is necessary to prove or disprove this hypothesis.

The control of human epidemics of typhus still lies with the destruction of lice but the prevention of human epidemics may well be found to lie with the control of the rat population. At present the disease is known to be present at widely scattered points in both hemispheres and it seems probable that further search will extend its known distribution.

It is difficult to consider the typhus problem apart from the problem of the identification and relationship of the other similar diseases which have been described from every continent. To mention only the better known: Rocky Mountain spotted fever, Sao Paulo typhus, bontonneuse fever, Kenya typhus, hill typhus of India, tropical typhus of the Federated Malay States and Australia, and Tsutsugamushi. These diseases are all transmitted by arthropods and bear such a marked resemblance to each other that the suspicion has arisen that they may be caused by one virus which has undergone certain changes in adapting itself to life in different arthropod species.

Broadly sketched, the fundamental problems in the typhus field are those of identification of these various typhus-like diseases and their relationship to each other and the determination of the possibility of a disease changing its characteristics by reason of life in distinct arthropod and animals species.

TABLE 127

Summary of incidence of typhus fever

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
United States of America:		*The British Empire:*	
15 Selected States	877	Kenya Protectorate	30
Hawaii	0	Uganda Protectorate	140
Puerto Rico	0	Tanganyika Territory	1
Virgin Islands	0	Zanzibar Protectorate	0
Canal Zone (see Panama)		Colony of Nigeria	0
Guam	0	Gold Coast Colony	0
Philippine Islands	0	Colony of Gambia	+(?)
Samoan Islands	0	Basutoland	238

TABLE 127—*Concluded*

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
Bechuanaland Protectorate	0	*Republic of France:*	
Southern Rhodesia	0	Syria and Lebanon	+(?)
Union of South Africa	2,000	Morocco	403
The Anglo-Egyptian Sudan	0	Equatorial Africa	0
Mauritius	0	French Indo-China	3
Seychelles	0	Guadeloupe	0
Palestine	30	Martinique	0
Empirate of Trans-Jordan	30	*Other Countries:*	
Cyprus	0	Abyssinia	+(?)
Gibraltar	0	Albania	0
Ceylon		Brazil	17
India and Dependencies	+(?)	Chile	15,365
Straits Settlements and Federated Malay States	220	China	+(?)
Johore	3	Colombia	+(?)
Kedah and Perlis	4	Belgian Congo	0
Kelantan	2	Costa Rica	0
Trengganu	0	Egypt	918
Hong Kong	0	Greece	+(?)
Fiji and Western Pacific	0	Haiti	0
British Solomon Islands	0	Holland	+(?)
Commonwealth of Australia	5	Italy	0
Bahamas	0	Liberia	0
Barbados	0	Panama and Canal Zone	3
Bermuda	0	Paraguay	0
British Guiana	0	Peru	800
Montserrat	0	Spain	+(?)
Grenada	0	Siam	2
St. Vincent	0	Turkey	92
Trinidad and Tobago	0	Yugoslavia	+(?)
		Total	21,183

LEPROSY

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Leprosy is one of our oldest public health problems and if we are honest with ourselves we must admit that there is no problem about which we know less than we know of this one. In times past the disease has been more widely distributed than it is now but even today it is to be found in almost every country in the world.

Leprosy everywhere exacts a heavy toll from the community. The direct economic cost of caring for lepers is perhaps the smallest part of the burden, even where segregation is practiced in rigid fashion. More important is the social maladjustment which follows the patient while isolated and even if he happens to be so fortunate as to recover to the extent that permits him to be released from the close supervision of health authorities. Perhaps the most burdensome feature is the enforced separation of the sufferer from those near and dear to him, a separation usually for the life of the victim, who must

often have his family become the object of charity, since rarely do the agencies that consign the leper to isolation make any provision for the dependents left behind.

The incidence in different countries, or even in different parts of the same country, varies markedly. This variation is doubtless a matter of great importance and, if we knew, its significance would probably put in our hands effective means of controlling the disease. At present, the principal foci of leprosy are India, China, Japan and Africa, and the islands of the Pacific, although as indicated, scarcely any land is free.

Much time, energy and money have been devoted to studies of leprosy but in-so-far as essentials are concerned our knowledge has not progressed much beyond that possessed by our forefathers as recorded in the Old Testament. We are still uncertain as to whether anyone has cultivated the causative organism and we are well nigh certain that no one has reproduced the disease in laboratory animals.

Perhaps the most important defect of our knowledge is our lack of acquaintance with the factors involved in transmission. Is transmission primarily from person to person? If so, at what stage is it transmitted? Is it necessary that the infecting agent pass through a stage outside the human body? Why is exposure to the disease in certain areas so much more likely to result in infection than is exposure to the disease in certain other areas? None of us can answer that question in a convincing manner. I am sure that the answers are to be discovered by suitably planned and persistently pursued investigations. In other words, aside from a few outstanding and unrelated facts, our knowledge of the spread of leprosy is almost nonexistent.

In the field of diagnosis, we must in the final analysis often depend on clinical observation frequently aided, of course, by microscopic studies.

Viewed from the standpoint of treatment, the situation is not much more favorable; in recent years we have seen several therapeutic agents tried and ultimately found wanting. Indeed, at present, there is a tendency to put less emphasis on the medicinal agents and more on modifications of diet and such general measures as are applicable in the treatment of tuberculosis.

It is in relation to administrative handling of leprosy as a public health problem that our defects of knowledge regarding the disease bear their finest fruits. It is the practice in different jurisdiction either to do nothing, ignoring the possible menace of the spread of the disease (an attitude often justified on the grounds of unbearable financial burdens that would be required by strict segregation) or to ruthlessly segregate all cases; between these extremes of sanitary handling of the problem we have many degrees of segregation.

Perhaps a study of the subject from the point of view of control would yield results that would at least permit us to do away with inconsistencies in public health practice and might enable us to establish sensible, effective measures for the protection of the public health.

TABLE 128

Summary of incidence of leprosy

PLACE	NUMBER OF CASES
United States of America:	
15 Selected States	53 [1]
Hawaii	56
Puerto Rico	80 to 300
Virgin Islands	80
Canal Zone (see Panama)	
Guam	8
Philippine Islands	25,000
Samoan Islands	0
The British Empire:	
Kenya Protectorate	470
Uganda Protectorate	3,081
Tanganyika Territory	858
Nyasaland Protectorate	358
Zanzibar Protectorate	281
Somaliland Protectorate	29
Colony of Nigeria	9,410
Gold Coast Colony	11,216
Colony of Gambia	192
Sierra Leone	244
Basutoland	774
Bechuanaland Protectorate	12
Southern Rhodesia	3,500
Northern Rhodesia	184
Union of South Africa	5,000
The Anglo-Egyptian Sudan	7,500
Mauritius	66
Seychelles	90
Palestine	21
Empirate of Trans-Jordan	R
Cyprus	100
Gibraltar	2
Maltese Islands	11
Sarawak	27
Brunei	2
British North Borneo	74
Ceylon	1,500
India and Dependencies [2]	60,577
Straits Settlements and Federated Malay States	2,804
Burma	2,766
Johore	220
Kedah and Perlis	133
Kelantan	54
Trengganu	45
Hong Kong	1,000
Fiji and Western Pacific	3,000
British Solomon Islands	500
Gilbert and Ellice Islands	32
Commonwealth of Australia	7
Bahamas	20
Barbados	85
Bermuda	11
British Guiana	600
Jamaica	23
Antigua	31
Dominica	32
Montserrat	1
Virgin Islands	+(?)
Grenada	14
St. Lucia	25
St. Vincent	19
Trinidad and Tobago	9
Republic of France:	
Syria and Lebanon	+(?)
Morocco	225
Madagascar	1,068
Reunion	20
West Africa & Sahara	12,020
Equatorial Africa	9,000
French Indo-China	15,000
Pacific Group	868
Guadeloupe	+(?)
Martinique	300
Atlantic Group (others): Guyane, St. Pierre, Miquelon	284
Indian Ocean Group	+(?)
The Netherlands:	
Dutch East Indies	+(?)
Other Countries:	
Abyssinia	+(?)
Albania	0
Bolivia	+(?)
Brazil	6,655
Chile	30
China	1,000,000
Colombia	7,347
Belgian Congo	150,000
Costa Rica	200
Dominican Republic	70
Egypt	10,000
Greece	600
Haiti	40
Holland	100
Honduras	23
Italy	16
Liberia	+(?)
Panama and Canal Zone	100
Paraguay	+(?)
Peru	0
Spain	+(?)
Siam	405
Turkey	100
Venezuela	46
Yugoslavia	70
Total	1,357,094

[1] Does not include some 350 cases isolated at Carville, La.

[2] According to a recent report by Major-General J. D. Graham it is probable that an estimate of 1,000,000 cases of leprosy in India is not too high.

SYPHILIS

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Syphilis can scarcely be regarded as a tropical disease in the strictest sense of the world. Terrestrial would be a more adequate term, since it prevails over our entire earth. Its wide distribution alone would not necessarily make it a problem of major importance but when world-wide distribution is coupled with a high incidence, as is the case with syphilis, we come face to face with a public health problem that is really gigantic in its proportions and global in its scope.

We do not have sufficient data accurately to appraise the extent of the problem which syphilis presents to us today. Statistical estimations of its prevalence notoriously undershoot the mark, even in those areas where the reporting of other communicable diseases is most faithfully carried out. Moreover, those portions of the earth where the reporting of communicable diseases is most poorly done, or not done at all, are the very portions where this disease is found to be most prevalent. Therefore any statements as to its incidence which are based solely upon the number of cases reported, must of necessity be interpreted as erring on the side of conservatism.

Syphilis thrives in backward communities. It flourishes where the prevailing standards of human conduct are such that promiscuity in sexual matters is condoned, if not accepted as a commonplace. Everybody knows that such promiscuity is by no means uncommon amongst the native-born population of the tropical countries, and syphilis, once introduced into such a population, stands an excellent chance of being propagated with great rapidity. Indeed in some communities the conditions are so favorable for its spread that the disease is often transmitted from person to person by non-venereal contact. The tropics therefore afford a most suitable soil for the development of this infection and its incidence in those regions is high.

Aside from the public health aspects of tropical syphilis there are fundamental questions concerning it which are of considerable theoretical interest. Some of these questions have already received some consideration, as, for example, the effect of syphilis upon the native-born population of the tropics, as contrasted with its effect upon immigrants from the North. There is also the question of the relation of syphilis to yaws, a disease caused by a kindred parasite, and the question of the curability of tropical syphilis contrasted with that of non-tropical syphilis. All of these problems are of real scientific import and deserve serious study. There can be no doubt that syphilis is a major health problem in tropical as well as non-tropical communities and it is high time that public health administrators, as well as laymen, realize that fact.

TABLE 129

Summary of incidence of syphilis

PLACE	NUMBER OF CASES
United States of America:	
15 Selected States	58,471
Hawaii	42
Puerto Rico	2,788
Virgin Islands	+(?)
Canal Zone (see Panama).	
Guam	0
Philippine Islands	50(?)
Samoan Islands	0
The British Empire:	
Kenya Protectorate	23,733
Uganda Protectorate	72,218
Tanganyika Territory	35,229
Nyasaland Protectorate	1,383
Zanzibar Protectorate	487
Somaliland Protectorate	400
Colony of Nigeria	33,635
Gold Coast Colony	34,440
Colony of Gambia	33
Sierra Leone	388
Basutoland	5,208
Bechuanaland Protectorate	9,412
Southern Rhodesia	5,040
Northern Rhodesia	4,968
Union of South Africa	96,529
The Anglo-Egyptian Sudan	9,501
Mauritius	956
Seychelles	13
Palestine	936
Empirate of Trans-Jordan	250
Cyprus	746
Gibraltar	23
Maltese Islands	1
Sarawak	302
Brunei	26
British North Borneo	120
Ceylon	7,451
India and Dependencies	190,790
Straits Settlements and Federated Malay States	108,202
Burma	30,524
Johore	199
Kedah and Perlis	549
Kelantan	423
Trengganu	25
Hong Kong	1,460
Fiji and Western Pacific	25
British Solomon Island	0
Commonwealth of Australia	164
Bahamas	125
Barbados	656
Bermuda	+(?)
British Guiana	3,000
British Honduras	41
Jamaica	5,265
Antigua	254
Dominica	79
Montserrat	14
Virgin Islands	+(?)
Grenada	262
St. Lucia	787
St. Vincent	834
Trinidad and Tobago	966
Republic of France:	
Syria and Lebanon	868
Morocco	70
Madagascar	196,244
Reunion	+(?)
West Africa & Sahara	102,685
Equatorial Africa	+(?)
French Indo-China	11,712
Pacific Group	28
Guadeloupe	+(?)
Martinique	+(?)
Atlantic Group (others): Guyane, St. Pierre, Miquelon	132
Indian Ocean Group	+(?)
The Netherlands:	
Dutch East Indies	+(?)
Other Countries:	
Abyssinia	+(?)
Albania	+(?)
Argentina	+(?)
Bolivia	+(?)
Brazil	4,201
Chile	+(?)
China	+(?)
Colombia	248
Belgian Congo	9,034
Costa Rica	100,000
Dominican Republic	35
Egypt	92,350
Greece	+(?)
Haiti	100,000
Holland	+(?)
Honduras	+(?)
Italy	201
Liberia	+(?)
Panama and Canal Zone	+(?)
Paraguay	+(?)
Peru	+(?)
Spain	634
Siam	396
Turkey	+(?)
Venezuela	400
Yugoslavia	50,000
Total	1,418,661

YAWS

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The name "yaws" is a native term from Guinea (a geographical division formerly designating the West African coast between the Senegal River on the north and the Orange River on the South). It means raspberry and refers to the appearance of one stage of the typical lesion. The French synonym "framboesia" is simply a translation of this native name.

The term "yaws" was first used in English medicine by Trapham in the year 1679 and next by Thomas Sydenham who wrote his article upon the subject in the period 1680–81. Sydenham and other writers up to the time of de Sauvages' "Nosologia Methodica" (1768) considered yaws as a malignant, complicated type of lues venerea. Others who described yaws in terms of syphilis are William Byrd of Virginia (a layman), who reflected the medical opinion of his time in the "History of the Dividing Line" (Virginia-North Carolina) in 1728; John Brickell an Irish physician who practiced at Edenton, North Carolina, between 1730 and 1735 and published his work, "The Natural History of North Carolina" at Dublin, Ireland, in 1737; John Huxham (1739) who, in reporting a yaws infection contracted by an Englishman in the tropics, said: "He had frequent impure Conversation with some of the Negro Hussies (who probably labored under the worst Species of Pox, called the Yaws);" William Buchan who, in his much-translated "Domestic Medicine" (1769), refers to yaws as a type of syphilis.

In the year 1768 F. B. de Sauvages published his "Nosologia Methodica" and copying the system devised by Karl Von Linné (Systema Naturae) for scientifically naming plants and animals, he not only put a new name "framboesia" into nosology but also a new interpretation of yaws as a distinct disease.

Since the time of de Sauvages there have been two schools of thought concerning yaws: those who believe it is simply syphilis in the unwashed and untreated and those who believe it is an entirely distinct disease.

Three physicians among many of the 19th and 20th centuries who have ably defended the hypothesis that these conditions are identical will be mentioned: Berkeley Hill (1868), E. Lancereaux (1868) and Jonathan Hutchinson (1828–1913).

On the other side of the question are many distinguished names. We will mention only a few as follows: Thomas Masterman Winterbottom (1803), J. Numa Rat (1891) and the great majority of writers on tropical medicine at the present time. We will mention only two of these modern framboesiologists: Sir Aldo Castellani in England and Professor Richard P. Strong in the United States.

The writer believes in unity and will summarize his reasons thus:

(1) Among the people with primitive habits in personal hygiene, syphilis, a chronic constitutional disease, becomes one of the exanthemata of childhood.

(2) Habits as to treatment and personal cleanliness of *civilized* man make of syphilis a venereal disease.

(3) Yaws is not a distinct *pathological* entity. It is the result of two pathological processes, one inflammatory overlying a treponematous infiltration of the derma.

(4) Of the several syphilides, only the roseola is essentially treponematous; the others are due to help from without.

(5) It is not possible to decide in the present state of our knowledge, whether among small, isolated, intensely treponematized and untreated populations such as that of Guam, the struggle between tissue cells and *Treponema* has not so changed the virulence and invasiveness of the *Treponema* as to make of it a sub-species of *T. pallidum* or even a distinct species, *Treponema pertenue*; this will depend upon whether reversion to the pallidum types does or does not occur.

(6) At present the term "yaws" is little more than a definition or group word which excludes *venereal* primary lesions and congenitalism and stresses *one* of the several well-recognized types of treponematous eruption and only *one phase* of that. Yaws is limited (by definition only) to the tropics, which for a potentially venereal disease makes it the *only contagious, inoculable disease thus delimited.*

(7) Immunity reactions in animals (monkeys and rabbits) produced by inoculation of the supposedly different antigens (*T. pallidum* and *T. pertenue*) are indistinguishable.

(8) Some strains of alleged *Treponema pertenue* carried in laboratories were pretty certainly strains of *T. pallidum.* The Nichols strain from a negro soldier and the Schamberg-Klauder strain from a World War Veteran were, in our opinion, in *this* class. Of the few remaining strains in American and European laboratories, some have already reverted to the pallidum type in their rabbit testicular effects.

TABLE 130

Summary of incidence of yaws

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
United States of America:		*The British Empire:*	
15 Selected States	0	Kenya Protectorate	92,050
Hawaii	3	Uganda Protectorate	49,546
Puerto Rico	92	Tanganyika Territory	114,115
Virgin Islands	0	Nyasaland Protectorate	1,966
Canal Zone (see Panama)		Zanzibar Protectorate	4,453
Guam	44	Somaliland Protectorate	11
Philippine Islands	60(?)	Colony of Nigeria	107,333
Samoan Islands	1,511	Gold Coast Colony	145,172

TABLE 130—*Concluded*

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
Colony of Gambia	424	St. Lucia	1,422
Sierra Leone	5,891	St. Vincent	22,170
Bechuanaland Protectorate	1,000	Trinidad and Tobago	44
Southern Rhodesia	300	*Republic of France:*	
Northern Rhodesia	427	Syria and Lebanon	0
Union of South Africa	20	Madagascar	0
The Anglo-Egyptian Sudan	796	West Africa & Sahara	88,209
Mauritius	0	Equatorial Africa	40,000
Seychelles	0	French Indo-China	400
Empirate of Trans-Jordan	0	Pacific Group	+(?)
Cyprus	0	Guadeloupe	0
Gibraltar	0	Martinique	+(?)
Sarawak	4,686	Atlantic Group (others): Guyane, St. Pierre, Miquelon	505
Brunei	108	Indian Ocean Group	0
British North Borneo	6,821		
Ceylon	24,560		
India and Dependencies	+(?)	*The Netherlands:*	
Straits Settlements and Federated Malay States	7,899	Dutch East Indies	+(?)
Johore	5,297	*Other Countries:*	
Kedah and Perlis	159	Albania	0
Kelantan	22,093	Chile	0
Trengganu	4,789	China	+(?)
Hong Kong	1	Colombia	2,877
Fiji and Western Pacific	23,679	Belgian Congo	160,471
British Solomon Islands	4,177	Costa Rica	2,000
Gilbert and Ellice Islands	+(?)	Egypt	0
Bahamas	0	Greece	0
Barbados	0	Haiti	100,000
Bermuda	0	Holland	+(?)
British Guiana	200	Libera	+(?)
British Honduras	+(?)	Panama and Canal Zone	400
Jamaica	33,338	Paraguay	+(?)
Dominica	2,400	Spain	0
Montserrat	+(?)	Siam	304
Virgin Islands	+(?)	Turkey	0
Grenada	1,464	Total	1,085,747

TRACHOMA

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While the clinical picture of trachoma offers numerous variations and differences in individual instances, it nevertheless follows a more or less general pattern. Trachoma is a chronic infectious disease of the human conjunctiva and cornea, occasionally with an acute onset but more frequently with slow, insidious, almost negligible symptoms. It is characterized by hypertrophy of lymph tissue, causing the formation of follicles, and eventually invading the cornea in the form of clouding and vascularization (pannus) with resultant impairment, either partial or complete, of visual acuity. Ultimately cicatrization of the affected tissues occurs and this feature with

corneal involvement comprise the important factors in permanent injury and differential diagnosis.

That trachoma is actually an infectious disease can scarcely be doubted any longer, notwithstanding concepts to the contrary which implicate deficient or faulty diet, constitutional factors, allergy to pollens, etc. The disease has been transmitted not only accidentally on numerous occasions, as during operations from patient to physician, but experimentally from man to man under conditions which make any interpretation but infection illogical and absurd. What the nature of the causative agent is, however, remains at the present time a matter of speculation and controversy. Many organisms have been implicated in the past but the majority of them have been eliminated from further serious consideration. Without attempting to define or predict the infectious agent of trachoma, the most likely candidates for future investigation in the order of their discovery are the epithelial cell inclusion of Prowazek and Halbestadter (1907), the filterable virus originally reported by Nicolle, Cuenod and Blaizot (1913) and *Bact. granulosis*, isolated by Noguchi (1927). Whether any of these is actually the cause of trachoma, or whether it is some other organism perhaps as yet undescribed, is a question which must wait the results of future investigation for an answer. The histological changes associated with trachoma, while definite, are not typical or characteristic of trachoma, until scarring and corneal involvement appears, at which time the clinical signs are too obvious to be mistaken or confused.

Trachoma varies in incidence from a practically universal disease, as in Egypt, Tunis, Algier, Morocco, Palestine, the Levant, Arabia, Persia and Iraq; to a very common disease in Italy, Greece, Poland and the Slavic countries, Corsica, Sardinia, China, Indo-China, Japan, Argentina, Mexico and Turkey; to occasional, with heavy endemic foci, as in Ireland, Holland, Belgium, France, Portugal, Austria, Hungary, Germany, Albania, Bulgaria, Rumania and the United States; to a rare disease in the British Isles, the Scandinavian countries, New Zealand and Canada. The disease therefore occurs in any climate or altitude, in dry as well as moist countries. While racial immunity is doubtful, it may be said with accuracy that among the full-blooded American Negroes trachoma is extremely rare and even denied by a number of competent ophthalmologists. The difference in incidence between the two sexes can be disregarded as of no particular etiological or immunological importance.

The influence of trachoma in causing human misery and suffering and blindness, as well as incurring great economic losses to the family, state and nation, is admitted by those familiar with the subject.

The disabilities resulting from trachoma are due to either subjective symptoms or to physical alterations in the eye. Among the former are increased lachrymation, the feeling of foreign material under the lids, discharge, pain

and intense photophobia. The latter include impaired vision or blindness, opacity and ulceration of the cornea, rubbing of the cornea by inverted lashes, ptosis of the lids, secondary involvement of the iris, etc. With blindness, the patient usually becomes a public charge, dependent upon the state since the family is generally too pauperized to supply necessary financial assistance. In some communities, therefore, the public funds expended for trachoma relief are of impressive proportions.

Whether the conditions to be enumerated are actually predisposing causes or merely concomitant factors of trachoma, it is nevertheless interesting that trachoma occurs as a rural disease with the exceptions to be noted. It occurs with bad housing, lack of proper water supply, overcrowding, filth and poverty. In the cities, trachoma may occur in the crowded slums but usually among individuals who have themselves come from an infected area, and in many instances they are already trachomatous. This was well illustrated in this country before the turn of the century when no restrictions were placed on immigration and no examination was made for trachoma. The immigrant usually settled in the larger cities along the eastern coast and for a time the trachoma rate was high, but it rarely involved the indigenous population.

The various measures undertaken by a number of nations at the present time to eradicate trachoma accentuate the importance of the problem, not only as a local condition but as a pandemic proposition. Experiences, such as the Napoleonic Wars in Egypt and the rise of immigration in the New World, demonstrate how readily and speedily trachoma assumes international magnitude. The measures exercised to restrict trachoma constitute a logical growth of methods employed in the past by countries where trachoma is becoming an ophthalmological curiosity, as is true in certain parts of this country. The methods most commonly employed in the prevention of trachoma consist of personal, familial, scholastic, military, national and international prophylaxis.

In personal prophylaxis not only must the patient be educated to better hygiene and particularly not to contaminate his fingers by rubbing and thereby spreading trachoma, but those in contact with patients must be taught to keep themselves free from contamination. The latter group usually means the family. The proper use of soap and water and particularly the individual towel must be emphasized continuously.

Since trachoma is spread with relative rapidity among school children, the importance of scholastic hygiene cannot be overestimated. In endemic areas, children should be examined periodically by a competent ophthalmologists who uses proper safety measures himself. Infected children should be segregated and then educated in prevention while they are being treated.

In military prophylaxis, conscripts or volunteers should not be accepted for service and arrangements should be made for treatment instead of re-

turning the individual carelessly to his home to spread the disease. On demobilization, all service men should be examined with care and none should be discharged until the disease is arrested. In countries where trachoma is common, it has been necessary to establish trachomatous units, and in such cases a capable ophthalmologist should be in charge to conduct proper treatment and prophylaxis.

From the national aspect, trachoma should be made a notifiable disease, as in fact it is in Canada, United States, France, etc. In endemic foci, routine examinations should be made by governmental physicians, and prevention and hygiene should be taught to the population. Visiting nurses are of great aid in picking out the suspects first, who are later examined by the opthalmologist.

That international prophylaxis is a serious problem is witnessed by the founding of two societies to find some solution of dealing with this difficulty and allied conditions. The one, La Ligue contre le Trachome, founded in 1923, and Organization Internationale de la Lutte contre le Trachome, founded in 1929, indicate trachoma remains a serious problem of international importance. The bulk of international prophylaxis must depend for its success in the careful examination of visitors and immigrants for trachoma, with the exclusion of those in any stage of infection. Individuals with so-called cured trachoma, however, are acceptable for admission in countries, as our own, which pioneered in the exclusion of trachomatous individuals.

No attempt has been made in this short report to review the various methods of treatment. The subject is a long one and it is scarcely possible to even touch it without becoming elaborately involved. It has, therefore, seemed more in accordance with the purpose of this review to include a summary only on the general clinical and pathological conditions, the etiology, the associated factors and prophylaxis.

TABLE 131

Summary of incidence of trachoma

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
United States of America:		Colony of Nigeria	300
15 Selected States	4,445	Gold Coast Colony	217
Hawaii	187	Colony of Gambia	5
Puerto Rico	68	Sierra Leone	5
Virgin Islands	0	Bechuanaland Protectorate	40
Canal Zone (see Panama)		Southern Rhodesia	6
Guam	0	Union of South Africa	62
Philippine Islands	16,453	The Anglo-Egyptian Sudan	195,897
Samoan Islands	0	Mauritius	0
The British Empire:		Seychelles	0
Kenya Protectorate	233	Palestine	9,237
Uganda Protectorate	5,515	Empirate of Trans-Jordan	824
Tanganyika Territory	849	Cyprus	12,249
Nyasaland Protectorate	58		
Somaliland Protectorate	48		

TABLE 131—*Concluded*

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
Gibraltar	0	Guadeloupe	0
Maltese Islands	329	Martinique	+(?)
Sarawak	1		
Brunei	3	*The Netherlands:*	
Ceylon	38	Dutch East Indies	+(?)
India and Dependencies	7,775		
Straits Settlements and Federated Malay States	192	*Other Countries:*	
Burma	43	Abyssinia	+(?)
Kedah and Perlis	23	Albania	+(?)
Kelantan	0	Brazil	7,897
Hong Kong	59	Chile	+(?)
Fiji and Western Pacific	7	China	+(?)
British Solomon Islands	8	Belgian Congo	+(?)
Bahamas	0	Costa Rica	0
Bermuda	0	Egypt	+(?)
British Guiana	+(?)	Greece	+(?)
Antigua	4	Haiti	64
Dominica	1	Holland	+(?)
Montserrat	+(?)	Liberia	0
St. Vincent	0	Panama and Canal Zone	4
		Paraguay	+(?)
Republic of France:		Spain	2,404
Syria and Lebanon	191	Siam	+(?)
West Africa & Sahara	5,262	Turkey	+(?)
Equatorial Africa	+(?)	Yugoslavia	50,000
French Indo-China	2,200	Total	323,203

TULARAEMIA

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Tularaemia is a world public health problem by reason of its wide geographic distribution, the great number and variety of its wild animal and insect hosts, its many modes of transfer to man, and the debility and death rate which it causes.

Cases of tularaemia reported in the United States

	Cases	*Deaths*
Previous to 1924	15	2
1924, 1925, 1926	308	11
1927	251	10
1928	350	10
1929	462	36
1930	659	37
1931	675	32
1932	933	41
1933	892	33
1934	881	48
Total	5,426	260
Mortality		4.8%

Geographic distribution. The disease was discovered in 1910 by Dr. George W. McCoy of the United States Public Health Service in the ground squirrels of Tulare County, California—hence the name tularaemia. Since 1910 human cases have become recognized in every state of the Union except Vermont and Connecticut. The disease was reported in Japan in 1925, in Russia in 1928, in Norway in 1929, in Canada in 1920 and in Sweden in 1931. No other country has recognized it.

Sources of human infection. Wild rabbits and *hares* (cotton tail, jack and snowshoe) constitute the great reservoir of infection in the United States and cause the disease in those who skin or dress them. *Ticks* (*Dermacentor andersoni* and *Dermacentor variabilis*) convey the infection from rabbit to man, the former in the Rocky Mountain states and the latter in the southern states of the United States. *Flies* (*Chrysops discalis*), commonly found in Utah and the surrounding states on horses and cows, convey the infection from wild rabbits to man.

Seven cases followed the herding, shearing or butchering of *sheep* in the northwestern United States. Seven cases were found to have dressed *tree squirrels*; seven to have skinned *opossums*. One case each followed the dressing of a *sage hen* or *deer*; one each the skinning of a *red fox, coyote* or *bull snake*. Two cases each have followed the dressing of *quail, ground hog, muskrat, hog* or *skunk*; one had picked *ticks* from his dog; and two were scratched by *cats*. *Bites* in single cases conveyed the infection from cat, skunk, coyote, tree squirrel, Montana ground squirrel, opossum, dog, hog, lamb or white rat. Contamination of the animal's mouth parts is assumed in the bitten cases.

Ingestion of insufficiently cooked rabbit meat caused five family outbreaks, resulting in the death of 12 of 20 persons so infected.

Laboratory infection of man has occurred in 37 workers in 11 laboratories in the United States, England, Japan and Russia, due to penetration of the infection through the skin of the hands while dissecting guinea pigs, rabbits and white mice.

Water rats (*Arvicola amphibius*) (water vole of Europe) caused an explosive outbreak of 1000 human cases among those who skinned them for their pelts in Russia in 1928. Wild rabbits have been responsible for the human cases in Japan, Norway, Sweden and Canada but not in Russia.

Not yet sources of human infection. California ground squirrels, wild rats of Los Angeles, wild mice of Contra Costa county, California and ground squirrels of Utah, all collected in nature, have yielded cultures of *Bacterium tularense* and yet no human cases have been reported from contact with those animals. Sheep dying in Montana yielded *B. tularense* but without the occurrence of human cases in those who contacted them. Gray foxes of Minnesota, found sick and dying, have yielded *B. tularense* but since their fur is useless there have not been human cases due to skinning them.

Commercial demand may be a powerful influence in bringing to light new foci of infection as occurred in Russia in 1928 when 15 kopecks became the attractive price offered in Europe for the pelt of a water rat. The population living on the banks of several Russian rivers turned in great numbers to the new industry which furnished several millions of pelts and exposed a hitherto unknown reservoir of tularaemia which had remained unobserved for lack of human contact.

In the United States no human case has ever been attributed directly to contact with the California ground squirrel and yet the disease has continued to exist in that rodent ever since its discovery in 1910 by McCoy. If the fur of the California ground squirrel should suddenly attain fashionable preference for wearing apparel then we could expect an outbreak of tularaemia in eager squirrel hunters, comparable to the rise and fall of Russian cases which was dictated by the rise and fall of commercial demand for a special fur.

Recognition of new foci. Agglutinins for *Bacterium tularense* persist in long-recovered cases of tularaemia and probably never entirely disappear in any case, thus affording a ready index, not only of present illness but also of past cases. Routine testing by McNabb for tularense agglutinins in all serums received at the Department of Health at Ontario resulted in 1930 in finding the first case of tularaemia in Canada in a patient whose physician had not suspected it.

Ohara in Japan, without knowledge or suspicion of tularaemia, described in print in 1925 a group of his surgical patients whose finger lesions and axillary lymph nodes did not respond to ordinary surgical and antiseptic treatment, but who had skinned rabbits. Discovery of the real condition was made at Washington, D. C. where, request having been made to Ohara for serums of his recovered cases, such serums were found to agglutinate *Bacterium tularense.*

Markets where rabbits are skinned and dressed for patrons are the most favorable and accessible places in which to look for the disease in countries where it has not yet been recognized. Attention should not at first be directed to the rabbits themselves but rather to the men who skin them, and especially to testing the serums of all such men without regard to question of present or past illness. These men, by reason of yearly exposure to many wild rabbits, are certain in time to show antitularense agglutinins if infected rabbits have been handled.

In man one attack of tularaemia confers permanent immunity. There is no record of the spread of the infection from man to man. Infected animals and infected blood-sucking insects are the great reservoirs of infection. Recognition of these reservoirs has steadily increased since the discovery of the disease in 1910. No other disease of man reaches him through so many avenues of infection.

TABLE 132

Summary of incidence of tularemia

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
United States of America:		Bahamas	0
15 Selected States	255	Bermuda	0
Hawaii	0	British Guiana	0
Puerto Rico	0	Montserrat	0
Virgin Islands	0		
Canal Zone (see Panama)		*Republic of France:*	
Guam	0	Syria and Lebanon	0
Philippine Islands	3	Equatorial Africa	0
Samoan Islands	0	French Indo-China	+(?)
		Guadeloupe	0
The British Empire:		Martinique	0
Kenya Protectorate	0		
Zanzibar Protectorate	+(?)	*Other Countries:*	
Colony of Nigeria	0	Albania	0
Bechuanaland Protectorate	0	Chile	0
Southern Rhodesia	0	China	0
Union of South Africa	0	Belgian Congo	0
Mauritius	0	Costa Rica	0
Seychelles	0	Egypt	0
Empirate of Trans-Jordan	0	Greece	0
Cyprus	0	Haiti	0
Ceylon	0	Liberia	0
India and Dependencies	0	Panama and Canal Zone	0
Fiji and Western Pacific	0	Paraguay	0
British Solomon Islands	0	Spain	0
		Turkey	0
		Total	258

CLONORCHIASIS

RICHARD P. STRONG, M.D.

Cases of infection with *Clonorchis sinensis* have not infrequently been detected in Chinese and Japanese travellers, or immigrants, in the United States and Europe as well as in the Far East. Thus the parasite termed the "Chinese liver fluke" was first found at autopsy in 1874, in a Chinese carpenter who was residing in Calcutta at the time he died. McConnell, who discovered the parasite in this case in the bile ducts, in 1875 gave a description and published illustrations of it. During the same year the worm was encountered in Japan, but it was not described in that country until 1883 when Baelz recognized two varieties, one of which he thought was harmless but the other pathogenic. However, Kobayashi (1917) and Chen Pang (1924) have shown that while the size of *Clonorchis sinensis* is relatively variable, there is apparently only one species.

Various records of the occurrence of this fluke in Chinese patients abroad were made between 1877–1907, but the first publication of the occurrence of the infection in the endemic areas in China was made by Heanley in 1908.

Distribution. Clonorchis sinensis (Cobbold, 1875) (Syn.: *Opisthorchis sinensis* Blanchard, 1895) is the most important liver fluke occurring in man. Its endemic distribution has been almost entirely confined to the

Sino-Japanese areas, where man and other animals have been found to be extensively and naturally infected. Of the animals, the cat and dog are very commonly infected, but wild cats, hogs, martens, badgers, minks and guinea pigs have also been found with the disease.

Our knowledge of *Clonorchis sinensis* and its distribution has been greatly enhanced by the important and extensive investigations of Faust (1925–1930). He has shown that the endemic area of infection extends throughout Japan, Korea and China (except the northwest), Formosa and French Indo-China. However, the heavy foci of human infection are confined to the Okayama District in Japan, southern Korea, parts of Kwangtung Province, China and the Delta of the Red River in Tonkin, French Indo-China. Faust found that the Kwangtung population is fond of eating raw fish or fish only partially cooked. In other areas the Chinese usually cook their fish very thoroughly.

H. T. Chen (1934), who has made a survey of the parasites of dogs mostly from Canton, found that 44.2 per cent were infected with *Clonorchis sinensis*, and 3,800 human cases of the disease were observed in these areas. He also studied 57 cats from Canton and 32 from Fuchow and found *Clonorchis sinensis* present in 80 per cent of the Cantonese cats and in 59 per cent of the Fuchow animals. He believes that cats are the most important reservoir hosts for clonorchiasis in South China. Katsurada (1900–1922) has reported that in central Japan there are certain districts in which it affects from 56–67 per cent of the population, where raw fish is commonly eaten.

Houdemer (1934) has recently called attention to the prevalence of clonorchiasis in Annam. He has found the infection locally present in from 1.4–40 per cent of human beings, in nearly 11 per cent of dogs and 33 per cent of cats. In this region the fish is eaten raw, being first cut into pieces 1–4 cm. long. However, the small species of *Carrasius auratus* usually swims about in a bowl beside the individual when eating. From this bowl the fish is caught up with a scoop and the native, after seasoning it, eats it while it is still wriggling.

The extent to which the infection with *Clonorchis* occurs in India seems still doubtful.[1] Chandler, who sought for it, did not observe a single case of clonorchiasis anywhere in India or Burma. McConnell (1874) reported finding two cases of *Opisthorchis noverca* infection at the autopsy of two Mohammedans, and Knowles records the presence of *Clonorchis* eggs in the feces of a patient in Assam. Chandler, however, thought that this case was in reality one of *Opisthorchis* infection, since *Opisthorchis* infection is very common in cats and dogs in eastern India. Acton observed *Clonorchis* ova

[1] Manson-Bahr (1930) states that Leger records finding the eggs in 50 per cent of the natives of the east coast of India. I have been unable to verify this reference, and think that it may refer to Indo-China, as reported by Mathis and Leger in their "Recherches de Parasitologie et de Pathologie Humaines et Animales au Tonkin," Paris, 1911.

in the feces of two Indian soldiers in Mesopotamia. Finally, Bagchi (1934) has reported a case of *Clonorchis sinensis* infection in a Mohammedan in Patna. Diagnosis was made by finding the ova in the stools and comparing these with authentic specimens of ova of *Clonorchis sinensis*. He points out that, since Indians seldom eat uncooked fish, the question is raised whether this infection might not be due to eating raw singhara (*Trapa bicornis*), which is commonly peeled with the teeth. However, further observation of this fact would seem to be necessary, though Chandler has already traced infection with *Fasciolopsis buskii* to eating this singhara. Further observations would appear to be desirable before one can conclude that infection with *Clonorchis sinensis* is really endemic in India.

Binford (1934) has reported upon the occurrence of *Clonorchis* ova in the stools of four lepers, none of whom had ever been outside of the territory of Hawaii. He alludes to the fact that, up to 1927, aliens with *Clonorchis* infection were excluded from Hawaii. Since this time, however, the regulation has been relaxed. He states that large quantities of frozen, dried, salted and pickled fish are imported into the Hawaiian Islands, that Cyprinidae are known harborers of this infection, and that two of the four infected persons had eaten raw gold fish (Cyprinidae) caught in the artificial taro ponds. In 1907–1908 some 24 cases of infection with *Clonorchis sinensis* (*Opisthorchis sinensis* Blanchard, 1895) were reported in the Philippine Islands in Chinese and Filipinos (Strong, Musgrave and Heiser). Whether the disease is endemic in the Islands appears doubtful.

Itinerant cases of the disease have not infrequently been reported in large seaports. Thus Mayer in 1916 found *Clonorchis sinensis* ova in 40.9 per cent of 200 Chinese sailors who were at the time World War prisoners in Hamburg. Prior to 1927 it was also shown that in the neighborhood of 50 per cent of the Chinese coolies examined by the public health officers in San Francisco were infected with the ova of this parasite, and Shattuck in Boston in 1923 showed that 54 cases occurred here in Chinese immigrants and in a few Japanese. Mebius (1921), who studied the pathology of the disease, studied 5 cases in Chinese of the Dutch East Indies.

The observations of Davis (1934) are of some interest in demonstrating the absence of the infection in Brazil. Thus, at the Yellow Fever Laboratory in Bahia, a microscopical examination was made of sections of pieces of the liver (obtained by the viscerotome) from 25,593 persons who had died in central and northern Brazil. This examination revealed that in 1,594 of the specimens, lesions caused by *Schistosoma mansoni* were present, in many of which the ova of *Schistosoma* were found. However, the presence of no other fluke was noted.

Formerly immigrants found to be infected with the ova of *Clonorchis sinensis* on arrival in this country were not admitted. Since, however, it is clear from a study of the life-cycle of the parsite there is no likelihood of the infection spreading in this country, this regulation has been rescinded.

Transmission. The yellowish-brown ova of *Clonorchis sinensis* are passed in the excreta of man or other infected mammals and are almost ready to hatch when they leave the mammalian host. Both Saito (1906) and Wayson (1924) found that under unusual circumstances spontaneous hatching of *Clonorchis* ova may occur. Other observers, and particularly Faust, have shown that hatching of the ova does not take place normally outside the body of the appropriate molluscan host, and in normal development it is necessary for the embryonated egg to be swallowed by the snail. Faust (1930) has shown that snails which act as the first intermediate host for this fluke are limited to a single subfamily, the *Bithyniinae* Stimpson, 1865, which are represented by four species in the Sino-Japanese area, viz., *Parafossarulus striatulus* (Benson, 1842), througout China, and the variety *japonicus* Pilsbry, 1901, in Japan and Korea; *P. sinensis* (Neumayr, 1887) in the Yantze Valley; *Bithynia fuchsiana* von Möllendorf, 1888, throughout China, but more common in the north; and *B. longicornis* Benson, 1856, distributed from Peking to Tonkin. He has also shown that the ova after being ingested by these snails hatch in the oesophagus of the mollusk, the miracidium penetrating through the gut wall into the peri-oesophageal lymph space where it metamorphoses into a sporocyst, migrates towards the interhepatic lymph sinuses and there produces a progeny of rediae. These latter in turn produce cercariae. The mature cercariae effect a rupture, first in the tissues of the rediae, then in the taut outer tissue layers of the mollusk, escaping into the water where they swim about vigorously. On coming into contact with fresh water fish the cercariae penetrate under the scales and into the flesh of the fish, in the meantime discarding their caudal appendages.

Faust and Khaw (1927) found that practically every species of fresh water fish in China, Japan, Korea, Formosa and French Indo-China could serve as the intermediate host for this parasite. Thirty-four species of fresh water fish of the families Percidae, Gobiidae, Anabantidae, were found infected.

On consumption of the infected raw fish, man or the other mammalian host becomes infected. In the stomach the cysts are digested out of the flesh and the outer capsule disintegrates. On passing into the duodenum the invigorated adolescaria breaks out of the cyst capsule and becomes attached to the duodenal wall. It next migrates to the opening of the common duct, continuing its course to the biliary duct and eventually to the biliary capillaries, entering more particularly those of the left lobe of the liver, due to the fact that the path of migration into this lobe is more direct.

Pathogenicity and pathology. Pathological changes induced by the parasites in the liver have been investigated especially by Katsurada (1900), Yamagiwa (1901), Mebius (1921), Fischer (1922) and Hoeppli (1933) while Faust (1927–1929) has studied the pathology especially in cats and guinea pigs. Hoeppli has examined specimens of the liver from autopsy of 66 Chinese who, for the greater part, had met a more or less sudden death which was in no case apparently due to *Clonorchis sinensis* infection. With the

exception of one case, the infection was always light or moderate. In all the cases the larger bile ducts showed dilatation, thickening of the wall and new formation of numerous glandular structures. Only two cases of liver cirrhosis were found, one of Laennec's type, the other a portal cirrhosis corresponding to the type of cirrhosis parasitaria as described by previous authors and probably due to *Clonorchis* infection. Increase of periportal tissue in varying degree was observed, as was infiltration with eosinophils. Fatty changes of the liver cells, frequently connected with atrophy of the liver cells in the center of lobules, were found in about one-third of the cases. In five cases the central veins were surrounded by newly-formed fibrous tissue and in four cases there occurred a thickening of the intima in the wall of small arteries and hyalinization of the intima. The results seemed to show that probably in many cases with mild *Clonorchis* infection in which the clinical symptoms are slight or non-existent, already considerable histological changes may be present in the liver.

Uyeno (1934) has emphasized the pathological changes in the kidney which occur in experimentally infected rabbits. He believes these changes are due partly to the metabolic products of the parasites which are circulating in the blood and partly to intermediate metabolic products originating from the pathological changes in the infected liver.

Clinical manifestations. Many cases of *Clonorchis sinensis* infection present no unfavorable symptoms. Thus, Shattuck found that none of the cases observed at the immigration station in Boston and subsequently in hospital showed any sign of disease other than a slight eosinophilia. This, while pretty constant, might have been due to the coincident presence of other intestinal parasites which were found in all the cases of clonorchiasis observed.

Inouye (1903) has particularly studied the disease clinically in Japan. He recognizes (1) a mild type without appreciable symptoms; (2) a stage of severe infection attended by diarrhoea, oedema and hypertrophy of the liver, and (3) a severe type with symptoms of the second stage, but aggravated by involvement of the hepatic portal circulation due to hepatic cirrhosis. There is no significant modification of the blood picture.

Prophylaxis. As Faust and others have pointed out, infection may be prevented by the thorough cooking of all fresh-water fish intended for consumption. The preventive program should consist of the dissemination of information regarding the dangers of consuming raw fish and educational efforts to convey such information should be made especially through the schools.

Tyzzer (1933) emphasizes that whereas *Opisthorchis* may occur frequently in cats in two different countries, it will be found frequently in human beings in the one in which uncooked fish forms an important part of the diet. Where this custom does not prevail, it is confined to animals.

Manson-Bahr (1930) points out that animals and men harboring the para-

site should be prevented from fouling water, whether it is used for drinking or bathing or agricultural purposes.

From this review of our knowledge of clonorchiasis, it seems evident that there is no danger of the spread of the infection in the United States.

Surgeon General Hugh S. Cumming has informed me that the present regulations of our Public Health Service regarding the entrance of immigrants with clonorchiasis are as follows:

> In 1927, clonorchiasis was withdrawn from the list of Class "A" diseases certifiable as dangerous or loathsome contagious diseases. Accordingly the new regulations governing the medical inspection of aliens no longer carry clonorchiasis in the Class "A" list of such diseases.
>
> Our present instructions are to the effect that aliens afflicted with clonorchiasis associated with constitutional symptoms shall be certified as being afflicted with a Class "B" condition, which affects ability to earn a living, while aliens found to be afflicted with clonorchiasis not associated with constitutional symptoms are certified as being afflicted with a Class "C" condition. Class "C" certificates are usually merely recorded and do not form the basis of prejudicial action as regards the alien by immigration officials.
>
> The action taken in 1927 followed a careful review of the potentialities presented as regards the probability of spread of the disease in the United States as a result of the existence of the infection in the person of an admitted alien, and it was concluded that, owing to the absence in the United States of the known intermediary hosts of the parasite, there apparently was no danger of the disease gaining a foothold in the United States, and therefore it should not be classified as a dangerous contagious disease.

TABLE 133

Summary of incidence of clonorchiasis[1]

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
United States of America:		Ceylon	0
15 Selected States	0	India and Dependencies	+(?)
Hawaii	1	Straits Settlements and Federated Malay States	+(?)
Puerto Rico	0	Johore	16
Virgin Islands	0	Trengganu	+(?)
Canal Zone (see Panama).		Hong Kong	+(?)
Guam	0	Fiji and Western Pacific	0
Philippine Islands	10	British Solomon Islands	0
Samoan Islands	R	Bahamas	0
The British Empire:		Barbados	0
Kenya Protectorate	0	Bermuda	0
Somaliland Protectorate	0	British Guiana	0
Colony of Nigeria	0	Montserrat	0
Bechuanaland Protectorate	0	*Republic of France:*	
Southern Rhodesia	0	Equatorial Africa	+(?)
Union of South Africa	0	French Indo-China	+(?)
Mauritius	+(?)	Guadeloupe	0
Seychelles	0	Martinique	0
Empirate of Trans-Jordan	0	*Other Countries:*	
Cyprus	+(?)	Albania	0
British North Borneo	2	Chile	0

TABLE 133—*Concluded*

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
China	+(?)[2]	Liberia	0
Belgian Congo	0	Panama and Canal Zone	6
Costa Rica	0	Paraguay	0
Egypt	0	Spain	0
Greece	0	Turkey	0
Haiti	0	Total	35
Holland	0		

[1] Unfortunately our survey data do not include Japan and Korea where this infection is prevalent. It is to be noted that several countries report its presence but give no estimates of cases.
[2] Chen (1934) reported 3,800 cases in Canton area.

SCHISTOSOMIASIS

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Human schistosomiasis is due to infection with one or more of three species of *Schistosoma,* unisexual digenetic trematodes ("flukes"), which develop and oviposit in the portal blood stream, its tributaries and anastomoses. These worms have a complicated life cycle. Eggs passed in feces or urine contain fully embryonated larvae (miracidia), which hatch when the exudate is diluted with water. In case the free-swimming miracidia come in contact with the appropriate snail, which serves as intermediate host, they actively penetrate the soft tissues of this mollusc and undergo metamorphosis and two-fold multiplication. After several weeks there emerge from the snail swarms of fork-tailed cercariae (third generation larvae), which swim about in the water. On contact with human skin these larvae readily penetrate the epidermis, reach the peripheral venules and are carried through the right heart and lungs to the systemic circulation, eventually accumulating in the portal blood stream. Here they mature, migrate against the current to the mesenteric or vesical plexuses, mate and the females oviposit. The eggs either break out into the lumen of the intestine or bladder, or become infiltrated into the tissues. Pathology and symptomatology are due to three causes, toxic by-products of the worms, damage produced by the eggs breaking out of the blood vessels and through the tissue and (most important) cellular reactions (abscesses and tubercle-formation) around every egg infiltrated into the tissues. The clinical history parallels the pathological stages, namely, prodromata, dysentery or hematuria and symptoms due to tissue reactions (repair).

Schistosoma japonicum, which is intestinal and hepatic in type, has an extensive distribution in Central and South China, with minor foci in Japan, Formosa and the Philippines (Island of Leyte). In China alone probably 100,000,000 persons are exposed to the infection. The disease is serious and the prognosis is poor, since the worms are long-lived and re-exposure to infection is common. Infection inevitably results in thickening of the intestinal wall,

hepatic cirrhosis with ascites and splenomegaly. *Schistosoma mansoni* is also primarily intestinal and hepatic in its manifestations. This infection has an extensive distribution throughout Africa, northern South America, the Lesser Antilles and Puerto Rico, in which countries probably some 50,000,000 persons are exposed. Its damage is somewhat less than that of *S. japonicum*, since the number of eggs laid by *S. mansoni* females is very much smaller. *Schistosoma haematobium* is the agent of vesical schistosomiasis and the lesions produced by this worm and its eggs are for the most part confined to the urinary bladder and the genitalia. The symptomatology is dramatic but the liver is not seriously damaged. This infection is distributed throughout Africa and extends eastward to the borders of India. Its primary and most important focus is in the Nile Valley, where 10,000,000 or more of the population are infected.

For all three of these schistosomiases antimony salts by vein or by the intramuscular route are specific, but constant reexposure of endemic population to infection makes therapeusis ineffective as a prophylactic measure. Attempts to kill the molluscan intermediate hosts by chemicals and by desiccation have demonstrated the futility of such procedures. Only one known control measure remains, namely sanitary disposal of feces in endemic areas, and that appears at present to be impracticable. Meanwhile, in Egypt, Puerto Rico and other foci, the disease is becoming more widespread as irrigation projects are increased. Because of the damaging effect of these parasites on the tissues of the human body, the many millions of persons infected over extensive areas of the tropics and Orient, and the present gloomy outlook for control of these diseases, schistosomiasis constitutes a major world public health problem.

TABLE 134

Summary of incidence of schistosomiasis[1]

PLACE	NUMBER OF CASER	PLACE	NUMBER OF CASES
United States of America:		Sierra Leone	59
15 Selected States	0	Bechuanaland Protectorate	7
Hawaii	0	Southern Rhodesia	+(?)
Puerto Rico	C	Northern Rhodesia	83
Virgin Islands	0	Union of South Africa	2,000
Canal Zone (see Panama).		The Anglo-Egyptian Sudan	8,536
Guam	0	Mauritius	224
Philippine Islands	2,000	Seychelles	0
Samoan Islands	0	Palestine	31
The British Empire:		Empirate of Trans-Jordan	2
Kenya Protectorate	258	Cyprus	14
Uganda Protectorate	155	Gibraltar	0
Tanganyika Territory	2,681	Ceylon	0
Nyasaland Protectorate	5,031	India and Dependencies	0
Zanzibar Protectorate	849	Straits Settlements and Federated Malay States.	0
Somaliland Protectorate	0	Kelantan	0
Colony of Nigeria	734		
Gold Coast Colony	520(?)		
Colony of Gambia	5		

TABLE 134—*Concluded*

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
Hong Kong	+(?)	*Other Countries:*	
Fiji and Western Pacific	0	Albania	0
British Solomon Islands	0	Bolivia	+(?)
Bahamas	0	Brazil	0
Barbados	0	Chile	+(?)
Bermuda	0	China	[2]
British Guiana	0	Colombia	2,617
Montserrat	0	Belgian Congo	0
St. Lucia	2	Dominican Republic	+(?)
St. Vincent	0	Egypt	60–75% Pop.
Trinidad and Tobago	0	Greece	0
Republic of France:		Haiti	+(?)
Syria and Lebanon	+(?)	Italy	+(?)
Reunion	+(?)	Liberia	0
West Africa & Sahara	4,693	Panama and Canal Zone	0
Equatorial Africa	+(?)	Peru	0
French Indo-China	+(?)	Siam	+(?)
Pacific Group	+(?)	Total	30,960[3]
Guadeloupe	0		
Martinique	+(?)		
Atlantic Group (others):			
Guyane, St. Pierre, Miquelon	461		
Indian Ocean Group	+(?)		

[1] Schistosomiasis known also to be prevalent in Japan and Formosa.
[2] No reports from China but infection is known to be most common there.
[3] Far greater numbers of cases than this total known to exist in Egypt alone.

FILARIASIS

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Wuchereria bancrofti infections, which are conveyed from man to man by the mosquito, *C. quinquefasciatus*, are, as a rule, attended with a very low mortality; none of the filarial diseases *per se* can be considered as dangerous to life. From time to time deaths from abdominal filariasis and from septicemia associated with filarial abscesses are reported. Persons debilitated by long continued chyluria are susceptible to intercurrent infections which may terminate fatally. On the other hand persons with advanced elephantiasis, who have for many years been victims of frequently recurring attacks of lymphangitis and adenitis, often live to a great age.

Although the mortality is low, the economic loss occasioned by the chronicity of this disease is considerable. Connor (1928) estimates that millions of human beings are infected with filariae and that in Calcutta alone 150,000 persons harbor the worm. There are many highly endemic localities where 80 per cent of the population are infected. Among these people are many who suffer from attacks of lymphangitis which last for several days and which recur every three to four weeks over many years. The mental depression

and physical debility following such attacks materially affects the working capacity of the victim for several days more. A Puerto Rican doctor, a victim of the disease, informed the writer that he was totally incapacitated for 48 days out of each year and that the quality of his work was affected for twice that period. His observations on other sufferers convinced him that this was a general experience. Advanced elephantiasis of the legs or scrotum makes physical competition impossible, since many of these patients are unable to leave the vicinity of their homes. In other cases the size of the deformity has necessitated amputation of the affected limb or scrotum. The demoralizing effect of this deformity is especially noticeable among women, many of whom have not left their homes for years. Sufferers from chyluria are often too weak to engage in any occupation whatever. Those who suffer from subclinical symptoms complain of a general feeling of ill health and are never employed with any regularity. Patients who can afford to leave the endemic areas for a cooler or higher climate, either at home or abroad, often find that there is no employment of the kind for which they have been trained. Employers hesitate to engage persons whose work is to be interrupted frequently. Therefore, many persons infected with this disease are dependent on friends, relatives or the community for support, so that for economic reasons filariasis merits serious attention as an important public health problem.

Prevention of filariasis

Educational

1. Instruction of communities, especially schools, concerning the nature of filariasis, its transmission and the use and value of mosquito nets.

Governmental

1. The elimination of overcrowded slums.
2. Sanitary regulations concerning buildings with special reference to spacing, ventilation and lighting of domiciles.
3. Sanitary inspection and control of dumps and ditches in the vicinity of towns and villages.
4. Clearing of heavy undergrowth from the immediate neighborhood of towns and villages.
5. Determination of the vector or vectors of *W. bancrofti* in each endemic community.
6. Survey of the incidence of filariasis in countries where the infection is indigenous and determination of hyper-endemic localities and concentration of efforts to control the transmitting agent in such localities.

Scientific

1. Further research concerning the life cycle of *W. bancrofti* in man.
2. Efforts should be made to culture the larval filariae *in vitro* with the object of obtaining sufficient numbers of larval filariae for inoculation of human volunteers or animals.
3. Studies are required to find an animal capable of being experimentally infected with *W. bancrofti*.

4. Improvement of surgical methods for dealing with the early stages of elephantiasis of the limbs and scrotum.
5. Research regarding treatment for all the clinical manifestations of filariasis.

REFERENCE

CONNOR, F. P. The Surgical Aspects of Tropical Disease. Trans. Roy. Soc. Trop. Med., **22**: 219–244 (1928).

TABLE 135

Summary of incidence of filariasis

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
United States of America:		Barbados	+(?)
15 Selected States	0	Bermuda	0
Hawaii	0	British Guiana	1,010
Puerto Rico	152	British Honduras	0
Virgin Islands	+(?)	Antigua	36
Canal Zone (see Panama).		Dominica	2
Guam	0	Montserrat	50
Philippine Islands	1,000	Virgin Islands	+(?)
Samoan Islands	260	Grenada	1
		St. Lucia	2
The British Empire:		St. Vincent	7
Kenya Protectorate	+(?)	Trinidad and Tobago	7
Tanganyika Territory	50		
Zanzibar Protectorate	459	*Republic of France:*	
Somaliland Protectorate	+(?)	Syria and Lebanon	+(?)
Colony of Nigeria	+(?)	West Africa & Sahara	+(?)
Gold Coast Colony	+(?)	Equatorial Africa	+(?)
Bechuanaland Protectorate	2	French Indo-China	+(?)
		Pacific Group	+(?)
Southern Rhodesia	9	Guadeloupe	+(?)
Northern Rhodesia	1	Martinique	+(?)
Union of South Africa	+(?)		
The Anglo-Egyptian Sudan	113	*The Netherlands:*	
		Dutch East Indies	+(?)
Mauritius	160		
Seychelles	+(?)	*Other Countries:*	
Empirate of Trans-Jordan	0	Albania	0
		Brazil	+(?)
Cyprus	0	Chile	0
Gibraltar	0	China	+(?)
Sarawak	4	Belgian Congo	+(?)
Ceylon	506	Costa Rica	2
India and Dependencies	50,106	Egypt	+(?)
Straits Settlements and Federated Malay States	0	Greece	0
		Haiti	50
Johore	+(?)	Holland	+(?)
Kedah and Perlis	5	Liberia	+(?)
Kelantan	0	Panama and Canal Zone	+(?)
Trengganu	+(?)	Paraguay	0
Hong Kong	+(?)	Spain	0
Fiji and Western Pacific	19	Siam	+(?)
British Solomon Islands	+(?)	Turkey	0
Gilbert and Ellice Islands	+(?)	Yugoslavia	+(?)
Bahamas	0	Total	54,013

BERIBERI

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Beriberi is a disease resulting from faulty metabolism and is directly caused by the deficiency of the anti-neuritic vitamin B (B_1) and possible other deficiencies in the diet. This deficiency is usually produced by the too exclusive use of decorticated or polished rice, white wheat flour and other carbohydrate staples. Clinically, beriberi is characterized by degenerative changes in the nervous system, including a multiple peripheral neuritis, which may exist alone, but is often combined with generalized oedema and serous effusions, and by a tendency to the development of cardiac hypertrophy that frequently results in cardiac failure and sudden death.

Beriberi is constantly present in all those countries where rice is used as the staple article of diet. In these countries the disease is chiefly confined to the poor, the coolies and contract laborers, who subsist chiefly on rice. The well-to-do are generally protected through their ability to purchase sufficient additional protective foods. Beriberi is therefore primarily a disease of poverty and any measures that raise the general economic level should diminish its incidence.

Beriberi as a world problem is contemporaneous with the introduction of machine milling of rice. When each day's supply was hand-pounded, beriberi was rare, simply because the average native did not completely remove the external layers of the grain which contain practically all of the essential vitamin B. It has been found, both in experimental animals and in observations on large numbers of men, that beriberi can be completely eliminated by the substitution of an undermilled rice for the highly polished rice that produces the disease.

Therefore, theoretically, it should be easy to prevent the disease by laws enforcing the production of nothing but undermilled rice. But no such law has ever been passed because of its intense unpopularity. We are here dealing with food habits that have become fixed and it would be just as hard to insist that nothing but whole wheat bread could be sold in the United States.

Moreover, there is an economic reason for the production of highly milled and polished rice. A wholesaler buys the rice from innumerable small farmers and sends it to the mill. After being milled it must be stored for issue to small retailers. It is only the highly milled rice that keeps well under the circumstances. Undermilled rice, because of the fat and protein in the external layers, soon becomes rancid or mouldy, and becomes infested with weevils, moths and other insect pests. When undermilled rice was required for the Philippine Scouts it became necessary to have monthly purchases specially milled and stored for issue, whereas the polished rice will keep in good condition for six months. Although, by making this special effort, it has been

possible to furnish the Philippine Scouts nothing but undermilled rice for the past thrity years, during which time beriberi has simply ceased to exist as a cause of admission to sick report, it appears obvious that this measure cannot be applied to the general population. They would not endure such a regulation and it would increase the cost of the staple food, since for the reasons stated it costs more to produce undermilled rice than polished rice.

The solution of the problem consists in:

A. General improvement in the economic condition of the masses. Nearly every one will eat a reasonably balanced ration when sufficient funds are obtainable to purchase the necessary foods. Thus, in the United States, although white wheat bread is probably quite as beriberi-producing as is rice, beriberi is unknown except as a medical curiosity, because no one lives on bread alone. Even the poorest can purchase potatoes, beans and other protective vegetables. If Oriental nations were on anything approaching the economic level of the United States, beriberi would cease to be a problem.

B. In the absence of such an economic improvement, there should be an educational compaign instructing the masses on the cause of beriberi and the method of prevention—namely, the consumption of a sufficient quantity of such of the native legumes as are cheap and readily procurable, for example, mangos in the Philippines. These legumes all contain a considerable amount of vitamin B and are excellent preventives of beriberi.

TABLE 136

Summary of incidence of beriberi

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
United States of America:		The Anglo-Egyptian Sudan	0
15 Selected States	1	Mauritius	15
Hawaii	Many	Seychelles	+(?)
Puerto Rico	1	Empirate of Trans-Jordan	0
Virgin Islands	0	Cyprus	0
Canal Zone (see Panama)		Gibraltar	0
Guam	0	Sarawak	69
Philippine Islands	150,000	Brunei	13
Samoan Islands	0	British North Borneo	151
The British Empire:		Ceylon	1
Kenya Protectorate	11	India and Dependencies	18,357
Uganda Protectorate	5	Straits Settlements and Federated Malay States	2,724
Tanganyika Territory	17	Burma	1,564
Nyasaland Protectorate	2	Johore	1,360
Zanzibar Protectorate	26	Kedah and Perlis	43
Somaliland Protectorate	184	Kelantan	3
Colony of Nigeria	13	Trengganu	782
Gold Coast Colony	18	Hong Kong	1,428
Colony of Gambia	3	Fiji and Western Pacific	+(?)
Sierra Leone	8	British Solomon Islands	1
Bechuanaland Protectorate	0	Commonwealth of Australia	3
Southern Rhodesia	+(?)	Bahamas	+(?)
Northern Rhodesia	151		
Union of South Africa	0		

TABLE 136—*Concluded*

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
Barbados	0	*Other Countries:*	
Bermuda	0	Albania	0
British Guiana	2	Brazil	15
British Honduras	2	Chile	0
Jamaica	1	China	+(?)
St. Vincent	0	Belgian Congo	10
Trinidad and Tobago	0	Costa Rica	+(?)
		Egypt	0
Republic of France:		Haiti	0
Syria and Lebanon	+(?)	Holland	+(?)
Madagascar	25	Liberia	+(?)
Equatorial Africa	200	Panama and Canal Zone	1
French Indo-China	3,365	Paraguay	0
Guadeloupe	0	Spain	0
Martinique	0	Siam	1,279
Indian Ocean Group	+(?)	Turkey	0
		Venezuela	44
The Netherlands:		Yugoslavia	0
Dutch East Indies	+(?)	Total	181,898

MALNUTRITION AND UNDERNUTRITION

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The rôle of diet in such diseases as scurvy and beriberi is too well known among the medical profession to require further comment. That there is a relationship between diet and pellagra seems definitely established but whether that relationship is one of protein deficiency, lack of one or more of the B complex vitamins, some other unknown factor or a combination of these, is still somewhat obscure.

The recent work on pernicious and other forms of anemia places great importance on dietary measures and there appears to be evidence that the use of iron, or diets high in iron, affects the anemia of hookworm.

In fact, considerable evidence is accumulating to show that diet may have a part in building up resistance to certain forms of parasitic infection or in modifying the effects of parasitism in the animal body.

Many investigators are convinced that vitamins C and D are important in the control of dental caries and some evidence has been found in Puerto Rico that diet (deficient in B_1 and B_2) influences the resistance of the rat to experimental tuberculous infection.

The importance to health of adequate amounts of vitamin A in the diet is generally recognized. The discovery in Puerto Rico of the amazing potency of annatto seed in this respect is significant in Latin America, since this seed is so frequently used to color foods and its use might be stimulated in other portions of the tropics, particularly where saffron is already used for the same purpose.

The population of many of the tropical countries are rice-eating, or else use

a predominance of starchy root crops, with an inadequate protein and mineral intake. Often, there is a minimum of vitamins due to the economic factor, milk, meat and eggs being among the more expensive foods.

Work in Puerto Rico shows that a diet consisting essentially of polished rice and dried beans, supplemented with small amounts of vegetables and salt fish, is inadequate to support normal growth or lactation in the rat, being deficient in calcium and vitamins; yet, this diet makes up a large proportion of the food intake of the people.

There is no clear scientific evidence that nutritional requirements in the tropics vary fundamentally from those of the temperate climates. The body still needs an adequate supply of proteins, fats, carbohydrates, vitamins and mineral salts.

That there may be some special demand connected with exposure to high temperature, humidity and solar radiation is possible, but at present specific evidence is lacking, and the criteria of good nutrition as now known in the North should be applied in the tropics.

Quoting from a recent article in *Nature*, "it is not always recognized how easily a diet, generally considered satisfactory, can be improved, or how easily experimental alterations in a food supply, carried out without complete knowledge of what constitutes a proper diet, may spell disaster."

CHEMOTHERAPY

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As Professor F. P. Gay has implied in the case of leprosy, the most important problem in tropical diseases is therapy. In spite of properly heroic measures toward prevention, which is the recognized goal of public health, the experience of the past quarter century has demonstrated the almost impossible difficulties to be overcome toward this end in tropical suburban and rural areas even in such diseases as malaria and trypanosomiasis where adequate prevention methods are well understood and have been successfully applied in urban communities. Economic factors prohibit an attempt to apply preventive methods over large territory relatively unproductive and sparsely settled. Effective, cheap and easily administered therapy seems to offer the better hope under such conditions. Thus Clark and Komp halved the incidence of malaria in native Panamanian villages by voluntary treatment of positive cases at a cost which could have produced very little effect if applied to mosquito control.

The bulk of tropical disease seems to be caused by protozoan or metazoan invaders which are at present much more readily curable by chemotherapeutic measures than diseases of bacterial origin. By extending Ehrlich's methods of study to include better experimental disease conditions and better bioassay

technique, notable advance has recently been made, with significant improvement in public health, in the chemotherapy of syphilis, African trypanosomiasis, malaria, ascariasis, leishmaniasis and amebiasis. Sufficient support of similar efforts against leprosy, filariasis and American trypanosomiasis may be expected to produce similar advance. But wherever progress has already been made, further studies should be encouraged in order to approach more closely to the ideals which may be required of a drug for the particular use in mind. Such encouragement should be under international auspices, if possible, in order to avoid the disappointments arising from commercial exploitation or national jealousy. Such studies, if properly planned, may proceed most satisfactorily through the co-ordinated co-operation of protozoologists, chemists, pharmacologists and clinicians. Protozoologists and clinicians may work advantageously together in determining the vulnerable point where the host-parasite relation may most readily be shifted in favor of the host. Chemists and pharmacologists may proceed helpfully together in finding chemicals which may cause this shift, and in modifying the chemical structure of such therapeutic agents as are now used or as may be suggested, in order to reduce toxicity, facilitate ease of administration and effectiveness and reduce cost. But the therapeutic value of new agents can only be determined finally by accumulated clinical evidence from the field.

The chief desideratum in the practical chemotherapy of tropical disease is to obtain *cheap, rapidly effective, non-toxic drugs for oral administration*, which may be as safely dispensed by lay officials as quinine may be in malaria. To this end protozoologists, chemists, pharmacologists and clinicians may fruitfully co-operate toward improving the public health of large tropical areas where preventive measures are not economically feasible.

SUMMARIES OF CERTAIN OTHER DISEASES[1]

The following tables represent summaries of certain other diseases which may be of interest to the reader. The details concerning these figures may be found in the Tables dealing with each respective country. It has long been thought that certain diseases usually spoken of as diseases of temperate climates are quite uncommon or absent in tropical climates. The following charts will prove of interest in relation to this question, particularly for some of the diseases mentioned.

As has been said regarding the preceding summary charts the totals of the various diseases presented do not, of course, represent the *actual* number of cases of these diseases existing. They represent only the information which may be obtained as a result of a survey of this nature.

[1] Figures are for cases or deaths (see original data reported under countries). In each case the highest figures have been entered where both minimum and maximum estimates have been given.

Summaries for the following diseases are presented:

Hookworm Disease
Plague
Pellagra
The Common Cold
Epidemic Influenza
The Pneumonias
Poliomyelitis
Scarlet Fever
Rheumatic Fever
Arthritis
Thyroid Disease
Nephritis
Diabetes

TABLE 137

Summary of incidence of hookworm disease

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
United States of America:		Trengganu	73
15 Selected States	41,770	Hong Kong	61
Hawaii	479	Fiji and Western Pacific	14,974
Puerto Rico	C	British Solomon Islands	2,475
Virgin Islands	200(?)	Gilbert and Ellice Islands	+(?)
Canal Zone (see Panama)		Commonwealth of Australia	6
Guam	44	Bahamas	0
Philippine Islands	1,200,000(?)	Barbados	+(?)
Samoan Islands	18	Bermuda	0
The British Empire:		British Guiana	720
Kenya Protectorate	8,091	British Honduras	38
Uganda Protectorate	1,021	Jamaica	17,910
Tanganyika Territory	16,629	Dominica	4
Nyasaland Protectorate	14,069	Montserrat	+(?)
Zanzibar Protectorate	14,193	Grenada	1,688
Somaliland Protectorate	0	St. Lucia	36
Colony of Nigeria	2,235	St. Vincent	545
Gold Coast Colony	312(?)	Trinidad and Tobago	1,700
Colony of Gambia	9		
Sierra Leone	186	*Republic of France:*	
Bechuanoland Protectorate	25	Syria and Lebanon	+(?)
Southern Rhodesia	200	Reunion	+(?)
Northern Rhodesia	315	West Africa & Sahara	+(?)
Union of South Africa	50,000	Equatorial Africa	+(?)
The Anglo-Egyptian Sudan	1,038	French Indo-China	474
Mauritius	23,023	Pacific Group	+(?)
Seychelles	723	Guadeloupe	0
Palestine	546	Martinique	+(?)
Empirate of Trans-Jordan	0	Atlantic Group (others): Guyane, St. Pierre, Miquelon	360
Cyprus	0	Indian Ocean Group	+(?)
Gibraltar	0		
Sarawak	32	*The Netherlands:*	
Brunei	183	Dutch East Indies	+(?)
British North Borneo	446		
Ceylon	1,680,289	*Other Countries:*	
India and Dependencies	201,356	Albania	0
Straits Settlements and Federated Malay States	2,245	Argentina	6,859
Burma	945	Bolivia	+(?)
Johore	4,170	Brazil	16,000
Kedah and Perlis	708	Chile	+(?)
Kelantan	1,570	China	+(?)
		Colombia	16,883

TABLE 137—*Concluded*

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
Belgian Congo	22,114	Liberia	+(?)
Costa Rica	200,000	Panama and Canal Zone	+(?)
Dominican Republic	3	Paraguay	+(?)
Egypt	+(?)	Spain	+(?)
Greece	+(?)	Siam	4
Haiti	800	Turkey	+(?)
Holland	+(?)	Venezuela	282
Honduras	183	Yugoslavia	+(?)
Italy	135	Total	3,571,393

TABLE 138

Summary of incidence of plague

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
United States of America:		Bahamas	0
15 Selected States	2	Barbados	0
Hawaii	5	Bermuda	0
Puerto Rico	0	British Guiana	0
Virgin Islands	0	Montserrat	0
Canal Zone (see Panama)		Grenada	0
Guam	0	St. Vincent	0
Philippine Islands	0	Trinidad and Tobago	0
Samoan Islands	0		
		Republic of France:	
The British Empire:		Syria and Lebanon	36
Kenya Protectorate	604	Morocco	41
Uganda Protectorate	858	Madagascar	3,647
Tanganyika Territory	12	West Africa & Sahara	268
Zanzibar Protectorate	0	Equatorial Africa	0
Colony of Nigeria	0	French Indo-China	100
Gold Coast Colony	0	Guadeloupe	0
Colony of Gambia	+(?)	Martinique	0
Sierra Leone	+(?)		
Basutoland	+(?)	*The Netherlands:*	
Bechuanaland Protectorate	0	Dutch East Indies	6,495
Southern Rhodesia	0	*Other Countries:*	
Union of South Africa	92	Albania	0
The Anglo-Egyptian Sudan	0	Argentina	119
Mauritius	0	Bolivia	+(?)
Seychelles	0	Brazil	+(?)
Palestine	+(?)	Chile	+(?)
Empirate of Trans-Jordan	0	China	+(?)
Cyprus	0	Belgian Congo	16
Gibraltar	0	Costa Rica	0
Maltese Islands	0	Egypt	341
British North Borneo	0	Greece	0
Ceylon	77	Haiti	0
India and Dependencies	4,392	Holland	0
Straits Settlements and Federated Malay States	0	Italy	0
Burma	291	Liberia	0
Johore	0	Panama and Canal Zone	0
Kelantan	0	Paraguay	0
Trengganu	0	Peru	107
Hong Kong	2	Spain	10
Fiji and Western Pacific	0	Siam	235
British Solomon Islands	0	Turkey	0
		Venezuela	0
		Total	17,750

TABLE 139

Summary of incidence of pellagra

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
United States of America:		Bahamas	27
15 Selected States	9,574	Barbados	178
Hawaii	R	Bermuda	0
Puerto Rico	32	British Guiana	6
Virgin Islands	+(?)	British Honduras	1
Canal Zone (see Panama)		Jamaica	8
Guam	0	Antigua	3
Philippine Islands	0	Dominica	4
Samoan Islands	0	St. Vincent	0
		Trinidad and Tobago	4
The British Empire:			
Kenya Protectorate	0	*Republic of France:*	
Uganda Protectorate	1	Syria and Lebanon	+(?)
Tanganyika Territory	16	Equatorial Africa	0
Nyasaland Protectorate	11	French Indo-China	0
Zanzibar Protectorate	0	Guadeloupe	0
Somaliland Protectorate	0	Martinique	0
Colony of Nigeria	+(?)		
Gold Coast Colony	0	*The Netherlands:*	
Colony of Gambia	+(?)	Dutch East Indies	+(?)
Basutoland	3		
Bechuanaland Protectorate	5	*Other Countries:*	
Southern Rhodesia	20	Albania	+(?)
Northern Rhodesia	6	Brazil	+(?)
Union of South Africa	50	Chile	0
The Anglo-Egyptian Sudan	12	China	+(?)
Mauritius	1	Colombia	10
Seychelles	0	Belgian Congo	0
Empirate of Trans-Jordan	0	Costa Rica	+(?)
Cyprus	0	Egypt	+(?)
Gibraltar	0	Greece	+(?)
Ceylon	0	Haiti	10
India and Dependencies	+(?)	Holland	0
Straits Settlements and Federated Malay States	8	Italy	298
Hong Kong	+(?)	Liberia	0
Fiji and Western Pacific	4	Panama and Canal Zone	9
British Solomon Islands	0	Paraguay	+(?)
Commonwealth of Australia	1	Spain	+(?)
		Siam	2
		Turkey	+(?)
		Yugoslavia	+(?)
		Total	10,294

TABLE 140

Summary of incidence of the common cold

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
United States of America:		*The British Empire:*	
Hawaii	C	Kenya Protectorate	5,322
Puerto Rico	R	Uganda Protectorate	21,298
Virgin Islands	0	Tanganyika Territory	7,116
Canal Zone (see Panama)		Nyasaland Protectorate	5,245
Guam	68	Somaliland Protectorate	1,650
Philippine Islands	C	Colony of Nigeria	4,830
Samoan Islands	1,366	Gold Coast Colony	1,777

TABLE 140—*Concluded*

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
Colony of Gambia	227	*Republic of France:*	
Sierra Leone	552	Syria and Lebanon	+(?)
Basutoland	1,111	French Indo-China	3,500
Bechuanaland Protectorate	97	Guadeloupe	0
Southern Rhodesia	+(?)	Martinique	+(?)
Union of South Africa	+(?)	*The Netherlands:*	
Mauritius	309	Dutch East Indies	+(?)
Seychelles	+(?)		
Empirate of Trans-Jordan	+(?)	*Other Countries:*	
Cyprus	3,713	Abyssinia	+(?)
Gibraltar	1	Albania	+(?)
Ceylon	104	Brazil	1,440
India and Dependencies	2,014	Chile	+(?)
Straits Settlements and Federated Malay States	404	China	+(?)
Johore	809	Belgian Congo	+(?)
Kedah and Perlis	2	Costa Rica	+(?)
Kelantan	146	Egypt	+(?)
Hong Kong	16	Greece	+(?)
Fiji and Western Pacific	+(?)	Haiti	6,000
British Solomon Islands	+(?)	Holland	+(?)
Bahamas	+(?)	Liberia	+(?)
Barbados	+(?)	Panama and Canal Zone	+(?)
Bermuda	+(?)	Paraguay	+(?)
British Guiana	822	Siam	+(?)
British Honduras	2	Turkey	+(?)
Dominica	3	Venezuela	532
Montserrat	+(?)	Yugoslavia	+(?)
St. Vincent	+(?)	Total	70,478
Trinidad and Tobago	2		

TABLE 141

Summary of incidence of epidemic influenza

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
United States of America:		Bechuanaland Protectorate	2,464
15 Selected States	206,355	Southern Rhodesia	450
Hawaii	6,659	Northern Rhodesia	706
Puerto Rico	956	Union of South Africa	+(?)
Virgin Islands	0	The Anglo-Egyptian Sudan	929
Canal Zone (see Panama)		Mauritius	13,164
Guam	0	Seychelles	25
Philippine Islands	25,000	Palestine	790
Samoan Islands	3	Empirate of Trans-Jordan	615
The British Empire:		Cyprus	1,091
Kenya Protectorate	7,463	Gibraltar	5
Uganda Protectorate	9,688	Maltese Islands	182
Tanganyika Territory	4,730	Sarawak	45
Nyasaland Protectorate	3,816	Brunei	15
Zanzibar Protectorate	594	Ceylon	147,615
Somaliland Protectorate	262	India and Dependencies	331,680
Colony of Nigeria	1,400	Straits Settlements and Federated Malay States	7,359
Gold Coast Colony	563(?)	Burma	24,705
Colony of Gambia	134		
Sierra Leone	36		
Basutoland	1,485		

TABLE 141—*Concluded*

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
Johore	7,089	Atlantic Group (others : Guyane, St. Pierre, Miquelon)	377
Kedah and Perlis	1,086		
Trengganu	2,278		
Hong Kong	1,160		
Fiji and Western Pacific	459	Indian Ocean Group	+(?)
British Solomon Islands	30		
Gilbert and Ellice Islands	+(?)	*The Netherlands*	
Commonwealth of Australia	349	Dutch East Indies	+(?)
Bahamas	32	*Other Countries:*	
Barbados	57	Abyssinia	+(?)
Bermuda	+(?)	Albania	+(?)
British Guiana	206	Brazil	1,025
British Honduras	237	Chile	5,553
Jamaica	557	China	+(?)
Antigua	1,873	Colombia	12,650
Dominica	12	Belgian Congo	+(?)
Montserrat	4	Costa Rica	+(?)
Grenada	508	Dominican Republic	39
St. Lucia	1	Egypt	5,033
St. Vincent	371	Greece	5,000
Trinidad and Tobago	59	Haiti	500
		Holland	1,746
Republic of France:		Honduras	92
Syria and Lebanon	100	Italy	113,333
Morocco	71	Liberia	+(?)
Madagascar	104,386	Panama and Canal Zone	51
Reunion	+(?)	Paraguay	+(?)
West Africa & Sahara	11,801	Peru	1,796
Equatorial Africa	+(?)	Spain	25,566
French Indo-China	2,192	Siam	1,500
Pacific Group	+(?)	Turkey	+(?)
Guadeloupe	0	Yugoslavia	+(?)
Martinique	+(?)	Total	1,110,163

TABLE 142

Summary of incidence of the pneumonias

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
United States of America:		Colony of Gambia	81
15 Selected States	23,674	Sierra Leone	201
Hawaii	283	Basutoland	252
Puerto Rico	3,133	Bechuanaland Protectorate	226
Virgin Islands	+(?)	Southern Rhodesia	3,100
Canal Zone (see Panama)		Northern Rhodesia	592
Guam	82	Union of South Africa	+(?)
Philippine Islands	10,000	The Anglo-Egyptian Sudan	958
Samoan Islands	48	Mauritius	1,473
The British Empire:		Seychelles	9
Kenya Protectorate	2,214	Palestine	722
Uganda Protectorate	3,809	Empirate of Trans-Jordan	400
Tanganyika Territory	1,437	Cyprus	749
Nyasaland Protectorate	1,503	Gibraltar	168
Zanzibar Protectorate	300	Maltese Islands	287
Somaliland Protectorate	166	Sarawak	20
Colony of Nigeria	2,021		
Gold Coast Colony	1,206(?)		

TABLE 142—*Concluded*

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
Brunei	41	Reunion	+(?)
British North Borneo	121	West Africa & Sahara	16,273
Ceylon	6,307	Equatorial Africa	+(?)
India and Dependencies	54,508	French Indo-China	1,466
Straits Settlements and Federated Malay States	5,159	Guadeloupe	+(?)
Burma	5,585	Martinique	+(?)
Johore	724	*The Netherlands:*	
Kedah and Perlis	256	Dutch East Indies	+(?)
Kelantan	143		
Trengganu	17	*Other Countries:*	
Hong Kong	3,865	Abyssinia	+(?)
Fiji and Western Pacific	137	Albania	+(?)
British Solomon Islands	5	Bolivia	90
Commonwealth of Australia	3,654	Brazil	+(?)
Bahamas	21	Chile	+(?)
Barbados	174	China	+(?)
Bermuda	35	Colombia	3,027
British Guiana	750	Belgian Congo	4,662
British Honduras	50	Costa Rica	+(?)
Jamaica	391	Dominican Republic	177
Antigua	72	Egypt	+(?)
Dominica	33	Greece	+(?)
Montserrat	2	Haiti	500
Virgin Islands	3	Holland	5,380
Grenada	28	Honduras	239
St. Lucia	29	Liberia	+(?)
St. Vincent	43	Panama and Canal Zone	328
Trinidad and Tobago	336	Paraguay	+(?)
		Siam	2,704
Republic of France:		Turkey	+(?)
Syria and Lebanon	96	Venezuela	1,674
Madagascar	14,474	Yugoslavia	+(?)
		Total	192,693

TABLE 143

Summary of incidence of poliomyelitis

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
United States of America:		Sierra Leone	7
15 Selected States	722	Basutoland	1
Hawaii	7	Bechuanaland Protectorate	3
Puerto Rico	12 to 23	Southern Rhodesia	4
Virgin Islands	0	Northern Rhodesia	5
Canal Zone (see Panama)		Union of South Africa	100
Guam	0	Mauritius	+(?)
Philippine Islands	10	Seychelles	0
Samoan Islands	0	Palestine	16
The British Empire:		Empirate of Trans-Jordan	1
Kenya Protectorate	3	Cyprus	12
Uganda Protectorate	3	Gibraltar	1
Tanganyika Territory	0	Maltese Islands	4
Zanzibar Protectorate	0	Ceylon	12
Somaliland Protectorate	+(?)	India and Dependencies	34
Colony of Nigeria	18	Straits Settlements and Federated Malay States	4
Gold Coast Colony	20(?)		
Colony of Gambia	+(?)		

TABLE 143—*Concluded*

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
Johore	1	*The Netherlands:*	
Kedah and Perlis	1	Dutch East Indies	10
Hong Kong	1		
Fiji and Western Pacific	0	*Other Countries:*	
British Solomon Islands	13	Albania	0
Commonwealth of Australia	96	Brazil	1
Bahamas	0	Chile	6
Barbados	61	China	+(?)
Bermuda	0	Belgian Congo	+(?)
British Guiana	9	Costa Rica	+(?)
Jamaica	2	Egypt	+(?)
Dominica	16	Greece	37
Montserrat	0	Haiti	5
St. Vincent	1	Holland	145
Trinidad and Tobago	2	Italy	847
		Liberia	0
Republic of France:		Panama and Canal Zone	2
Syria and Lebanon	+(?)	Paraguay	+(?)
Morocco	3	Spain	115
Equatorial Africa	0	Siam	+(?)
French Indo-China	20	Turkey	+(?)
Guadeloupe	4	Yugoslavia	201
Martinique	+(?)	Total	2,609

TABLE 144

Summary of incidence of scarlet fever

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
United States of America:		Cyprus	1
15 Selected States	20,871	Gibraltar	12
Hawaii	12	Maltese Islands	29
Puerto Rico	0	Ceylon	0
Virgin Islands	0	India and Dependencies	1
Canal Zone (see Panama)		Straits Settlements and Federated Malay States	0
Guam	0	Hong Kong	3
Philippine Islands	0	Fiji and Western Pacific	0
Samoan Islands	0	British Solomon Islands	0
		Commonwealth of Australia	106
The British Empire:		Bahamas	0
Kenya Protectorate	4	Barbados	0
Uganda Protectorate	0	Bermuda	39
Tanganyika Territory	5	British Guiana	+(?)
Zanzibar Protectorate	1	Jamaica	2
Somaliland Protectorate	1	Montserrat	0
Colony of Nigeria	8	St. Vincent	0
Gold Coast Colony	2	Trinidad and Tobago	0
Colony of Gambia	+(?)		
Basutoland	3		
Bechuanaland Protectorate	2	*Republic of France:*	
Southern Rhodesia	40	Syria and Lebanon	+(?)
Northern Rhodesia	4	Morocco	58
Union of South Africa	1,822	Madagascar	+(?)
Mauritius	R	Reunion	+(?)
Seychelles	0	West Africa & Sahara	5
Palestine	243	Equatorial Africa	+(?)
Empirate of Trans-Jordan	1	French Indo-China	14
		Pacific Group	1

TABLE 144—*Concluded*

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
Guadeloupe	0	Belgian Congo,	0
Martinique	1	Costa Rica	80
Atlantic Group (others):		Egypt	+(?)
Guyane	2	Greece	+(?)
St. Pierre		Haiti	0
Miquelon		Holland	10,572
Indian Ocean Group	+(?)	Italy	20,786
		Liberia	0
The Netherlands:		Panama and Canal Zone	20
Dutch East Indies	+(?)	Paraguay	+(?)
		Peru	44
Other Countries:		Spain	1,820
Abyssinia	+(?)	Siam	9
Albania	+(?)	Turkey	1,790
Bolivia	12	Venezuela	10
Brazil	181	Yugoslavia	7,383
Chile	+(?)	Total	66,000
Colombia	0		

TABLE 145

Summary of incidence of rheumatic fever

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
United States of America:		India and Dependencies	276,611
15 Selected States	122	Straits Settlements and Federated Malay States	122
Hawaii	Few	Burma	30,673
Puerto Rico	24	Trengganu	24
Virgin Islands	0	Hong Kong	+(?)
Canal Zone (see Panama)		Fiji and Western Pacific	91
Guam	3	British Solomon Islands	+(?)
Philippine Islands	318	Commonwealth of Australia	207
Samoan Islands	0	Bahamas	0
The British Empire:		Barbados	1
Kenya Protectorate	0	Bermuda	1
Uganda Protectorate	293	British Guiana	+(?)
Tanganyika Territory	320	British Honduras	14
Nyasaland Protectorate	R	Jamaica	3
Somaliland Protectorate	8	Dominica	1
Colony of Nigeria	+(?)	Montserrat	+(?)
Gold Coast Colony	6	Virgin Islands	+(?)
Colony of Gambia	6	St. Lucia	2
Sierra Leone	733	St. Vincent	45
Basutoland	107	Trinidad and Tobago	93
Bechuanaland Protectorate	12		
Southern Rhodesia	+(?)	*Republic of France:*	
Northern Rhodesia	5	Syria and Lebanon	3
Union of South Africa	+(?)	Morocco	24
The Anglo-Egyptian Sudan	351	Equatorial Africa	+(?)
Seychelles	+(?)	French Indo-China	1,400
Palestine	34	Guadeloupe	0
Empirate of Trans-Jordan	+(?)	Martinique	+(?)
Cyprus	2,399	*The Netherlands:*	
Gibraltar	8	Dutch East Indies	+(?)
Maltese Islands	9		
Ceylon	182	*Other Countries:*	
		Albania	+(?)

TABLE 145—*Concluded*

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
Brazil	74	Honduras	80
Chile	+(?)	Liberia	+(?)
China	+(?)	Panama and Canal Zone	9
Belgian Congo	+(?)	Paraguay	+(?)
Costa Rica	+(?)	Siam	132
Egypt	+(?)	Turkey	+(?)
Greece	+(?)	Yugoslavia	+(?)
Haiti	670	Total	315,353
Holland	133		

TABLE 146

Summary of incidence of arthritis (non-specific)

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
United States of America:		Bahamas	15
Hawaii	Many	Barbados	10
Puerto Rico	Few	Bermuda	+(?)
Virgin Islands	0	British Guiana	695
Canal Zone (see Panama)		British Honduras	11
Guam	0	Jamaica	887
Philippine Islands	0	Dominica	8
Samoan Islands	0	Montserrat	3
		Grenada	4
The British Empire:		Trinidad and Tobago	95
Kenya Protectorate	837		
Uganda Protectorate	1,208	*Republic of France:*	
Tanganyika Territory	960	Syria and Lebanon	12
Nyasaland Protectorate	67	Equatorial Africa	+(?)
Zanzibar Protectorate	811	French Indo-China	1,000
Somaliland Protectorate	68	Guadeloupe	0
Colony of Nigeria	3,500	Martinique	+(?)
Sierra Leone	1,616		
Basutoland	341	*The Netherlands:*	
Bechuanaland Protectorate	200	Dutch East Indies	+(?)
Southern Rhodesia	+(?)		
Union of South Africa	+(?)	*Other Countries*	
Mauritius	408	Albania	+(?)
Seychelles	9	Brazil	15
Empirate of Trans-Jordan	+(?)	Chile	+(?)
Cyprus	335	China	+(?)
Sarawak	3	Belgian Congo	+(?)
Brunei	2	Costa Rica	+(?)
Ceylon	4,029	Egypt	+(?)
India and Dependencies	2,328	Haiti	150
Straits Settlements and Federated Malay States	667	Holland	172
Kedah and Perlis	47	Liberia	+(?)
Kelantan	53	Panama and Canal Zone	101
Hong Kong	60	Paraguay	+(?)
Fiji and Western Pacific	20	Siam	+(?)
British Solomon Islands	4	Turkey	+(?)
		Yugoslavia	+(?)
		Total	20,751

TABLE 147

Summary of incidence of thyroid disease (goiter)

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
United States of America:		Commonwealth of Australia	128
15 Selected States	145	Bahamas	2
Hawaii	Few	Barbados	0
Puerto Rico	Few	Bermuda	+(?)
Virgin Islands	0	British Guiana	15
Canal Zone (see Panama)		British Honduras	1
Guam	0	Jamaica	1
Philippine Islands	23	Montserrat	+(?)
Samoan Islands	0	Grenada	1
The British Empire:		St. Lucia	0
Kenya Protectorate	7	St. Vincent	0
Uganda Protectorate	6	Trinidad and Tobago	4
Tanganyika Territory	3		
Nyasaland Protectorate	5	*Republic of France:*	
Zanzibar Protectorate	4	Syria and Lebanon	3
Somaliland Protectorate	0	West Africa & Sahara	14,744
Colony of Nigeria	125	Equatorial Africa	+(?)
Gold Coast Colony	6,768	French Indo-China	80
Colony of Gambia	138	Guadeloupe	+(?)
Sierra Leone	35	Martinique	+(?)
Basutoland	6		
Bechuanaland Protectorate	1	*The Netherlands:*	
Southern Rhodesia	6	Dutch East Indies	+(?)
Union of South Africa	100		
Mauritius	0	*Other Countries:*	
Seychelles	+(?)	Albania	+(?)
Empirate of Trans-Jordan	0	Brazil	+(?)
Cyprus	11	Chile	+(?)
Gibraltar	0	China	+(?)
Brunei	1	Belgian Congo	1,522
Ceylon	75	Costa Rica	+(?)
India and Dependencies	49	Egypt	+(?)
Straits Settlements and Federated Malay States	17	Greece	+(?)
Kedah and Perlis	2	Haiti	60
Kelantan	+(?)	Holland	+(?)
Trengganu	+(?)	Liberia	+(?)
Hong Kong	4	Panama and Canal Zone	8
Fiji and Western Pacific	2	Paraguay	+(?)
British Solomon Islands	+(?)	Siam	+ ?
		Turkey	+(?)
		Yugoslavia	+(?)
		Total	24,102

TABLE 148

Summary of incidence of nephritis

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
United States of America:		*The British Empire:*	
15 Selected States	21,924	Kenya Protectorate	105
Hawaii	Many	Uganda Protectorate	190
Puerto Rico	1,960	Tanganyika Territory	162
Virgin Islands	+(?)	Nyasaland Protectorate	57
Canal Zone (see Panama)		Zanzibar Protectorate	131
Guam	0	Somaliland Protectorate	18
Philippine Islands	6,000	Colony of Nigeria	500
Samoan Islands	0	Gold Coast Colony	442

TABLE 148—*Concluded*

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
Colony of Gambia	56	Montserrat	3
Sierra Leone	163	Virgin Islands	+(?)
Basutoland	66	Grenada	23
Bechuanaland Protectorate	20	St. Lucia	13
Southern Rhodesia	+(?)	St. Vincent	28
Northern Rhodesia	30	Trinidad and Tobago	340
Union of South Africa	+(?)	*Republic of France:*	
Mauritius	1,662	Syria and Lebanon	27
Seychelles	4	Equatorial Africa	+(?)
Empirate of Trans-Jordan	+(?)	French Indo-China	2,700
Cyprus	491	Guadeloupe	0
Gibraltar	15	Martinique	+(?)
Maltese Islands	224	*The Netherlands:*	
Sarawak	49	Dutch East Indies	+(?)
Brunei	5		
Ceylon	2,687	*Other Countries:*	
India and Dependencies	43,370	Albania	+(?)
Straits Settlements and Federated Malay States	1,486	Brazil	360
Burma	3,848	Chile	+(?)
Johore	76	China	+(?)
Kedah and Perlis	27	Colombia	215
Kelantan	1	Belgian Congo	2,000
Trengganu	28	Costa Rica	25,000
Hong Kong	1,574	Dominican Republic	27
Fiji and Western Pacific	11	Egypt	+(?)
British Solomon Islands	3	Greece	+(?)
Commonwealth of Australia	3,440	Haiti	134
Bahamas	4	Holland	2,573
Barbados	289	Honduras	501
Bermuda	22	Liberia	+(?)
British Guiana	2,150	Panama and Canal Zone	116
British Honduras	22	Paraguay	+(?)
Jamaica	109	Siam	512
Antigua	29	Turkey	+(?)
Dominica	32	Venezuela	670
		Yugoslavia	+(?)
		Total	128,724

TABLE 149

Summary of incidence of diabetes

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
United States of America:		Tanganyika Territory	133
15 Selected States	2,503	Nyasaland Protectorate	4
Hawaii	Many	Zanzibar Protectorate	53
Puerto Rico	48	Somaliland Protectorate	1
Virgin Islands	0	Colony of Nigeria	72
Canal Zone (see Panama)		Gold Coast Colony	47
Guam	0	Colony of Gambia	+(?)
Philippine Islands	124	Sierra Leone	8
Samoan Islands	0	Basutoland	8
		Bechuanaland Protectorate	4
The British Empire:		Southern Rhodesia	20
Kenya Protectorate	52	Northern Rhodesia	3
Uganda Protectorate	4		

TABLE 149—*Concluded*

PLACE	NUMBER OF CASES	PLACE	NUMBER OF CASES
Union of South Africa	+(?)	Grenada	8
The Anglo-Egyptian Sudan	91	St. Lucia	1
Mauritius	155	St. Vincent	5
Seychelles	8	Trinidad and Tobago	61
Palestine	2	*Republic of France:*	
Empirate of Trans-Jordan	+(?)	Syria and Lebanon	7
Cyprus	28	Morocco	44
Gibraltar	3	Equatorial Africa	+(?)
Maltese Islands	117	French Indo-China	20
Sarawak	1	Guadeloupe	+(?)
Ceylon	637	Martinique	+(?)
India and Dependencies	16,830	*The Netherlands:*	
Straits Settlements and Federated Malay States	275	Dutch East Indies	+(?)
Burma	682	*Other Countries:*	
Johore	194	Abyssinia	+(?)
Kedah and Perlis	2	Albania	+(?)
Kelantan	4	Brazil	16
Trengganu	3	Chile	+(?)
Hong Kong	12	China	+(?)
Fiji and Western Pacific	29	Belgian Congo	+(?)
British Solomon Islands	0	Costa Rica	+(?)
Commonwealth of Australia	999	Dominican Republic	7
Bahamas	+(?)	Egypt	+(?)
Barbados	12	Greece	+(?)
Bermuda	2	Haiti	8
British Guiana	124	Holland	1,427
British Honduras	2	Liberia	+(?)
Jamaica	74	Panama and Canal Zone	59
Antigua	3	Paraguay	+(?)
Dominica	3	Siam	14
Montserrat	6	Turkey	+(?)
Virgin Islands	+(?)	Yugoslavia	+(?)
		Total	25,044

APPENDIX

During the task of assembling data for the Survey on Tropical Diseases our Committee has received various notes and comments from all parts of the world concerning health conditions which we have found impracticable to include in the foregoing pages in tabular form. Some of these we deem of such importance as to warrant placing them in this section in the form of an appendix. Though somewhat scattered, these communications will be reproduced here under the specific country with acknowledgments to the various authors.

FRENCH CAMEROUN

We are indebted to Lieutenant-Colonel Ledentu for the following data concerning health conditions in Cameroun which are reproduced in tables in the original French:

Maladies cutanées

MALADIES	NOMBRE DE CONSULTANTS	NOMBRE D'HOSPITALISÉS	TOTAL
Dermatoses parasitaires (gale pédiculore chiques infectées etc.)	22,103	13	22,116
Dermatoses microbiennes (pyodermites, impétigo, furonculose etc.)	2,913	51	2,964
Dermatoses autotoxiques (Exzéma, uriticaire prurigo, herpès, etc.)	639	7	646
Dermatoses diverses	2,912	11	2,923

Répartition des Malades dans les formations hospitalières

Sporadiques	148,408	35,53
Chirurgicales	67,687	16,22
Syphilis	38,300	9,2
Cutanées	36,613	8,7
Helminthiases	34,373	8,2
Pian	32,546	7,8
Paludisme	20,571	4,9
Ulcères phagédeniques	15,176	3,6
Blennorragie et chancre mou	14,439	3,5
Mycoses	2,299	0,55
Epidémiques	2,091	0,5
Dysenteries	1,558	0,37
Lèpre	1,423	0,34
Tuberculose	172	0,04
Trachome	52	0,01

Trypanosomiase

CIRCONSCRIPTION	PROSPECTION DE 1932	PROSPECTION DE 1933	TOTAL
Abong-Mbang	11,780	19,606	31,386
Bafia	1,980	4,137	6,117
Batouri	5,167	4,327	9,494
Ebolowa	136	4,679	4,815
Fort-Foureau	1,081		1,081
Kribi	126		126
Nkongsamba	50		50
Yaoundé	7,573	20,678	28,251
Yokadouma	2,989		2,989
Total	30,882	53,427	84,309

Statistique succinte du service de santè du Cameroun en 1933

	HOSPITALISÉS	JOURNÉES D'HOSPITALISATION	CONSULTANTS	CONSULTATIONS
Formations sanitaires:				
Restant au 31, 12, 1932	1,623	701,926	418,012	2,292,437
Entrées en 1933	13,842			
Dispensaires et tournées			194,682	687,195
Total			612,694	2,979,632

Puériculture

DÉSIGNATIONS	ACCOUCLEMENTS	AVORTEMENTS	CONSULTATIONS PRÉNATALES	CONSULTATIONS NOURRISSONS
Yaoundé	41	10	4,173	13,616
Douala	125	8	5,834	9,881
Ayos	383	4	2,253	688
Doumé	408	5	2,867	3,250
Ebolova	825	6	1,120	12,307
Autres postes	164	38	10,055	33,058
Total	1,946	70	26,302	72,000

Mouvement des Malades

	HOSPITALISÉS	CONSULTANTS	JOURNÉES D'HOSPITALISATION	CONSULTATIONS
Formations sanitaires				
Restant au 31,12, 1932	1,623	418,012	701,926	2,292,437
Entrées en 1933	13,842			
Tournées et dispensaires		194,682		687,195
		612,682		2,979,632
Total	626,536 Malades soignés		3,681,558 Journées de traitment	

ANNÉE 1932

Maladies epidemiques

MALADIES	NOMBRE DE CONSULTANTS	NOMBRE D'HOSPITALISÉS	TOTAL
Variole	13	35	48
Coqueluche	170	16	186
Grippe et pneumo	354	52	406
Ictère épidémique	74	5	79
Ménigite c.s.	29	154	183
Oreillons	118	24	142
Rougeole	10	1	11
Varicelle	764	170	934
Fièvres paludiennes	16,319	152	16,471
Cachexie paludiennes	479	16	495
Accès pernicieux	32	10	42
Bilieuse hémogl.		8	8
Pian	35,745	332	36,077
Trypanosomiase[1]	2,833	1,912	4,745
Dys. amibienne	1,724	141	1,865
Dys. bacillaire	266	15	281
Dys. indéterminée	14	5	19
Ulcères phagédén	16,826	470	17,296
Helminthiases	34,859	282	35,141
Mycoses	2,898	84	2,982
Trachome	22		22

[1] Il ne s'agit ici que des trypanosomés vus dans les formations Sanitaries.

Pour l'étude de la maladie du sommeil au Cameroun voir Jamot: La lutte contre la maladie du sommeil au Cameroun. *Annales de l'Institut Pasteur*, Avril, 1932, page 481.

Maladies sociales

MALADIES	NOMBRES DE CONSULTANTS	NOMBRE D'HOSPITALISÉS	TOTAL
Syphilis	35,652	1,050	36,702
Autre vénériennes	12,743	319	13,062
Lépre[1]	713	123	836
Tuberculose[2]	137	94	231
Cancer	10	13	23

[1] Même remarque que pour la trypanosomiase. Le nombre des lépreux du Territoire est évolué approximativement à l'heure actuelle à une dizaine de mille. Le recensement est en cours.

[2] Les recherches effectuées en 1933 par cuti réaction sur 11,000 enfants de 0 à 15 ans de toutes les régions du Territoire ont donné un taux moyen d'imprégnation tuberculeuse de 9 per cent.

Maladies sporadiques

MALADIES	NOMBRE DE CONSULTANTS	NOMBRE D'HOSPITALISÉS	TOTAL
Appareil respiratoire	32,655	1,192	33,847
Appareil circulatoire	1,713	82	1,795
Appareil digestif	26,991	280	27,271
Appareil urinaire	7,811	197	8,008
Système nerveux	13,404	121	13,525
Affections diverses	65,909	507	66,416

Maladies chirurgicales

MALADIES	NOMBRE DE CONSULTANTS	NOMBRE D'HOSPITALISÉS	TOTAL
Lésions des parties molles	31,793	655	32,448
Affections des os	979	119	1,098
Affections des articulations	1,414	71	1,485
Affections de la poitrine	170	29	199
Affections de l'abdomen	2,190	805	2,995
Affections de l'ap. urinaire	520	60	580
Affections des org. génit. H	2,391	239	2,630
Affections des org. génit. F	6,228	112	6,340
Affections des org. des sens	5,597	126	5,723
Affections Diverses	4,551	58	4,609

ADDIS ABABA, ETHIOPIA

From Mr. James L. Park, American Vice Consul in Addis Ababa, we received the following letters which are illuminating concerning the lack of organization of health work in Ethiopia:

Department of State

AMERICAN CONSULAR SERVICE
Addis Ababa, Ethiopia,
July 17th, 1933.

Doctor Earl B. McKinley,
Tropical Disease Survey,
National Research Council,
2101 Constitution Avenue,
Washington, D. C.

"Dear Sir:

The Minister hereby acknowledges your letter of May 24th, 1933, enclosing a questionnaire regarding incidence and distribution of tropical and other diseases in Ethiopia.

There are no vital statistics in Ethiopia. The existence, prevalency, virulency, etc., of diseases in Ethiopia cannot be accurately ascertained. There are no Ethiopian doctors and no Ethiopian organizations yet organized for the country-wide study and control of disease. Such information as we have been able to collect from foreign physicians resident here during the past few years is shown in the fragmentary and tentative replies we have been able to write into your questionnaire. This questionnaire is returned to you herewith.

It is much regretted that much of the information you seek for this preliminary tropical disease survey can not be obtained for you. However it is hoped that the alleged presence of the diseases so marked in the questionnaire may contribute at least a little to the inquiry you are making.

As of interest there is given below a table of the principal diseases obtained by the Minister from local foreign medical opinion:

Disease	*Comparative Prevalence*	*Highest Months*
Chancre	24	All
Dysentery	17	Nov. to Mar.
Grippe	24	Oct. to Mar.
Gonorrhoea	48	All
Leprosy	24	All
Malaria	23	Aug. to Dec.
Pneumonia	23	Oct. to Mar.
Quinsy	20	Oct. to Mar.
Syphilis	60	All
Smallpox	12	Jan. and Feb.
Tuberculosis	24	All
Typhus	29	Apr. to Oct.
Worms	60	All

The Minister will be glad to make any further investigation possible with the limited facilities available, and would appreciate, if further requests are sent, detailed questions to be used as a layman's guide in discussing scientific questions with local medical men."

Very truly yours,
For the Minister & Consul General:
(signed)
James L. Park,
American Vice Consul.

Legation of the
United States of America
Addis Ababa, Ethiopia.
January 27, 1934

National Research Council,
Tropical Disease Survey,
2101 Constitution Avenue,
Washington, D. C.

"Dear Sirs:

The receipt is acknowledged of your request dated November 28, 1933, and signed by Dr. Earl B. McKinley, for copies of an annual public health report of Ethiopia for the years 1931 and 1932, in connection with your survey of tropical diseases.

As mentioned in our reply of July 17, 1933, to your questionnaire on tropical diseases, vital statistics on Ethiopia are not collected or published by any agency known to us. That questionnaire was filled out tentatively on the basis of the little general information we have been able to collect on this specialized subject. We sent you a list, in that letter, of the diseases and their relative incidence obtained by the Minister from local medical observers.

The above mentioned information is about the whole story as far as we know to date. Little is known, as you can see, about the public health of Ethiopia, and very little can be learned. Exact statistics are not available. Travel through the country is difficult, slow and expensive, and there are very few, especially in the professions, able to undertake it for first hand observation.

Although there is little or nothing to add to the replies already made to your earlier questionnaire, you may wish to send specific questions. We will do what we can to obtain local medical opinion (it is not expected that we can get facts) on each topic. This is about the nearest approach we can make to compliance with your request for anything in the nature of a public health report.

The nonexistence of the information desired is much regretted. We can only do the next best thing, and trust that the assistance we can give will be found helpful."

Very truly yours,
For the Minister:
(Signed)
James L. Park,
American Vice Consul.

REPUBLIC OF COLOMBIA

Dr. George Bevier, International Health Division, Rockefeller Foundation, sent us the following communication concerning health statistics in Colombia:

Republica de Colombia
Departmento Nacional de Higiene y Asistencia Publica
Seccion de Saneamiento Rural

Bogotá, June 27th, 1934.

Dr. Earl B. McKinley,
National Research Council,
2101 Constitution Ave.,
Washington, D. C., U. S. A.

"Dear Doctor McKinley:

Under date of May 1st you sent a questionnaire concerning the survey of tropical diseases to Dr. Enrique Enciso. Dr. Enciso is no longer Director of Health, having been

replaced by Dr. Luis Patiño-Camargo. Dr. Patiño requested me to aid in filling out the questionnaire, which we have done to the best of our ability.

Unfortunately we do not have, as yet, definite death statistics. The last published statistics were for 1929, during which year 103,000 deaths were reported, of which 31,000 had *not* received a medical diagnosis. The National Department of Health is not satisfied with the statistics and has recently reorganized its service in order to obtain more precise and more valuable statistics in the future. Personally I believe that the way in which we have answered your questionnaire will be more satisfactory than had we attempted to give data based on the old reports which are not satisfactory.

With very best personal wishes, I am"

Yours truly,
(Signed)
George Bevier, M.D.

GB/CAR

BAHAMAS

The following opinions expressed in a letter from Dr. Cruikshank in the Bahamas are of interest:

OFFICE OF THE DIRECTOR OF MEDICAL SERVICES,
Nassau, Bahamas.
1st, August, 1933.

1297/33
"Sir,

In reply to questions on inside of back page, may I say that a detailed survey of Tropical Diseases of the World would be ideal, still I do not believe that all the tropical conditions existing in many tropical countries have been as yet recognized, because, in many colonies the routine work so occupies the medical officers' time, that there is not sufficient time for research and investigation into improperly diagnosed diseases.

If it were possible to first appoint more full time properly qualified medical research workers to certain countries I believe a detailed survey of the diseases in such places would then be a more reliable contribution to a world survey than at present.

As for example there are many conditions in the Bahamas which I would like to even investigate personally but other duties will not permit at present, viz.,

1. Possible fevers that may be transmitted by the ticks found in the Bahamas.
2. Incidence if any, of Brucella infections.
3. Helminths of the Bahamas and many others.

This expression of personal opinion may or may not be of interest."

I have the honour to be,
Sir,
Your obedient servant,
(Signed) J. M. Cruikshank
Chief Medical Officer.

Earl B. McKinley, M.D.
Director of Studies,
Tropical Disease Survey,
National Research Council,
Washington, D. C., U. S. A.

INDIA

The following letter from Major-General C. A. Sprawson is of interest:

OFFICE OF DIRECTOR GENERAL
INDIAN MEDICAL SERVICE
New Delhi, the 15th January, 1934

"Dear Dr. McKinley

Your letter of June 1, 1933 addressed to myself and your letter of September 9, 1933 addressed to Major General Sir John Megaw.

I now send you copies of your questionnaire filled in by the Professors of Medicine at our various Medical Colleges. They give some figures for the following areas:

	College in
Bombay Presidency	Bombay
United Provinces	Lucknow
Madras Presidency	Madras, Vizagapatam
Punjab	Lahore
Bengal	Calcutta
Bihar and Orissa	Patna
Central Provinces	Nagpur
Burma	Rangoon

I consider these nine areas to be the places from which I can furnish you with figures of the most value. But as regards these places I would point out that the areas are so vast that one cannot furnish figures from one city centre that would give a true picture of disease distribution in the remoter rural and wilder parts of that area. Thus although the returning officers are in each case skilled and trustworthy men, I notice certain points where my own knowledge of parts of the area would have led me to give a somewhat different reply. For instance, in the return about yaws from Vizagapatam the officer says the disease is not an important health problem, but I have seen a part of the country about 150 miles from Vizagapatam where yaws is the outstanding disease and of more importance than any other of the community. Again in the United Provinces return the officer reports Madura foot as absent, but I have seen cases in one area of those Provinces. To obtain a more accurate return one would have to distribute about 300 questionnaires to different parts of India, and even then one would not get accurate replies concerning some of the more remote parts. Moreover the present replies apply only to British India and Burma and do not concern the native States which occupy a very large area of the country.

I shall be most pleased to coöperate in your enquiry and hope that the returns now sent you may be of use."

Yours sincerely,
(Signed) C. A. Sprawson

Dr. E. B. McKinley, M.D., Director of Studies
Tropical Disease Survey, National
Research Council, Washington, D. C., U. S. A.

BURMA

In connection with the correspondence concerning the survey Lieutenant-Colonel R. V. Morrison sent the following letter from Rangoon to General Sprawson:

OFFICE OF THE PRINCIPAL,
Medical College, Rangoon.

D. O. No. 1587/C.5.A. (M) Dated Rangoon, the 5th January 1934.

"Dear General Sprawson,

Reference to your letter dated 6th November on the subject of "A Preliminary Survey of the Incidence and Distribution of Tropical and other Diseases."

As there are no figures available in this College I have been dependent on those obtainable from the offices of the Inspector General of Civil Hospitals and Director of Public Health. Unfortunately their systems of statistics are much too elementary to permit of the subdivisions required by the Survey. I have, however, replied to the Questions in the Survey where possible.

I enclose the replies received from the Inspector General of Civil Hospitals and the Director of Public Health on the subject; also a copy of the Annual Report on the Hospitals and Dispensaries in Burma for 1932."

Yours sincerely,
(Signed) R. V. Morrison

Major-General C. A. Sprawson, C.I.E., K.H.P., I.M.S
Director General, Indian
Medical Service, New Delhi

The above communication was accompanied by the following letter addressed to Colonel Morrison by Mr. J. A. Anklesaria:

Public Health Department Letter No. 18716, dated 21st December 1933
3 st-11

FROM
Mr. J.A. Anklesaria, M.B.B.S.; D.P.H.,
Offg. Director of Public Health, Burma, Rangoon

To
Lieut.-Col. R. V. Morrison, I.M.S.,
Principal, Medical College, Rangoon

SUBJECT Preliminary Survey of the Incidence and Distribution of Tropical Diseases.

"Sir,

I have the honour to forward herewith a copy of letter No. 14787/9R–3, dated the 14th December 1933 from the Inspector General of Civil Hospitals, Burma, addressed to me together with its enclosures and to state that the available information on the Questionnaire is contained in the two statements attached herewith.

2. As regards the distribution of these diseases, small-pox, cholera and malaria are widely prevalent throughout Burma, while plague is prevalent in the same way except in the Arakan Division and Tavoy and Mergui districts in the Tenasserim Division. These four diseases together with the increasing tuberculosis in towns constitute important public health problems.

Hookworm and yaws (this latter disease especially in the Tenasserim Coast) are probably widely prevalent in some parts of Burma, but no statistical figures are now available to indicate exactly the nature of their incidence."

I have the honour to be,
Sir
Your most obedient servant,
(signed) J. A. Anklesaria, M.B.B.S.; D.P.H.
Offg. Director of Public Health, Burma

Epidemic diseases incidence and mortality in Burma for 1932

	PLAGUE		CHOLERA		SMALLPOX	
	A	D	A	D	A	D
Towns	1,276	1,131	95	49	3,422	1,378
Rural areas	580	425	1,309	1,033	7,755	1,106

Mortality figures and rates per mille of population in towns in Burma

DISEASE	1928		1929		1930		1931		1932	
Malaria	2,559	2.04	2,535	2.02	2,251	1.80	1,795	1.27	1,725	1.22
Blackwater fever							4	0.00	2	0.00
Kala-azar							2	0.00	7	0.00
Enteric	513	0.41	503	0.40	373	0.30	316	0.22	395	0.28
Typhus										
Relapsing Fever										
Cerebrospinal meningitis	19	0.02	19	0.02	13	0.01	7	0.00	14	0.01
Chickenpox							9	0.01	16	0.01
Measles	207	0.17	35	0.03	27	0.02	143	0.10	96	0.06
Whooping cough							8	0.01	13	0.01
Acute poliomyelitis	1									
Mumps							1	0.00		
Influenza	140	0.11	118	0.09	93	0.07	168	0.12	83	0.06
Diphtheria	18	0.01	16	0.01	24	0.02	9	0.01	12	0.01
Other fevers	3,093	2.47	2,681	2.14	2,335	1.86	2,271	1.61	2,255	1.60
Dysentery	1,772	1.41	1,609	1.28	1,160	0.93	1,125	0.80	918	0.65
Diarrhoea	1,487	1.19	1,469	1.17	1,142	0.91	1,149	0.82	922	0.65
Pulmonary tuberculosis	2,060	1.64	2,197	1.75	1,904	1.52	2,015	1.43	2,104	1.49
Pneumonia	2,755	3.00	3,594	2.87	3,364	2.68	3,628	2.57	3,954	2.81
Diseases of respiratory system	3,717	2.96	3,417	2.73	2,699	2.15	2,718	1.93	2,286	1.62
Other tuberculosis diseases	298	0.24	277	0.22	302	0.24	221	0.16	167	0.12
Beri-beri (including epidemic dropsy)	445	0.35	387	0.31	186	0.15	152	0.11	171	0.12
Leprosy	215	0.17	260	0.21	210	0.17	174	0.12	201	0.14
Cancer	122	0.10	123	0.10	111	0.09	116	0.08	171	0.12

CHILE

From Dr. Leonardo Guzmán, the following letter and report concerning typhus fever was received:

Dr. Leonardo Guzmán
Amunátegui 449

Santiago, February 9th, 1934

Mr. Earl B. McKinley
National Research Council,
2101 Constitution Avenue,
Washington, D. C.

"Dear Dr. McKinley:

With further reference to the completed questionnaire on Tropical Diseases which I furnished you and which you acknowledged in your letter of January 8th, I am sending you herewith a copy of the Report on the recent typhus epidemic in Chile, submitted to the Editors of the Biological Abstracts of the University of Philadelphia, at their request. I trust this will prove of interest and possibly of use to you.

As you know, I am always eager to be of service to the National Research Council."

Yours Very Truly,

(signed)

Dr. Leonardo Guzmán,
Director General
Public Health Bureau

DIRECCIÓN GENERAL DE SANIDAD CASILLA, 41 D

SANTIAGO DE CHILE

THE PRESENT TYPHUS EPIDEMIC IN CHILE

A Report presented to the Medical Association of Chile

"RESUME: Initiation; Invasion; Period of state; Measures adopted; Establishment of public baths; Sanitary brigades; Sanitary cordon; deinsectization.—

The grippe epidemic which began in the year 1917 with 2700 cases presented very special characteristics, which were reported by different physicians at several meetings of this Association. In 1918 there were 6000 cases of the same disease and in the month of September of that year, many of those cases were definitely diagnosed as typhus. Our statistics show 324 deaths caused by typhus in the period October–December of that year, confirmed by physicians, and 18 deaths confirmed only by witnesses.

In the year 1919 there were 14,517 cases of typhus with 2,804 deaths, the mortality rate being of 392 per 00/000 inhabitants, the highest known in the world until the last few years.

From then on typhus has not disappeared as can be shown from the following figures:

1920	7,138 cases
1921	4,508 cases
1922	4,469 cases
1923	5,294 cases
1924	3,435 cases
1925	1,434 cases

From the year 1925 on the number of cases decreased until 1931, when we had only 95 cases with a morbidity rate of 3,2 per 00/000.

The present epidemic started in May 1932 in the city of Lota, the first patient being a workman recently arrived at that sea port from the city of Santiago. This makes me believe the existence of other cases in this city at that time, although the first case was officially reported only in June. From Lota the disease went to Coronel and then to Concepción; from there to Bio-Bio and Cautín and in these provinces the highest morbidity was reached in December. It can be said that from August (2nd week) to the present moment, there have been only two weeks without a new case of typhus in these provinces.

In January 1933 we have cases in Concepción and three great focuses appear: 11 cases in the village of Pachagua (Itata); 22 cases in Tomuco; 10 in Padre Las Casas; 8 in the redoubt of Reñico; 6 in Pitrufquen and 6 in Lautaro.

Resuming: by the end of January we have already 333 cases in the country, distributed in the following manner: Cautín, 228; Nuble, 59; Bio-Bio, 17; Concepción, 15; Chiloé, 5; Colchagua, 5; Santiago, 3.

The same situation is maintained during February and in March we find that the main focus is Concepción, with Cautín and Nuble coming next in importance. In the first weeks in May Santiago shows 14 cases; Colchagua 11 cases; while Concepción has 46. This distribution coincides with the closing of the harvesting season and it suggests that the itinerant agricultural laborers are to blame for the spread of the disease from province to province.

By the end of May the curve begins ascending and in the period June 18th–July 15th, we have 80 cases in Santiago; 52 in Cautín; 45 in Concepción; 35 in Colchagua; 18 in Nuble; 16 in Bio-Bio with a total of 267 cases in these four weeks.

The figures are further increased in the weeks between June 18th and July 15th, to 614 cases; and to 1653 cases during the weeks between July 16th and August 12th.

In the month of July, a very active campaign was started in the whole country and by the end of August there were 10 establishments of public baths in Santiago, instead of three as before. The number of auxiliaries was increased from 70 to 200, working with 20 "barriles servios" and 12 steam and hot air chambers for deinsectization distributed in the different public baths. In the month of September a Zyklon chamber was established with a capacity of 90 cubic meters, and two others of 10 cubic meters each and one of four. In the month of October a new Zyklon chamber of 80 meters was established in Santiago and one of 90 m. in Valparaiso.

In spite of all these activities, the number of cases does not decrease and from September 10th to October 7th, it reaches 2,101 cases distributed in the whole country, the main centers being Santiago with 1,225 cases; Concepción with 124; Cautín with 96; Maule with 66; Bío-Bío with 49; Colchagua with 42.

In the provinces we have 145 Sanitary brigades composed of three persons each, and distributed according to the density of the epidemic; there is a total of 209 "barriles servios" and 101 public baths establishments. Four fifths of this total correspond to the work done from August on.

Our Campaign: In Santiago, Talca, Chillán, Linares, Concepción, Lota and Cautín our staff is divided in four groups: Investigators of hidden cases with four physicians directing the work in Santiago, Talca, Valperaiso and Concepción (Drs. Hurel, Ortíz, Iachaise and Martínez, respectively). Physicians or students of medicine who have obtained their license and public health nurses do the work under the four physicians mentioned.

The second group has the work of disinfection of clothing and articles that can be disinfected in the "barriles servios," whenever a new case is reported.

The third group makes a thorough disinfection, carrying mattresses and heavy articles of clothing to the chambers of disinfection in special trucks, while all the dwellers of the house or tenement are taken to the public baths, also in special trucks.

The dwellings are then disinfected with sprays of creoline in a 3 per cent solution, the cheapest and most effective material to destroy insects. We have not been able to employ gasoline or kerosene on account of their prohibitive price. During the month of August, the Dirección General de Sanidad (Public Health Bureau) housed the people whose houses were being disinfected, in a special asylum organized at its suggestion.

The fourth group is composed of the brigades that control the access to and from the principal centers. These brigades have "barriles servios" and sometimes portable bathing appliances. At present we have established serpentines to utilize the fuel used in the "barriles servios" to provide hot baths everywhere.

To these four main groups we should add the consulting physicians who visit every case reported and the physicians who work in the hospitals paid by the Public Health Bureau.

Comparative tables show that while our morbidity rate per 00/000 inhabitants is at present 222.9, in the Soviet Republic it was only 51.9 in 1918 and 101.5 during the year 1919 in the kingdoms of Servia, Croacia and Slovakia.

During the present year (until the 14th of October) we have had 7,573 cases with positive Weil Felix reaction.

During this special campaign we have spent in the provinces $714,500, not including other expenses like the acquisition of equipment such as "Barriles servios," disinfectants, etc., payment of mobilization of the brigades, etc.

The Public Health Bureau has paid $200,000 to the Social Service Department and has spent $50,000 organizing the Barros Luco Hospital and $50,000 in the hospitals of Talca, Concepción, Temaco, etc. To this sum we must add the salary increases or special rewards to the staffs of the hospitals at San Luis and San Borja, and the salaries of the staff of the Barros Luco and Canadores Hospitals.

The organization of the Emergency Hospital "Cazadores" and its maintenance to the present moment represents an expense of $250,000. This hospital has a capacity for 519 patients.

As to the specific measures of prevention, besides the ordinary measures of prophylaxis, we have injected serum of convalescent patients in the majority of our auxiliaries and this explains the reduced number of cases among them. We have also injected it in a great number of persons who have been bitten by pediculi. Some of these persons have contracted typhus, but in a mild form. To the present moment, we have injected 2,500 doses of serum of convalescent patients.

At present we are testing at the lunatic asylum and in the jail of the city of Concepción the Zinsser and Castaneda vaccine, and I hope to be able to report soon the results obtained."

(Signed)

Dr. Leonardo Guzmán
Director General of the
Public Health Bureau.

BRITISH HONDURAS

Dr. E. C. Savons, Assistant Medical Officer, Toledo, British Honduras, sends our Committee the following quotation from the British Honduras Medical Report for 1932:

"c. Hookworm Disease.———

c. Helminthiasis. Very common. Treatment usually is effective in expelling countless worms but very rarely leading to a permanent cure, for the reason that advice is not sought until it is too late. Remarkable about the treatment is the sudden deaths that occur not uncommonly after treatment—in condition of acute illeus or auto-intoxication.

Measures for the abatement of the same should include effective legislation for the keeping of hog-pens or pigs roaming at large away from human habitations, in towns and district alike. Inculcation into the masses of a love of personal cleanliness as well as the necessity of securing cleanliness in the matter of food and water should go a long way to abate the rather large mortality obtaining under this one head. From purely administrative standpoint more and adequate latrines should be built in town and country.

The very keeping, irrespective of the condition in which hog-pens are kept, of pigs about a habitable locality, is a nuisance, and pressure should be exerted to get these pens removed from habited precincts. Especially is this needed in the Indian villages where hogs and men cohabit the same house not infrequently at all hours of the day.

Helminthiasis is more observed in the Spanish community of Monkey River and the settlements up Columbia River and is infrequent in the Indian villages where chronic malaria and hookworm are almost universal, the spleen rate being of 60–75 per cent especially in Crique Sarco. Although tours of medical inspection were usual and treatments have not infrequently been given, still the inaccessibility of medical aid generally accounts for the high splenic rate and the rather high incidence of deaths from "fits" in children and fever in adults—the commonest of returns by the lay registrars."

KENYA EAST AFRICA

The following letter from Dr. A. R. Paterson is of interest:

MEDICAL DEPARTMENT
HEADQUARTERS OFFICE
(P. O. Box 641)
Nairobi, Kenya
28th August, 1933.

No. 28/959/2

Dr. Earl B. McKinley,
2101 Constitution Avenue,
Washington, D. C.
U. S. A.

"Dear Sir,

I enclose herewith the questionnaire which you sent me under cover of your letter of the 1st June duly filled in so far as I have been able to do so.

2. You will notice that I have not given the number of cases except when I have wished to indicate rarity. As a rule I have used general terms such as common, very common, rare, etc. I have done this because the records of the numbers of cases treated would in the absence of a statement of total population and the source of the figures be nothing but misleading, e.g., we may have records of say 24,000 cases of malaria treated in any year but we know that some hundreds of thousands of cases must have occurred.

3. Again under the Heading "Considered important public health problem or not" I have departed from the categorical method of reply and endeavored to supply real estimates of comparative value. This I think is an important point. Plague for example is important but is of less importance than ulcer, of less importance even than the condition we call "scabies," of far less importance than ascariasis and almost of no importance at all compared with the disability, loss of efficiency and loss of power of resistance due to malnutrition.

4. As far as possible I have endeavoured to be accurate but it is not easy in a reply to a questionnaire to make all the reservations which in many cases I should have liked to make. I trust, however, that the errors are not too many or too important and that the information supplied may be of use.

5. May I suggest for the consideration of your committee that questionnaire forms of this type should be sent out in duplicate? I personally like to keep a record of the opinions which I may have expressed and it is particularly desirable that in offices where staff may change such records should be available."

I am,
Yours sincerely,
(Signed) A. R. Paterson
Ag. Director of Medical and
Sanitary Services

CEYLON

From the Medical Officer in Ceylon comes the following interesting report dealing with many of the diseases found there:

I. Malaria

"Present. Endemicity moderate to high in the northern, eastern and southeastern low-lands and foot-hills (wet-zone) and in the hill country generally (above 1500–2000 feet elevation). In the dry-zone annual epidemics of varying intensity occur regularly during the north-east monsoon period (November to February or March); in the south-western area epidemics are rare and usually distinctly localized.

The three common forms of malaria are present throughout Ceylon approximately in the proportions of: Benign Tertian 60.0 per cent; Quartan 30.0 per cent; Subtertian 10.0 per cent.

The chief vector is *A. culicifacies*, prevalent in the dry-zone; very uncommon in the wet-zone except under special conditions. Epidemiological evidence suggests that *A. listoni* (*minus*) also transmits malaria, but no definite incriminative evidence has yet been obtained in Ceylon. Epidemiological evidence in respect to *A. maculatus* indicates that it is not a carrier in Ceylon.

Hookworm

Out of a total of 90,230 specimens of faeces examined microscopically in this laboratory during the three years 1930–32:

Hookworm ova (*Necator americanus*) were found in 66,592 or 73.8 per cent.
Roundworm ova (*Ascaris lumbricoides*) in 73,968 or 81.9 per cent.
Trichuris trichiura ova in 68,282 or 75.7 per cent.
Enterobius vermicularis (*oxyuris vermicularis*) ova in 2,424 or 2.7 per cent.
Taenia solium ova in 63 or .07 per cent.
Taenia saginata ova in 7 or .008 per cent.
Hymenolepsis nana ova in 24 or .03 per cent.

Filariasis

Present. Widespread but erratic distribution.

Microfilaria rates up to as much as 35.0 per cent, in certain villages. Available evidence indicates that filariasis due to both *W. bancrofti* and *W. malayi* occurs. The vector of *W. bancrofti* in Ceylon has not yet been definitely ascertained, but is probably *Culex fatigans* which is common in many towns and villages. *W. malayi* has been shown to be carried by three species of *Mansonioides*, viz: *M. annuliferus*, *M. indianus*, and *M. uniformis*. These mosquitoes are common in rural areas (notably in the dry-zone) where the aquatic plant *Pistia* is prevalent.

Elephantiasis

Present. Prevalent in certain towns and villages. In general wherever the microfilaria rate is high, the proportion of cases of elephantiasis is also high. In a village with a microfilarial rate (*W. malayi*) of 35.0 per cent, 23 per cent of the adults examined were affected (chiefly legs and feet) with elephantiasis.

Myiasis

Subcutaneous. None observed, but cases are probably not uncommonly recorded at the various hospitals and dispensaries. Potential myiasis-producing flies of the genera.

Chrysomyia, Lucilia and *Sarcophaga* are abundant in Ceylon. True subcutaneous myiasis due to Oestrid flies or to

Cordylobia is unknown.

Blood-sucking. No blood-sucking larvae of flies have yet been recorded.

Intestinal. Cases due to Apicchaeta and to the Scaralid beetle, *Onthrophagus*, have occurred. Latter infection evidently well-known among indigenous population and is termed 'Kurumini Mandama' ("beetle disease").

II. Pasteur Institute, 1932

The number of persons who received preventive inoculation against rabies and treatment of the wound is 1041; this is an increase of 277 on the number for 1931.

The number of brains from dogs and other animals examined during the year was 274; this is an increase of 54 on the number for 1931.

Table 1 gives the provinces from which the persons came who received treatment.

Table 2 gives the provinces from which the dogs' heads were received with the results of examination.

The statistics of failures of the preventive inocuation against rabies for 1931 are now complete; they are as follows:

Number of persons treated	764
Number of fatal cases	6
Percentage of failures	0.78

Statistics show that the percentage of failures of Pasteur treatment is much the same for the Ceylon institute as for similar institutes in India, but it is higher than for most European institutes.

A probable explanation of this is supplied by an analysis of the statistics of all patients treated at the Pasteur Institute during the years 1919 to 1931. These statistics are given in table 3.

Most of those classified as "others" under Government Servants are labourers and others of a similar position in life as those in the class of "non-paying patients." This table may be summarized as follows:

(a) 9,259 patients have been treated with carbolised anti-rabic vaccine and there have been 75 failures, which is 0.82 per cent.

(b) 999 paying patients have been treated with one failure. This failure was an Eurasian child who had been adopted by a Burgher; he was more or less a servant.

(c) 460 Europeans have been treated without a failure.

(d) 437 Burghers have been treated with one failure. This failure was a child.

The treatment is exactly the same for all classes of patients. Therefore it follows that estate labourers and poorer classes do not respond to the treatment as satisfactorily as the better class patients. In other words, as the principle of the treatment is to immunise the patients during the usually long incubation periods, there are present some factors in connection with the poorer classes which tend to prevent this immunisation.

These factors are: (a) the standard of living; (b) the general health; (c) nakedness.

The standard of living of the inhabitants of Europe is higher than among most Asiatic peoples, and may be considered of much the same standard as that of the paying patients attending the Ceylon Pasteur Institute.

The general health of a population may be gauged by its death rate. This is approximately 16 per thousand for Europe and 27 per thousand for Ceylon.

Many of our patients are infected with malaria and hookworm, and consume a poor diet, all of these take a toll of their responses to immunities; and it is not to be expected that they will respond so favourably to inoculations for immunisation to rabies as healthy patients who are well housed and live on a generous diet.

It is well known that persons bitten by rabid dogs on the bare limbs or body are at greater risk than those who have been bitten through clothing. The estate labourers and many of the non-paying patients wear only loin cloths during a great part of the day.

TABLE 1

Western Province	667
Central Province	103
Southern Province	94
Northern Province	102
North Western Province	41
North Central Province	3
Uva Province	14
Sabaragamuwa Province	17
	1,041

TABLE 2

PROVINCE	POSITIVE	NEGATIVE	UNFIT	TOTAL
Western Province	124	46	13	183
Central Province	16	22	3	41
Southern Province	10	2	4	16
Northern Province			8	8
North Western Province	10	3	5	18
North Central Province			2	2
Uva Province	2	1		3
Sabaragamuwa Province	1	2		3
Totals	163	76	35	274

TABLE 3

CLASS OF PATIENTS	NUMBER TREATED	DEATHS FROM RABIES	PERCENTAGE OF FAILURES
Non-paying patients	6,263	55	0.87
Estate labourers	1,071	12	1.1
Paying patients:			
Sinhalese	298	Nil	
Tamils	67	Nil	
Burghers	200	Nil	
Europeans	402	Nil	
Others	31	1	
Government Servants:			
Burghers	237	1	
Europeans	58	Nil	
Others	632	6	0.95
Total for all patients	9,259	75	0.82

Therefore it is necessary to consider the classes of the patients and the three factors above mentioned when comparing the statistics of Pasteur Institutes situated in different countries.

The statistics for the paying patients show the efficiency of carbolised vaccine (Semple's method).

No case of paralytic accident or other untoward result has occurred at the Ceylon Pasteur Institute, where more than 10,000 patients have been treated up-to-date."

Also of interest in connection with health conditions in Ceylon is the recent report concerning an "epidemic" of malaria in that country. Official information regarding this epidemic is not available but one recent account which appeared in the United States is reproduced here.

Malaria in Ceylon

"Malaria, which has swept disastrously across Ceylon, is still a mystery disease to the U. S. Public Health Service. The emphasis on the green color of the causal parasitic cells appears to be the distinguishing characteristic that would set it up as a quite new malarial species.

The three well-recognized species of malaria germs already known also have pigments; but two of them are described as dark brown to black, and the third as light brown. The darkest of them, the species causing the quartan or 'four-day' type of malarial fever, is described by some observers as 'greenish.' Dr. L. R. Williams, of the U. S. Public Health Service, states that if the British medical men on the island, who are exceedingly competent in the malarial field, describe the present form as green, it is not likely that they are confusing it with any of the already known species.

All forms of malaria are caused by one-celled animal parasites, of the genus known to scientists as Plasmodium. There are three well-recognized species, and a number of varieties of less certain distinctness. Of the three known species, one causes quartan fever, one tertian fever, and one a most virulent type of tertian or three-day fever which, because of its seasonal nature, is called aestivo-autumnal, or summer-and-fall fever. The parasites causing all malarias pass through a most complicated life cycle, partly in the body of the human victim, partly in that of the carrier mosquito. In the human blood they attack the corpuscles, breaking them down as they themselves multiply. Because of this peculiarity, the most marked of the many disagreeable effects of malaria are seen in the blood itself and in the organs where blood plays an important rôle, especially the spleen, the liver and the red marrow in the spongy parts of the bones. In the especially vicious attacks of pernicious malaria that end in death, it is often found that so many of the red blood corpuscles are broken down that the tiny capillaries are choked with their debris. In other cases, death seems to result from simple massive poisoning from a toxin secreted by the parasites.

The present terrific epidemic in Ceylon is not without precedent in that part of the world. In the Punjab, in northern India, more or less localized epidemics break out at intervals of a few years, seldom occurring twice in the same region. In these epidemics it is not uncommon for sixty-five per cent of the population in the affected area to be attacked; and of the sick, sometimes a third or more will die. This is much more severe, though less extensive, than the present Ceylon epidemic where, according to cabled press reports, about a sixth of the total population are sick, with a death list representing only one in a hundred of those actually sick.—*Science* **81**, No. 2094: Supp., p. 6 (1935).

India

The following account concerning the public health in India is taken from *Science*, 81: 145–146 (1935):

"The report for 1931 of Major-General J. D. Graham, Public Health Commissioner with the Government of India, has recently been made public. According to the *British Medical Journal*, General Graham insists on India's need of an organization which shall be capable of framing and conducting a public health policy for the country as a whole. Such a Ministry of Health is found in Canada, Australia and South Africa, and is none the less necessary in India because the executive control of public health has been transferred to the Provinces.

A census was taken in February, 1931, and vital statistics for the year can be more accurately estimated than in the nine previous years, the last census having been taken in 1921. The birth rate for the year in British India was 34.3 per mille, as compared with 35.7 for the previous quinquennium (based on the 1921 census). The general death rate was 24.8 per mille, and the death rate for infants under the age of 12 months per 1,000 live births was 178.8, as compared with 180.8 in 1930 and 177.6 in the previous quinquennium. Out of every 190 deaths recorded, forty-three occurred in children below the age of 5, and forty-eight in those below the age of 10. The infantile death rate for British India was nearly $2\frac{3}{4}$ times that for England and Wales and South Africa; more than double that for Germany, and nearly $5\frac{1}{2}$ times that for New Zealand. Countries in which

the figures compare more closely with those of British India include Rumania, Hungary, Japan, Italy, Egypt and Soviet Russia. The three main causes of infantile mortality are given as congenital and developmental defects, alimentary disturbances and infective disease, the first accounting for nearly all stillbirths and deaths in the first seven days of life, while the two latter affect the older children. Sanitary improvements have operated against the two latter causes, but not against the first, and in the production of these defects prematurity plays an important part.

Antimalarial campaigns continued during the year under review, including cinchonization schemes where funds permitted. Tuberculosis is believed to be generally on the increase, especially in some of the larger and more overcrowded cities, such as Peshawar, Delhi and Calcutta. The anti-tuberculosis campaign has not proceeded very far as yet, but the disease is now notifiable in the Punjab, the Central Provinces, Madras, Baluchistan and in municipal areas in Assam and the Upper Provinces. In Bombay Presidency, out of every 1,000 deaths recorded in 1931, 43.6 were ascribed to pulmonary tuberculosis. In 1931 there was a large fall in the incidence of cholera in British India, apart from the Presidency of Bombay, but high mortality curves were present in Bengal and Bombay. The death rate for plague was, however, twice that in 1930, although lower than that in 1929, the Upper Provinces suffering most.

Leprosy surveys, which had been continued during three and a half years, were ended in 1931. They showed that leprosy was much more prevalent in India than was formerly supposed; probably one million cases would not be an overestimate. The disease was found to be most common among semi-aboriginals or aboriginals, who left their tribal seclusion and hired themselves out to agriculturists or industrial concerns. Infection of the more advanced classes of the community was in the first place largely attributable to the employment of servants in an infectious stage. Movements of the population, which have increased on account of better education and transport in recent years, are a potent factor in spreading the disease and in infecting new areas. This is General Graham's last annual report as Public Health Commissioner and he briefly reviews his decennium in that office and indicates the more salient advances."

JAMAICA

From the Report of the Jamaica Yaws Commission for 1932 we take the following summary regarding their work up to that date and the work planned for 1933:

"In the work of this year the Jamaica Yaws Commission has attempted to lay the foundation for methods looking toward control of yaws and for future study of fundamental aspects of the disease. Many observations herein reported are in no sense original and, indeed, most of the data point to conclusions already put forth by others. Nevertheless, there has been afforded the opportunity of examining several different phases of the yaws problem among the same people and in the same laboratory. We will indicate briefly some of the conclusions justified by these observations.

Yaws is a generalized infection which gives rise mainly to lesions of the skin and bones. It cannot be said definitely that disease of the cardio-vascular and central nervous system does not occur but the incidence is negligible; in treatment, therefore, one does not have to be concerned with the possible effects of the disease in the distant future, such as in the case in syphilis, although the remote possibility must be kept in mind that in the absence of biological cure, the course of the disease may be altered not only for the better but for the worse by treatment. The defensive mechanism of the body tends to respond slowly and feebly to invasion by the *Treponema pertenue* and in many cases the reaction of the body tissues seems to be quite the same five and ten years after infection as in the first few months. Interpreted in clinical terms this indicates that the patient cannot be relied upon to cut short the time during which he is a potential source of danger to the community without the aid of anti-yaws treatment. During the periods of latency, along with the history, serological tests are the surest guide to diagnosis. The labour and time necessary to obtain even an approximate idea of the value of any method of therapy is well illustrated, for it is apparent that the immediate response of yaws lesions to treatment is only one of the criteria by which the effectiveness of a drug can be judged; both clinical and serological follow-up is essential for much longer periods than has been done by us so far. Our studies indicate that in the manner used neoarsphenamine alone is superior to bismuth salicylate alone; it is possible, however, that the two can be employed in combination to advantage. Our experience with halarsol shows not only that this drug is much inferior to the ones mentioned above but it

should serve to illustrate the unwisdom of accepting new preparations until facilities can be had for submitting the drug to a carefully controlled trial. The cost of drugs must be considered, of course, but the most effective method of treatment, whatever the cost, might be the least costly in the end; one shrinks from balancing the ledger of control measures in the past.

Children seem to be the chief reservoirs of infection and the spread of yaws can be attributed mainly to the persistence of infectious cases among this portion of the population. Close contact, whether direct or indirect, appears to be necessary for transmission, particularly favourable opportunities being afforded by the intimate contact of the home and perhaps the school.

From the foregoing, therefore we can formulate a plan to be applied to the control of yaws in the field, a plan, it must be understood, which has not yet been put to a thorough test. Briefly the essential features are (1) survey by history, serological tests and brief physical examination of the entire population, if possible, but certainly all children of school age, in order to discover infectious or potentially infectious cases; (2) treatment, after examination by a physician, of all clinically active cases and latent cases of less than 10 years duration if serology is positive. Treatment for the present should consist of neo-arsphenamine alone or alternating with bismuth in a total approximating 6 doses. Patients may be divided into those who *should* take treatment and those who *may* take treatment; (3) follow-up for an undetermined period of time of all infectious cases for evidence of relapse and of all immediate contacts of infectious cases for new infections. Actually under somewhat the same plan infectious cases in the Bath area have become exceedingly uncommon even though treatment has proceeded much more leisurely than would be the case under the proposed plan.

The Work for 1933

The studies reported above served to give us a bird's-eye-view of the yaws problem as a whole, to furnish an idea of various means of obtaining information and the reliability and limitations of different methods. Much of the detailed clinical and epidemiological work will not have to be repeated, although there are obvious gaps which should be filled in by further study. We can now turn our attention to the application of this information and to the investigation of special aspects of the larger problem. Among the main problems for the coming year should be the following:

1. Putting in operation along the lines indicated above one or more units for control work.
2. Continuation of the studies in the Bath area with particular reference to follow-up of cases already studied.
3. Comparative study of syphilis and yaws as they exist under the same general conditions of race and climate. The study should include both man and animals.
4. A more detailed investigation of the transmission of yaws with particular reference to the circumstances surrounding each new infection and the rôle played by insect vectors.
5. Further study of the question of immunity in the natural infection.
6. Collection of more data on the occurrence of cardiovascular and central nervous system involvement, treatment results and age, sex and family distribution of yaws. These data can be obtained mainly through the control unit."

Recently Edwin O. Jordan and William Burrows made a preliminary report concerning "akee poisoning" which occurs in Jamaica. Dr. Jordan has kindly sent us a reprint of this short report which is reproduced below:

Akee Poisoning

"An illness on the island of Jamaica known locally as 'vomiting sickness' is thought to be, at least in some cases, a form of poisoning caused by eating the fruit of the akee (*Blighia sapida*). Although it is probably true that the name 'vomiting sickness' has been applied to etiologically unrelated affections, there is strong evidence implicating the akee in a serious and frequently fatal sickness. Deaths after eating akees are seemingly reported sometimes as vomiting sickness, sometimes as akee poisoning. The total deaths registered annually in recent years under these designations have run as high as 350 (1921). The akee in an immature or unripe condition has been reputed to be particularly dangerous.

Considerable unwillingness to accept these conclusions has been manifest, chiefly on the ground that the akee is a common market article in Kingston and elsewhere in

Jamaica, and, in its season (November–March), is eaten daily by hundreds, probably by thousands, of persons with perfect impunity. It is also pointed out that with the improvement in water supplies that has taken place in several localities the 'vomiting sickness' has greatly declined.

The edible portion of the akee is the arillus, a fleshy envelope attached to the seed. Arilli boiled or fried have been repeatedly eaten by one of us (E. O. J.), as by other Americans and European residents in Jamaica, without any sign of discomfort or injury.

Through the kindness of Dr. B. E. Washburn, representative of the International Health Division of the Rockefeller Foundation in Jamaica, we have been able to secure a considerable number of akees in various stages of development. No signs of illness have been observed in experimental animals (cats and monkeys) fed with the arillus alone. The seeds, however, in both the ripe and unripe fruits contain a water-soluble poison which affects cats and monkeys, causing serious vomiting and occasionally death when a large amount is given. The ovary wall or husk of the fruit also contains a toxic substance that is extracted with boiling water. When the whole fruit is chopped fine and extracted with boiling water, the extracts from both ripe and unripe fruits are poisonous.

The poisonous substance may be conveniently extracted by boiling the whole fruit, or the proper parts, in water for from 30 minutes to 2 hours. The seed extracts are composed, for the most part, of starch and a substance which hydrolyzes to a reducing sugar. The starch may be precipitated by the addition of alcohol. The poisonous substance remains in solution. The starch-free solution contains only a trace of reducing substances but gives a strongly positive Molisch test. After boiling in dilute hydrochloric acid solution the filtrate strongly reduces alkaline copper and picric acid. Ferric chloride and Millon's reaction are negative. Cyanide could not be detected. The evidence suggests that the poisonous substance accompanies a glucoside present in certain portions of the akee.

The explanation of the apparent epidemiological difference observed between the ripe and unripe fruit in Jamaica seems to be that in the latter the seed is small, soft and embedded in the arillus, while in the ripe fruit the large, dark brown, conspicuous seed has a hard shell and is easily removed from the edible portion. The placenta which attaches the arillus to the husk is also not readily removed from the unripe fruit, and is locally regarded in Jamaica as poisonous. We have not, however, been able to produce any illness in cats or a monkey by feeding them with placental extract. It is a reasonable explanation that in the country districts of Jamaica, where most of the reported cases of akee poisoning have occurred, akees that have fallen to the ground before ripening and those taken immature from the tree have not had the small seeds removed before eating. It is significant that many of the reported cases of akee poisoning have occurred in children, and that the 'soup' made by boiling akees with various vegetables has a poisonous quality.

Although there can be no doubt that some of the cases of the vomiting sickness of Jamaica are caused by akee poisoning, the proportion of such cases in any particular time or locality can naturally not be determined without specific investigation.

Further experiments on the nature and action of the akee poison are in progress."

SYRIA

Two interesting letters from Dr. Ellis H. Hudson and Dr. Edward L. Turner in Syria concerning health conditions in that country are reproduced below:

SYRIA MISSION
of the
Board of Foreign Missions
of the
Presbyterian Church in the U. S. A.

E. H. HUDSON, M.D.
AMERICAN MISSION
DEIR-EZ-SOR, SYRIA

November 18, 1933.

Dr. Earl B. McKinley,
Tropical Disease Survey,
National Research Council,
2101 Constitution Ave.,
Washington, D. C., U. S. A.

"Dear Dr. McKinley:

I have received your letter of June 5, 1933, asking for data on the incidence of tropical and other diseases in Syria. I was out of the country when your letter arrived and have but recently returned, hence the delay in my answer. I appreciate the importance of this survey and the project to which it is a part, and I hope that I am not too late to have such data as I can furnish included.

You ask me for data on Syria, but I must make plain that I am not able to speak for all of the country; in fact I have had experience of only a small portion of the whole mandated territory, namely of the interior, and mostly in the immediate neighborhood of the town of Deir-ez-Zor (30,000 pop.) situated on the Middle Euphrates. My colleagues and I have conducted an out-patient clinic in this town since 1924, and the figures I give are based on our clinic records. We have not made any surveys of the general population, nor has anyone else, but we believe that the incidence and distribution of disease found in our clinic is roughly representative of this whole region. Ours is the only laboratory in this area and with the exception of the studies which we have made this is *terra incognita* for modern medicine.

In addition to the immediate neighborhood of Deir-ez-Zor we have had touch with the city of Aleppo, the region to the north of us along the Turkish border, and tracts of desert territory east and west of Deir-ez-Zor. This is made clearer by the accompanying map. I have drawn a red circle about the region from which most of our data are derived, and a blue circle about the region with which our contact has been less intimate. You will note that the coast region which is more densely populated and which contains most of the cities is outside our sphere of observation. For many reasons—among which are contrasting climate and topography—the disease incidence of the coastal region and of the interior of Syria are very different. There is a sad lack of information in the country as a whole in these matters, but you are doubtless requesting information from the American University in Beirut, and your colleague Dr. Parr also can give considerable help.

The religious and benevolent organization under which this medical work in Deir-ez-Zor is conducted has no place in its program for scientific research, but it has been possible in the course of nine years work to collate some information which has been published from time to time. I am mailing you under separate cover a list of these publications, with a reprint of an article on malaria. I am also enclosing a reprint of a study we made of the diagnoses of 2,000 consecutive clinic patients. A wider experience has already changed our ideas somewhat since this paper was written, but it stands confirmed in its main conclusions. You will also have received four reprints from my brother, Dr. Paul Hudson, of the Dept. of Bacteriology and Hygiene of the U. of Chicago. Three of these deal with the form of childhood-acquired syphilis known locally as *bejel*, and one presents our findings in regard to hookworm. I have referred to these special articles in the questionnaire.

I have data not yet ready for publication along four other lines, viz., bismuth in the treatment of Arab syphilis, neurosyphilis in the Euphrates Arab, juxta-articular nodules in Arab syphilis, and blood-pressure and cardiovascular disease in the Arab. If any of these reach the publisher in the course of the year, I will send you reprints.

A glance shows that the big health problem of this region is childhood syphilis Following at some distance come amebic dysentery and hookworm disease. Of lesser importance are tuberculosis and trachoma. Malaria constitutes an important health problem in the region to the north along the Turkish border. Our findings taken as a whole present some interesting considerations for the student of geographical pathology. Why do we not see leprosy and malaria in Deir-ez-Zor (indigenous cases) when they are to be found all around us? The same is true to slightly less degree in Oriental sore. What is the relation of *bejel* to yaws, if any? Why are scarlet fever, infantile paralysis and diphtheria virtually absent?

From the sociological standpoint it is interesting to compare the disease-picture of the bedouin peasants and shepherds on the one hand, with that of their blood-cousins, the townspeople, only separated from them by a few decades of town life. The same disease conducts its course differently in the two environments, and different diseases differ in their relative incidence.

Please let me know if there are clinical facts which I have omitted, or which I can secure for the purposes of the survey. Though I can speak for only a very small region, that is, from the point of area, it may be that a full study of this restricted area can throw some light on wider problems. When it comes to securing results in better community health, I think we have here *multum in parvo* all the possible problems that tropical medicine presents among a primitive people!

Last night, while this sheet was already in my typewriter your letter of October 25 came with the duplicate questionnaire. Thank you very much for writing again. I am mailing this to you today. I was myself in Vienna and London this past summer, and greatly enjoyed contacts in both places."

Sincerely yours,
(Signed) Ellis H. Hudson

AMERICAN UNIVERSITY HOSPITAL
BEIRUT, SYRIA

August 12, 1933

Dr. Earl B. McKinley,
Director of Studies
Tropical Disease Survey,
National Research Council,
2101 Constitution Avenue,
Washington, D. C.

"Dear Dr. McKinley:

I received your letter of June 5, with the enclosed survey form just as I was leaving for my vacation in July. Consequently there has been a delay in getting the report back to you. I have taken the liberty of making out the report in coöperation with Dr. E. W. Dennis, Chairman of the Department of Bacteriology and Parasitology, and Dr. D. A. Berberian, also of that department. You will note that two columns, namely, the 4th and 6th, are not filled out with very satisfactory answers. We have not felt it wise to even attempt to approximate number of cases. I think you can readily understand our attitude when you realize that no vital statistics are kept except in a few of the larger cities, such as Beirut and Damascus, and these figures are probably so inaccurate that it would be useless to report them. Furthermore, they would give no proper idea at all of the actual occurrence of these diseases throughout the country. We have tried to give some idea of the frequency by the use of such terms as 'very common, common, uncommon, rare' etc. In a few instances, where we have made studies on large numbers of patients in our clinics, we have attempted to give percentage figures. This is true in such things as amebiasis, ascariasis, hookworm disease, giardia infections, cestodes, trichuris, echinococcus in sheep and cattle, etc.

At the end of your survey form there are three questions. In answer to the first, we believe that a thorough survey of tropical diseases throughout the world will be of definite value to us. We mean to imply by this that from our standpoint the most important part of the survey will be a careful local survey here. A world wide survey can certainly be of no real value unless the local surveys are very carefully and thoroughly done so that the report will give some idea of accuracy. Reports such as we have to present here, based simply on presence or absence, without any basis on vital statistics, certainly are very inaccurate. We have no idea here of the disease incidence in some of the rural districts.

In answer to the second question, we believe that a careful local survey, requiring several years for completion, would be of very real value in the field of public health in this country.

In answer to the third question, we believe that a careful survey will reveal certain types of so-called tropical diseases to be far more wide-spread than our present day information implies. We feel that a survey of this type based on careful, accurate, local surveys might help to awaken more wide-spread interest in some of these problems.

I am using the term 'we' throughout this letter in order to indicate the combined opinions of Dr. Dennis and Dr. Berberian with my own. If we can be of further service, please feel free to write. Nothing would please us more than to be able to help conduct a careful local survey, providing we had the means at our disposal to undertake such a study."

Very sincerely yours,
(Signed)
Edward L. Turner
Professor of Internal Medicine,
Chairman of the Department.

BELGIAN CONGO

From Dr. René Mouchet we received the following report concerning health conditions in the Belgian Congo:

Explicative Note

"In most instances it is practically impossible to give approximate numbers of cases for the diseases. The annual reports give all information recorded by the Government's medical men. Other practitioners are working in the Colony: they are either appointed by industrial companies, either belonging to Christian Missions, or (very few) private.

Unluckily several of them do not send reports to the Direction de l'Hygiene.

It must be also kept in mind that the Belgian Congo is immense. Railways, waterways or roads do not lead everywhere. In spite of the fact that the medical occupation is more dense than in most tropical colonies, several zones are practically not supervised medically.

Malaria. The disease is everywhere and was undoubtedly present before the arrival of the Europeans. From different surveys on native children about their spleen and plasmodium index, one can practically say that every native has certainly suffered from malaria. The most common parasite is the tropical tertian: but tertian and even quartan are seen.

The most common and most important vector is *Anopheles costalis* (Gambiae). Follow in order of importance *A. funestus* and *A. Marshalli var. Moucheti.* Several other anophelines have been found in the Colony but do not seem to have any importance in the malarial problem.

Black water fever. Every medical man in this country admits the relation of this disease to malaria. The increase of comfort, and on regular quinine taken as prophylactic has considerably reduced its prevalence.

A long time ago, the disease was said to be seen only in Europeans. This is no longer true. Since some years native cases are recorded. But they nearly always concern natives coming from a relatively malaria free country to another place where the endemic is more grave.

Relapsing fever. The only type we have to deal with in the Belgian Congo is the Sp. Duttoni. The disease seems to have come from the South and follows the distribution of Ornithodorus Moubata. This pest is known in Banane, where a few cases of tick fever have always been recorded. Several years ago, a village was found infected near Kisantu (Thysville). After the destruction of the village by the fire (the measure was advised to the natives by a missionary and the advice followed) the tick seemed to have disappeared.

A few ticks were also found (and one case of fever) in the native town of Léopoldville.

In the Kasai, the tick penetrated a few workers camps of the Forminiere (diamond exploitation). Those camps were situated by the Angola Border. The company did not hesitate to burn the infected camps. So far no more ticks have been seen.

In the Katanga the presence of the tick and of the disease is known for a long time. The tick fever has been one of the great drawbacks of the copper industry in this region. Not that the mortality was high but the loss of labour by disease was considerable.

Since the construction of tick-free lodgings for the native labourers the disease has disappeared. The characteristic of those lodgings are concrete floors, giving no shelter to the insect.

But the tick still persists in the native villages. The local native has a certain degree of immunity (the relapses are rarer and less grave) but any native coming from a free zone makes a typical infection.

From the Katanga, the tick has pushed up North and reached the Maniema and the Kivu.

It is remarkable that it goes round the tropical forest. In these dense and damp forest, the tick does not seem to find favorable conditions for establishment.

Yellow fever. In 1917 cases were described in Matadi. From the evolution of the epidemic one may have some doubts as to the exactitude of the diagnosis.

But from December 1927 to February 1928 an epidemic broke out in Matadi and Boma; both Europeans and natives were affected. The report on this epidemic has been published in the Office International d'Hygiene Publique.

The vector *Aedes aegypti* is everywhere in the Colony. Yet no case, even suspicious, has ever been detected.

An inquiry on the endemicity of the disease is actually conducted with the collaboration of the Rockefeller's Foundation in Lagos. Specimens of native bloods have been collected all over the Colony. The results are not yet known.

Dengue. One may find in the reports that a few cases are annually reported of dengue, red-fever and similar diseases. Yet those diagnoses cannot be accepted without reserves. The fact that never an epidemic outbreak of dengue was seen, gives motive to doubt.

Plague. The harbours of the Congo have always been free of plague. An endemic zone exists in the Blukwa region near the Albert Lake. This seems to be in correlation with the plague endemic known since a long time in Uganda. The rodent vector is the same.

This area seems to get slowly rid of the disease. An extensive fight against rats is carried on; the chief measure utilized being premiums paid to the natives for killed rats.

Sleeping sickness. It is spread nearly all over the Colony; apart from the parts being over 4,000 feet of altitude, very few regions are free, yet in some parts in spite of the existence of the vector, the infection is very low: this must be attributed to the scanty development of trade.

The vector is *Glossina palpalis.* Other glossinas are existing but the *Tr. Rhodesiense* has never been found here.

A map adjoined will show the intensity of sleeping sickness in the colony; the different colorings show the annual incidence of the disease on all the recorded population.

The sleeping sickness is the greatest problem which the medical service has to tackle here. It is the reason why some other diseases like leprosy are not looked after as perhaps they ought to be

Syphilis. Exists everywhere but with very different intensity. The disease has undoubtedly followed the trade, Arab or European. According to its importance on demography, treatment is intensively pursued in natives. In several regions compulsory treatment is legally imposed.

Yaws. Is one of the great plagues afflicting the natives. Seems to have always existed. In several regions practically every native had it in his youth.

Mass treatment seems to have greatly diminished the incidence in zones where its application was possible.

Most of the medical men in this country consider gangosa, juxta articular nodules, etc., as being tertiary yaws.

Small pox. Has always existed in the country: the natives can remember old and serious epidemics. The extension of jennerian vaccination has considerably diminished the human losses. Also for some years most if not all cases seems to be variola minor and not very virulent.

Amoebiasis. Has also always existed. Seems in regression. This appears to be the results of use of new drugs: emetine, stovarsol and yatren.

Typhoid and paratyphoid fevers. The first cases were found in 1913 in Elisabethville following the arrival of the rail from South. Since the disease has spread all along communication ways.

Vaccination has reduced it considerably and now the disease appears more and more rarely in the statistics.

Intestinal worms. Very frequent amongst natives. The infection mostly found is due to *Necator americanus* (less frequently *Ankylostoma duodenale*). Everywhere one must reckon over 50 per cent of natives infected: the percentage is often higher. But the disease is always of a mild type: rare are the mass infections. It seems due to the absence of specific infective places, the habits of our natives being to defecate everywhere in the bush and plantations without keeping a special place for that purpose.

One finds also frequently ascaris, trichocephalus, anguillulae, etc.

Bilharziosis. Is found in several areas. The type is always intestinal save a few cases coming from Natal. They seem to have provoked a few local cases in Katanga. The mollusca: *pullinus, planorbis* and *physopsis* have been found in different small streams.

Filariasis. F. loa-loa, F. volvulus and *F. perstans* exist in the Belgian Congo. They seem to be more frequent in certain zones. Loa-loa is especially prevalent in the Mayumbe, where several Europeans are infected, and chrysops are plentiful.

The volvulus is especially remarked in Léopoldville and Uele; there the simulium damnosum is abundant. The filaria itch is known.

In the Upper Sankuru in the Pania Mutumbo region a certain number of cases of blindness were discovered due to *Filaria caecutiens.*

Juxta articular nodules. Also seen all over the Colony: the Upper Uele in the Aru zone is especially infected. Practically all the doctors here are convinced that those nodules are tertiary yaws.

Elephantiasis. Follows the distribution of *Filaria volvulus* to which it seems related.

Taenia. Saginata is common where cattle exist in the east of the Colony; rare anywhere else where the native relies for his albumins on fish or smoked imported meat.

Goundou. Very rare; a few cases have been described during the last 25 years.

Myiasis. One occasionally finds maggots in infected sores. Some rare cases of intestinal myiasis have been found due to *Chrysomya chloropyga, chrysomya putoria* and *Apiochoeta scalaris.*

Keloids. The native is very apt to keloids; one finds sometimes enormous ones following a wound, a burn and even sometimes vaccination. This peculiarity was well known by the natives; they utilized it for tattooing. This habit of special skin carving by tribe is gradually disappearing

Phagedenic ulcer. Very frequent in the Colony and especially in the muddy places. This disease has caused a great loss of labour; not by death but by the obligatory rest necessary for treatment and sometimes by maiming the afflicted people.

The disease is getting rarer in the labor camps where inspection of legs is regularly done to attend to small sores. But it remains frequent in certain villages.

Beri beri. Without being very prevalent, one can find it everywhere in small groups of cases especially among laborers and prisoners. The issue of correct food, is generally sufficient to settle the question.

One has remarked that very often the natives coming for work are under fed and in a state of deficiency incipience. That has been the reason for preparation camps for recruits.

Scurvy. Has only been seen in the Katanga in the early days of mining. Has since disappeared from our statistics.

Under feeding. Is rather general in the Congo as it is in all equatorial colonies in Africa. Mostly due to lack of foresight of the natives who rarely cultivate ground enough for an average crop sufficient to feed them correctly

Also, animal albumins are rare; bar the cattle countries, they must rely on hunting and fishing. All over the country the only people who can get an average ration of albumin are the laborers; the law obliges the employers to issue it regularly.

Scarlet fever. Unknown here.

Diphtheria. Rare cases have been discovered in Elisabethville among white children. The origin is obscure. No case ever been detected in natives.

Measles, chicken pox, whooping cough. Local epidemics neither grave nor much extended.

Cerebrospinal meningitis. Has also given epidemics especially in the Katanga and in Ituri. The lethality is often great.

The results of vaccination are much discussed; general opinion is that hygiene of lodging is more useful.

Infantile paralysis. An epidemic occurred in the Lower Congo 10 years ago. A report on it has been presented by Dr. Rodhain at the Medical Congress at St. Paul (Angola in 1922).

Since then the disease is no longer found.

Nerve syphilis. Is certainly rarer among natives than it is in Europeans yet it is not unknown; more one an examines and follows correctly patients in hospitals the more cases one sees.

Influenza. The Congo was not spared by the great epidemic which went round the world in 1918. The losses were very large. Since then one sees every year some relapses but far from the importance and graveness of the 1918 cases.

Pnemonia. Rare in Europeans, it is one of the gravest diseases of the natives; it is the cause of most of the deaths in the labor camps.

Tuberculosis. Seems to be on the increase; in the finding of more cases every year one must bear in mind that the detection is also more and more effective.

Active foci exist in all the big centers; from there it scatters into the interior. Yet in the villages it does not spread as much as could be expected. Probably the kind of life of the natives, mostly open air, aids in the controlling of the contagion, as it has been pointed by the Medical Commission which studies phthisis in South Africa.

Trachoma. Few sporadic cases have been occasionally found in the Colony. Recently an endemic zone has been found in the Katanga on the left bank of the Luapula River, on the Rhodesian border.

Weil's disease. A small epidemic has been described recently in Stanleyville. But the serological proofs or the finding of the spirochaete is still missing.

Rabies. Sporadic cases in dogs or man have been detected.

Goiter. Some regions are endemic; they are some small parts of the Katanga and a rather wide area between the Congo and the Ubangi."

CHINA

Dr. J. Heng Liu, Director of the National Health Administration and of the Central Field Health Station in China, has sent us the following notes under the title indicated below:

Some Phases of Public Health Work in China

By J. Heng Liu, M.D., Director of the National Health Administration and of the Central Field Health Station

"'It is now widely appreciated that health is a vital factor in every phase of life—in the home, the school, the office, the factory and on the farm. It is the greatest asset of the individual and the nation. The happiness and prosperity of a people are largely dependent upon mental and physical vigor. The efforts to make knowledge regarding the conservation and promotion of health widely effective in the population, and to train physicians, nurses, dentists, public health officers, laboratory technicians, and other personnel required in a satisfactory program of medical care are essential features of modern community life.'

The above quotation is taken from the Final Report of the Commission on Medical Education of the United States of America. It clearly states the responsibility of any government health service and aims it should attain. The national government, since its establishment in Nanking five years ago, has taken the preliminary steps in the right direction. It is definitely conscious of the fact that without mental and physical vigor the people cannot have happiness and prosperity.

Even without accurate statistics it is definitely known that the morbidity and mortality rates in China are excessive. At the same time facilities for checking and fighting diseases (preventive and curative medical services) are altogether too few. The number of hospitals, clinics, health stations, doctors, dentists, nurses, pharmacists, and midwives, etc. are almost negligible in proportion to the population and the extent of service necessary, so that whatever health work is done in the immediate future must be the most essential and elementary unless the area covered is a very minute one. Other utilities and facilities which are considered essential for health work such as waterworks, sewage systems, etc., are practically non-existent except in a few of the large cities.

For these reasons, the Central Government has found it necessary to give certain problems in public health precedence over the others in the past few years. Particular stress has been placed by the National Health Administration (Weishengshu) and Central Field Health Station on the following problems:

1. Maternity and infant welfare

In view of the excessive maternal and infant mortalities, special stress has been laid on the maternity and infant welfare work since the inauguration of the nation-wide public health program after the founding of the Ministry of Health in 1928. A 'Five Year Program' (1929–34) on Maternity and Child Health work was set up early in 1929. In this program special emphasis was laid on the training of personnel by the establishment of 'National Midwifery Schools.' A National Midwifery Board was organized in 1929 under the joint auspices of the Ministry of Education and the Ministry of Health whose duty it is to see that this program is put into effect.

The first National Midwifery School was established in Peiping in October 1929 with Dr. Marion Yang as the director. Four different courses have been offered by the school, namely:

(a) Two-year course for the training of 'quality-type' midwives for both urban and rural maternity and infant welfare services. Graduates from senior high schools and those with equal standing are qualified for admission.
(b) Six-month course for the supplementary training for new graduates from the provincial midwifery schools.
(c) Six-month course for graduate nurses for rural health work.
(d) A regular six-month course for the production of 'quantity-type' midwives to meet the immediate demands.

At present the school has 79 graduates, all of whom are being employed in both governmental as well as private institutions.

In addition to the above, two other courses are being conducted in coöperation with the Child Health Station in Peiping:

(a) Refresher course for practising midwives who graduated from private midwifery schools which were unable to provide sufficient theoretical or clinical instruction.
(b) 'Improvement course' for the training of old-type midwives in 'aseptic technique of delivery.' This course serves as an emergency step in the attempt to reduce immediately the incidence of tetanus neonatorium and puerperal infection.

According to the plan, in addition to its educational responsibilities, every national midwifery school should coöperate with the local government in the registration, birth and death registration, and provision of a minimum child health program. Thus a Child Health Station was established in Peiping in 1929 which, as a municipal health organization, coöperates with the Peiping First National Midwifery School. Its two main purposes are to set up a minimum standard maternity and child health program and to provide additional teaching facilities for the First National Midwifery School.

This station is now entrusted with the following six responsibilities:

(a) Mothercraft—a training course for mothers on home economics, home hygiene, and care of the new born and infant.
(b) Statistics of births and deaths.
(c) Investigation and medical problems, such as the nutrition of the infant and preschool child, infant mortality and its causes, and the promotion of mother's health by regulating the number of children.
(d) Publicity work for parents.
(e) Health consultation—for mothers and for children under five years.
(f) Registration and supervision of midwives.

At present there are 286 old-type midwives and 50 modern midwives registered and under strict supervision of the station.

A second National Midwifery School came into existence recently (September, 1933) in Nanking in connection with the Central Hospital. The first class of students enrolled in the two-year course is composed of 21 senior middle school graduates. Collaboration has already been arranged with the maternity division of the Nanking Municipal Health Station whereby the service described above for Peiping will be duplicated in the capital.

Besides the above mentioned work on the training of midwives and child health program, there are two urban and three rural maternity and infant welfare projects being carried out at Peiping, Nanking, Tinghsien (Hopei), Kaochiao (Shanghai) and Tangshan (Nanking).

2. School health

School health work occupied a very significant part in the development of general public health work in China during the past five years. A systematic school health program was first started under the Health Station in Peiping in 1925 in four schools with a student population of about 1,500. It consisted of health examination, correction of defects, school sanitation, control of communicable diseases, treatment of minor ailments, proper disposal of serious illness and health education. A complete system of recording was inaugurated and systematic school nursing was provided.

In 1929 the movement spread into Shanghai when certain members of the Peiping School Health Service were transferred to the Shanghai Municipal Health Department. A similar program was introduced but it was on a much larger scale and included nine schools with a student population of about 10,000. One year later the school health service was compelled to extend to 14 schools with about 15,000 students. The work exerted such influence in Shanghai that the health authorities in the foreign settlements began to pay attention to the health of the school children under their jurisdiction in the following year.

In the spring of 1930, the first school health work was started in Nanking in two primary and two middle schools with a student population of 1,500 for demonstration purposes. It was originally carried out under the Nanking Department of Health. The school authorities soon took so much interest in the work that a city wide school health program was started in the fall of 1932 under a special Committee on School Health created under the joint auspices of the National Health Administration, the Municipal Department of Social Welfare and the Nanking Health Station.

3. Communicable disease control

With reference to the control of communicable diseases, special attention has been given to only a few of the most common diseases which constitute the chief causes of excessive mortality in China.

Through the initiation of the National Health Administration and the coöperation of the local health authorities, definite anti-cholera programs have been carried out for the last three years, particularly in Shanghai. Anti-cholera inoculations have been given free of charge and a considerable amount of educational work has been done.

Every year the Government issues orders to the Provincial and Municipal authorities to do mass vaccinations against small-pox. While in some quarters large numbers are being done, the mortality and morbidity figures for this easily preventable disease for

the whole country remain terribly high. The central health authorities are preparing to provide adequate facilities for the training of large numbers of vaccinators, without whom small-pox will always remain a scourge.

The laboratories of bacteriology, parasitology and malariology of the Central Field Health Station have been extremely busy working on some other preventable communicable diseases. In coöperation with the Divisions of Epidemiology and of Medical Relief, field units have repeatedly been sent out to the provinces to investigate and help suppress outbreaks of plague, meningitis, dysentery, diphtheria, malaria, schistosomiasis, etc.

At the National Epidemic Prevention Bureau in Peiping there is sufficient equipment and personnel to manufacture all the vaccines and sera needed in this country, all up to international standards.

The National Quarantine Service, with branches in all the important ports, in addition to helping to prevent the importation of communicable diseases from the outside, renders service in the fumigation and deratization of steamers and supplies information on the movements of epidemic diseases to the International Intelligence Service conducted by the Far Eastern Bureau of the League of Nations at Singapore.

So far no systematic work has been done for the prevention of tuberculosis and leprosy by the central government. The reason for this is purely a financial one. With the limited amount of funds available for public health work, it has to be very careful in spending it for the kind of public health service which would give the most effective results in reducing the excess mortality. Tuberculosis and leprosy are chronic diseases which require tremendous amounts of money and years of time before any definite results can be expected. The experience in the anti-tuberculosis work throughout the world shows very clearly that the reduction of the deaths from this disease is in direct proportion to the improvement of financial conditions of the community, practically irrespective of whatever is done toward its control (according to the present knowledge).

4. Public health education

In addition to the educational work in health matters given to the schools, the Government attempts at all times to educate as far as possible the masses. The preparation of health posters, pamphlets, lantern slides and models has been an important part of the work of the Division of Health Education of the Central Field Health Station. Great demands are being made for these propaganda materials, particularly by institutes of popular education which are coming into existence very rapidly in recent years. During the past two years over 900 wax models, 200,000 posters, and 1,500,000 pamphlets were distributed.

With the collaboration of the Division of Health Education, the College of Education of the National Central University at Nanking is giving a four-year course in the training of health teachers in schools.

5. Rural health

Since over 85 per cent of Chinese population are rural, the protection of the health of the people in the villages constitutes a major problem of public health work in China. Rather scattered efforts in developing rural health have been demonstrated in Tinghsien, Kao-chiao and Tangshan during the past few years. But all of these are still in the period of experimentation and it is a question whether the form of rural health work in any of these three places could be duplicated elsewhere.

In the fall of 1932 a Rural Health Service was organized under the Department of Medical Relief and Social Medicine of the Central Field Health Station. The main functions of the service are:

(a) To attain a feasible health program through practical research in a restricted area; and

(b) To promote its application elsewhere through enlightenment and demonstration.

For the former the health work at Tangshan was launched and for the latter a plan of establishing a hospital in each 'Hsien' with Hsien-wide program of both curative and preventive activities was proposed and passed in the second conference of civil officers in 1932.

The Tangshan Health Station as indicated by its name is situated at Tangshan, a small market town located about 20 miles east of Nanking. At present the demonstration area covers ten villages with a population of 3,036. The activities of the Station consist of medical service (clinics) control of communicable diseases, maternity and infant welfare, school health work, environmental sanitation, health propaganda and vital statistics.

The Hsien-hospital project has so far had a modest start. Taichow and Yencheng are the first two Hsiens in Kiangsu to organize Hsien-hospitals in October 1932 in coöperation with the Central Field Health Station. The Hsien hospital at Taichow has 30 beds and a clinic with a total attendance of 19,072 at the end of June 1933, while that at Yencheng has 20 beds and a clinic with a total attendance of 8,770 for the same period.

Besides curative work the Hsien-hospital project also includes the following activities:

(a) Midwifery work, including the training and supervision of local midwives.
(b) Improvement of sanitation and control of communicable diseases.
(c) Child health protection, including school health work.

A new project is being started in Kiangning Hsien which is the model Hsien for the province of Kiangsu. The time is much too short to draw any conclusion about the project.

In addition to the above, considerable work is being done by the other divisions of the Central Field Health Station, particularly in sanitation and sanitary engineering, manufacture of medicinal supplies with local materials, industrial hygiene, etc. The Central Hospital and Central School of Nursing complete the present health unit of the National Government. Under this unit, practical courses of instruction are being given for the training of doctors, public health administrators, public health nurses, midwives, pharmacists, sanitary engineers and inspectors, and laboratory technicians. It is hoped in the near future to make the unit complete by the establishment of an Experimental Medical School and Schools of Dentistry, Pharmacy and Veterinary Medicine."

PANAMA

From one of Dr. Herbert C. Clark's recent publications (with Lawrence H. Dunn) on Chagas' disease in Panama we quote the following summary:

"1. Five cases of Chagas' disease have been found in children in Panama during the past ten months.

2. Rabbits, guinea pigs and white rats were inoculated and became positive with heavy infections from one of these human cases. This strain was successfully transferred to a monkey, guinea pigs, white rats, white mice and bats.

3. A young dog naturally infected with trypanosomes that appear to be identical with those found in the human cases was discovered at the home of the first human case.

4. Guinea pigs, white rats and white mice were infected through inoculation of blood from a naturally infected dog. This strain was carried on to other guinea pigs and a bat.

5. Twenty-eight armadillos, *Dasypus novemcinctus fenestratus* Peters, were examined and six, or 21.4 per cent, were found to be infected with a trypanosome that we believe to be *T. cruzi*.

6. Eighty-one opossums, *Didelphis marsupialis etensis* Allen, were examined and twenty or 24.6 per cent were found infected with what was apparently *T. cruzi*.

7. A squirrel, kept as a pet in the house where two cases of Chagas' disease lived, proved to be infected with a trypanosome identical with *T. cruzi*. This was the second occasion in which a pet, in the same household with one of the five human cases, was found positive for trypanosomes.

8. Bats infected with a trypanosome believed to be *T. cruzi* were found in Panama. A total of 161 of these flying mammals was examined and 30, or 18.6 per cent, proved to be infected. Those found positive represented 5 species.

9. The trypanosome of the bats was readily transmitted to dogs, guinea pigs, white rats and white mice.

10. Ninety specimens of *Triatoma geniculata* were collected in the Chilibrillo Caves. This completes a record of infected Triatoma, infected bats and an infected opossum found in the same chamber of these caves.

11. The feces of 55.5 per cent of the bugs proved to contain trypanosomes.

12. Twenty-six guinea pigs were each inoculated with a macerated *Triatoma* and 21, or 80.8 per cent, became positive.

13. Seven guinea pigs became infected through *Triatoma Geniculata* feeding upon them. It was not determined whether these infections were caused through the bites of the bugs or through infection with their feces.

14. The incubation period of the experimentally infected animals varied from three to twenty-eight days.

15. The degree of the infection in the experimentally infected animals varied considerably. One guinea pig had a peak peripheral infection of more than 1600 trypanosomes in a thick blood film.

16. The persistence of infectivity has extended in 1 guinea pig for more than two hundred and seventy-eight days.
17. Although all our laboratory animals could be infected with this trypanosome the guinea pig seemed to be the most satisfactory for experimental purposes. The adult animals proved so susceptible to infection that no very young ones were used.
18. The trypanosomes soon disappear from the peripheral blood of the human cases. Infected animals have lived for a considerable number of days since the beginning of their infection and in some of them trypanosomes have been found for many days.
19. Leishmania forms of the trypanosome have been found in the hearts of some animals but others fail to show them.
20. Our experience indicates that this trypanosome does not possess a high degree of virulence. However, we cannot read what the future holds in store in the way of remote serious sequelae."—*Am. J. Trop. Med.* **12**: 49–77 (1932).

BRAZIL

Through the courtesy of Dr. A. A. Moll of the Pan-American Sanitary Bureau in Washington, D. C. we have obtained the following information concerning health conditions in Brazil which was taken from the files of this Bureau:

Malaria

"Prevails endemically in all states, but some localities, because of climatological conditions (altitude, etc.), are free from the disease. While in some areas the disease has shown some decrease because of anti-mosquito and other sanitary work done, it has also spread to other places with the improvement of conditions. An interesting epidemiological fact is the increase in the States of Natal and Rio Grande do Norte following the recent introduction, apparently from Africa by air mail, of a new carrier, namely *Anopheles costalis*.

The presence of the different forms varies a great deal, usually *Pl. vivax* most common, *Pl. falciparum* next, and *Pl. malariae* last, this being almost absent in some places.

The two most important carriers are *A. argyritarsis* (predominating in many regions) and *A. tarsimaculatus* and *A. albitarsis* and of late around Natal, *A. costalis*.

Data on the prevalence of the disease are very incomplete and partial; Federal District, especially in rural sections, over 1,000 cases a year; death rate has decreased from 140 in 1903 to around 20 per 100,000 in the last years. São Paulo (state), about 10 per 100,000; São Paulo (city), rate has decreased from 94.7 in 1895–99 to about 2 or 3 per 100,000. Pernambuco (city of Recife), 20.2 per 100,000; affects over 80 per cent of inhabitants in some localities. Pará (endemic), a 20 per cent decrease in 1932 having been observed in Belem. Sergipe, thousands of cases. Espirito Santo, disease occupies first place in morbidity. Minas Geraes, disease endemic, with epidemic recurrences in some localities. States of Alagôas, Parahybá (9500 cases treated in public dispensaries in 1928); Rio de Janeiro (state), thousands of cases and many deaths. Amazonas (city of Manáos, 1895–1929), 6192 acute cases and 10,486 chronic cases reported. Matto Grosso, only yields to hookworm disease in importance, especially along tributary streams of Amazon and Paraguay rivers. Bahia (city of Salvador), second cause of death for 20 years, death rate being about 150 per 100,000 or more. Rio Grande do Sul, probably last state invaded (about 1910), since immigrants introduced the disease at that time; coast region infected and cases reported average 4 a year in Porto Alegre, as the disease has become endemic in various points. Parahyba, not less than 500,000 inhabitants considered infected. Natal, over 10,000 cases in 1931 (mostly *Pl. falciparum* form). Rio Grande do Norte, very serious epidemic with high fatality in 1930 and 1931, following introduction of *A. costalis* from Natal.

Considered important public health problem, only yielding to leprosy, hookworm disease or tuberculosis in some states. In other states, as Pernambuco, the problem is considered comparatively small and limited to the sea coast zone.

Piroplasmosis

A number of forms described in animals. *Piroplasma canis, P. bigeminum, Nuttallia equi, Babesia argentina* found in several parts of Brazil.

American Leishmaniasis

Disease present in many parts of country, including the states of Alagôas, Amazonas, Bahia, Espirito Santo, Parahyba, Pernambuco and São Paulo and the Federal District

where foci were found in 1919 and 1921). In Bahia, as the city of Salvador extends, cases have become more common in interior; in the S. W. parts of the state the disease is endemic and the number of cases is enormous. In 1922 60 cases were studied in a Rio hospital. In Pernambuco (mostly in the city of Recife) 134 cases reported in 1932 and 52 in 1933.

Brazilian scientists have contributed much of our knowledge of the disease.

The disease in Brazil is attributed to a special type of the parasite, *Leishmania braziliensis*.

A number of vectors are under suspicion, including *Phlebotomus intermedius*, common in practically all Brazil.

Yellow Fever

First authentic date of appearance of the disease is 1685 at Pernambuco. This incidentally is the first description of the condition by a physician, Ferreyra da Rosa, whose book was published in 1694. From Pernambuco the disease spread afterwards to Bahia and elsewhere. At the time the disease was supposed to have been imported from St. Thomé Island in Africa, or by a ship from Siam. While sporadic cases evidentally occurred, as shown by the medical literature, there was little subsequent mention of the disease until 1849 when an epidemic, which started in Bahia, spread to Rio, causing thousands of deaths.

In the Federal District (Rio de Janeiro) over 25,000 deaths from 1889 to 1903; 1906, 42; 1907, 39; 1908–28, none; 1928, 125 cases with 73 deaths; 1929, 738 cases with 400 deaths. None since then. In Bahia, the chief endemic center until recently, 179 cases occurred in 1926, when the disease spread to other states, as Minas Geraes, Pernambuco, Parahyba, Rio Grande do Norte, Sergipe, Maranhão and Piauhy and finally Rio. In Pará the disease was endemic from 1850 to 1912; sporadic cases in 1929–31. In recent years, cases of the disease have been reported as follows: *1926:* (in addition to Bahia) Rio Grande do Norte, 50 cases; Minas Geraes, 12 cases and 8 deaths; Parahyba, 17 deaths; *1927:* Rio Grande do Norte and Bahia, 13 cases and 3 deaths; *1928:* Bahia, 9 cases; Federal District: *1929:* in addition to Federal District, states of Amazonas, 1 death; Bahia, 3 deaths; Minas Geraes, 3 deaths; Pará, 6 deaths; Pernambuco, 4 deaths; Rio de Janeiro, 61 deaths; Sergipe, 1 death; *1930:* Ceará, 1 death; Pará, 3 cases; Rio de Janeiro, 19 cases and 9 deaths; *1931:* Bahia, 1 death (laboratory infection); Ceará, 5 cases and 12 deaths; Pará, 3 cases and 3 deaths; Rio de Janeiro, 15 cases and 6 deaths; *1932:* 42 sporadic cases in Bahia, Ceará, Espirito Santo, Parahyba, Pernambuco, Piauhy and Rio Grande do Norte; *1933:* about 20 sporadic cases in Amazonas, Ceará, Minas Geraes, Pernambuco and Acre Territory. From May, 1930 to June, 1933, 75 cases were diagnosed in the Yellow Fever Laboratory at Bahia on autopsy material from Alagôas, Ceará (22 cases), Pará, Parahyba, Pernambuco (22 cases), Piauhy and Rio Grande do Norte. At Cambucy, State of Rio de Janeiro, an epidemic of so-called influenza (250 cases) in 1930 was later identified retrospectively as most probably yellow fever.

Existing vectors actually or experimentally demonstrated; *Aedes ægypti*, *A. scapularia*, *A. fluviatilis*,*A.taenirrynchus*, *Psophora ferox* and *Culex fatigans*. Other species have proved infective when inoculated in emulsion.

Plague

Introduced in the port of Santos in 1899, spreading in 1900 to São Paulo (city), Rio (city) and thence in 1900–1903, to other states as Bahia, Ceará, Espirito Santo, Maranhao, Pará, Paraná, Rio Grande do Norte, Sergipe. Since then it has been endemic or latent in rats and other rodents with occasional local outbreaks. From 1900 to 1906, 3359 cases with 1701 deaths and from 1906 to 1926, 564 cases with 117 deaths were reported in the country. Federal District (Rio), 1903–07, 967 deaths; 1908–12, 117 deaths; 1913–32, 31 deaths (no cases or deaths since 1928). Ceará, 1903–22, 157 deaths; 1933 cases. Pernambuco, 1902, 1260 cases; disease declining since 1916; 1932, 2 cases; 1933, 6 cases; city of Recife, 1903–22, 514 cases with 473 deaths; no cases during 1928–33; 1931, sporadic cases in the interior of the state, with an outbreak of 81 cases at Triumpho; 1932, sporadic cases in the interior of the state; 1933, 9 cases in the interior. Parahyba, 1912–26, 154 cases with 140 deaths. Rio de Janeiro (state), 1906–1927, 114 cases with 61 deaths; Nichteroy, 1928, 1 case; Rio Grande do Sul 1903–26, 689 cases with 393 deaths; city of Porto Alegre, 392 cases and 254 deaths. Pará, original epidemic lasted from 1903–06, a small outbreak in 1912; at Belem, 1903–22, 238 cases and 151 deaths. São Paulo (state), 1899–1926, 178 deaths; São Paulo (city), 1899–1926, 75 deaths; 1928, 8 cases; 1929, 1 case. Bahia, since 1904–26, there have been sporadic cases each year; 1928, 69 cases; 1931, sporadic cases, interior. Figures for other states are lacking. In Minas Geraes, an outbreak at Pelotas in 1921 caused 210 cases with 178 deaths.

As to types of the disease, about 93.3 per cent of the cases are bubonic, 4.8 per cent septicemic and 2 per cent pneumonic.

The usual vectors of the disease are present in practically all Brazil.

Plague still constitutes a serious public health problem, especially in the Northeastern part of the country.

Cholera

First appearance in 1855, remaining present until 1858. Reappeared in 1862, 1866, 1867–68, 1893, 1894 and 1895. All the outbreaks were relatively mild. The worst epidemic was that occurring in 1867, during the war with Paraguay, among the soldiers.

Typhus Fever

Data as to the prevalence of typhus fever in Brazil are very scarce. São Paulo (city), 1905, 2 cases; 1906, 6 cases; 1913, 1 case. In 1929–32, 70 cases were reported which were later identified both at São Paulo and in Washington, D. C. (National Institute of Health) with Rocky Mountain Spotted fever.

Vector still unknown. Ticks (*Amblyomma cajennense*), *Liponissus bacoti*, etc., suspected.

American Trypanosomiasis (Chagas' Disease)

Discovered in Brazil by Chagas in 1909 in Northern Minas. Affects almost exclusively certain upland tropical areas. States of Minas Geraes, disease common in central, western parts. Among specimens sent to the laboratory in Bello Horizonte in 1930, 63 proved positive.

Vectors incriminated: *Triatoma megista; Tr. geniculata; Tr. infestans; Tr. Sordida; Tr. Vitticeps; Tatus Novecanctus; Dasipus sexicinctus; D. unicinctus.*

Undulant Fever

Presence of disease discovered only recently in Brazil.

1st case reported (imported) in Porto Alegre in 1913; 2nd case (autochthonous) 1933. Pará, 1 case, 1926. São Paulo, 1st autochthonous case, 1932, 2nd 1933.

Infectious abortion is common in cattle in southern part of country; in São Paulo, 10 bovines tested and reacted positively.

Leprosy

Disease apparently arrived with early white settlers. Number of lepers estimated at 40,000 (97 per 100,000) or more. States most affected, Pará (4,000 patients), Minas Geraes (over 11,000) and São Paulo (10,000 or more, 3,000 isolated in leprosaria). Approximate figures for other states: Alagôas, 100; Acre Territory, 700; Amazonas, 3,000; Bahia, 300; Ceará, 1,000; Espirito Santo, 400; Maranhão, 1500; Paraná, 700; Pernambuco, 1000; Parahyba, 200; Piauhy, 200; Rio de Janeiro (state), 300; Rio Grande do Norte, 200; Rio Grande do Sul, 1000; Sergipe, 100; Federal District (Rio), 2000.

Leprosy is admittedly the most pressing public health problem in Brazil.

The two chief foci are in the North (Amazonas, Pará, Ceará and Maranhão) and in the South (Minas Geraes and São Paulo).

Syphilis

Disease spread throughout the country, although some places in the interior (Indian tribes) seem still untouched by it.

Federal District (Rio): 12–14 per cent of population considered infected; death rate 43.6 per 100,000; 666 deaths in 1932 and 621 in 1931. São Paulo (state), death rate in 1928, 19.2 per 100,000; São Paulo (city), 1929, 22.5; 1928, 25.6 compared to 9.1 in 1895–99; Santos, 1929, 63.1; 1928, 58.6; Bahia (city of Salvador), about 220 deaths reported annually. Pernambuco, 13,160 patients treated in public dispensaries in 11 cities in 1933. Parahyba, 4800 patients treated by authorities in 1928. Statistics about the disease are mostly lacking and those available are recognizedly far below the reality, but the importance of the problem everywhere is manifest.

Yaws

Spread practically all over the country.

In the states of Parahyba and Ceará 30,000 cases are estimated to a population of 1,000,000 to 1,200,000. In Parahyba 3400 patients were treated in public dispensaries

in 1928. In addition to the above, the disease has been mentioned as an important health problem in the states of Alagôas, Amazonas and Espirito Santo. In the state of Pernambuco 141 cases were reported in 1932 and 129 in 1933. Reliable statistics as to the prevalance of the disease are lacking.

The disease is endemic and admittedly a very acute problem in some of the richest agricultural zones.

Lymphogranuloma Inguinale (Granuloma Inguinale)

The disease seems to be very old in some parts (north) of Brazil where at first it was described under the name of climatic bubo. Two Brazilians, Aragao and Vianna, isolated the germ for the first time in 1912 and introduced tartar emetic in the treatment. In Ceará a case was reported in 1913 in an American as climatic bubo, others in 1925 and afterwards; cases have been reported from many parts of the country including Bahia, Federal District (Rio), 1912, 8 cases; 1923; 1924; 1929–30, 60 cases observed in a skin clinic; 1933, 17 cases reported to the Society of Medicine and Surgery; São Paulo, 16 cases reported in 1930; Sergipe.

Smallpox

Disease introduced in 1563. Epidemics developed periodically since then. Of late many cases have been of the mild type called alastrim. Statistics are available for the Federal District (Rio) only, beginning with the 1865 epidemic which caused over 1000 deaths; other epidemics followed in 1872–73, 1878, 1883, 1887, 1891, 1895, 1899, 1901, 1904 and 1908 with a total of about 28,000 deaths. In 1908 there were in Rio over 9000 deaths and in 1909, 355; 1910–12, 21 deaths; 1913, 118; 1914, 1230; 1915–24, 1633; 1925, 359; 1926, 2187; 1927, 69; 1928–33, 2; and 1934, outbreak of alastrim. São Paulo (city) death rate per 100,000 has decreased from 34 in 1895–99 to 0.7 in 1925–29. Last reported deaths (32) occurred in 1926. Bahia, 1919, 1776 cases; 1925–27, 100 cases, mostly from other parts of the country. Pará, various epidemics since 1721; began subsiding in 1906; last cases reported in 1926, 1929, 1930. Pernambuco (State), 1932, 93 cases; 1933, 112 cases; city of Recife, 1932, 12 cases. Ceará, 1878 epidemic affecting 75 per cent of inhabitants and killing 25,000 (25 per cent of population); smaller epidemics subsequently, including one in 1903; 1929–32, sporadic cases; epidemic of alastrim in 1933. Minas Geraes, disease present in interior of state; city of Bello Horizonte, 1931, 114 cases of alastrim. Rio Grande do Sul, city of Porto Alegre, 1933, 28 cases (mostly alastrim). While accurate statistics are unavailable, disease prevails in practically all parts of Brazil, especially in the interior.

Alastrim (mild smallpox or variola minor) was imported into Bahia from Africa and thence spread to neighboring states, especially to interior of Minas Geraes, São Paulo and other states in the south, where it has prevailed to a greater or lesser extent ever since. The northern part of Brazil remained free until 1931, when it was introduced by the movement of troops during the revolution. Several of the northeastern states were attacked and outbreaks with hundreds of cases occurred in the states of Ceará, Maranhão (2500 cases), Parahyba and Rio Grande do Norte (over 200 cases in the port of Macau). The disease continues endemic in the northern part of Brazil as well as in the south, especially outside of the larger cities.

Amebic and Bacillary Dysentery

In so far as determined, amebic dysentery is not as important in most parts of Brazil as the bacillary form, which often assumes epidemic proportions, even if the former is credited with a higher death rate. In most health reports, no attempt is made to differentiate, the cases being reported in a group as "dysenteries."

Federal District (Rio): dysentery death rate per 100,000, 1903–07, 8.64; 1913–17, 16.2; 1923–27, 20.1; 1928–32, 12.2; 1932, 159 deaths reported (30 amebic, 41 bacillary, 88 unspecified). São Paulo: dysentery death rate per 100,000 1895–99, 28.8; 1905–09, 14.95; 1915–19, 8.38; 1925–29, 27.6; over 1000 cases each year. In 20 important Brazilian cities in 1929, the dysentery death rate varied from 9.7 in Salvador (Bahia) to 106.4 in Aracaju (Sergipe) and 107.5 in Fortaleza (Ceará). In 13 Brazilian cities it averaged 28.4 per 100,000. In the city of Bello Horizonte (Minas Geraes) out of 47 cases treated in 1931, 45 were bacillary and 2 amebic. The Shiga variety prevails. Pernambuco, cases of "dysenteries" reported in 1932 numbered 1653 (mostly in the capital) and 4,116 in 1933. In Recife the death rate has decreased from 167 per 100,000 in 1910 to 24.2 in 1931. An epidemic in the city of Victoria in 1933 involved 769 cases. The Shiga-Kruse type is the most common in Pernambuco as elsewhere. *1932:* Aracaju (Sergipe), 33 amebic deaths

reported, 1 bacillary and 2 not specified; Belém, 14, 11 and 43; Cajazeiras (Parahyba), 6, 2, 0; Corytiba (Paraná), 11, 24, 45; João Pessao (Parahyba), 61, 5, 33; Florianopolis (Santa Catharina), 1, 2, 2; Natal (Rio Grande do Norte), 67, 1, 6; Paranaguá (Paraná), 25, 22, 6; Recife, 17, 15, 2; São Francisco do Sul (Santa Catharina), 1, 0, 0; São Luiz (Maranhão), 1, 1, 17; *1931:* São Luiz, 4, 2, 32; Campina Grande (Parahyba), 1, 0, 3; Aracaju, 28, 1, 0; Itajuba (Minas Geraes), 0, 1, 2; Juiz de Fora (Minas Geraes,) 12, 6, 25; Oliveira (Minas Geraes), 0, 2, 8; Paranaguá (Paraná), 0, 0, 18; São Francisco do Sul, 2, 0, 0; Rio Grande (Rio Grande do Sul), 5, 0, 2; Fortaleza, 111, 0, 0; João Pessao, 36, 7, 68; Recife, 80, 13, 8; Maceis (Alagôas), 84, 15, 3; Bello Horizonte, 6, 20, 5; Porto Alegre, 0, 0, 40; Espirito Santo (state), 7, 2, 24; Manáos (Amazonas), 7, 2, 6; *1933:* Federal District (Rio), 36, 41, 88.

The dysenteries are recognized in Brazil as one of the greatest public health problems, their prevalence being a sign of the lack of certain basic sanitary elements.

Typhoid Fever

Prevalent all over Brazil, endemic in many places. In many reports both typhoi and para-typhoid fevers are included together. Federal District (Rio) death rate per 100,000: 1903–07, 10.1; 1913–17, 12.1; 1923–27, 8.1; 1928–32, 6.95; 1933, 5.6. São Paulo (city), 1895–99, 69.9; 1905–09, 23.7; 1915–19, 18.6; 1925–29, 28; 1932, 11.3; 1933, 10.5. In 20 important Brazilian cities in 1929 it varied from 6.1 in Santos to 44.7 in Aracaju. In 13 Brazilian cities the rate was 13.2. State of São Paulo, 1929, 20.95. In Recife the death rate has varied from 5 per 100,000 in 1928 to 11.7 in 1932 and 11 in 1933. Santos, 1933, 5.3. Salvador (Bahia), 1931, 5.3.

This disease or rather group is admittedly one of the most important health problems, its solution involving improvement of water supplies, sanitary conditions, etc.

Para-typhoid Fever

Federal District (Rio), 1931, 92 deaths from typhoid and 18 from para-typhoid; 1932, 81 and 6. In 1931, 32 towns representing 13 different states reported 130 deaths from typhoid fever and 195 from para-typhoid. A study made in Salvador (Bahia) showed in 1926–33, 396 cases of typhoid, 32 of para-typhoid and none of para-typhoid B. Widal tests showed, respectively, 493, 40 and 3.

Ascariasis

Most common of the intestinal parasite infestations. Pará, 99.5 per cent prevalence among 4,900 children under 10. São Paulo (city), 9957 cases treated in a dispensary in a year. Rio Grande do Sul, 1473 cases treated by State Health Department in a year. Parasite prevalent in many other states, as Ceará, Parahyba, etc.

Hookworm Disease

High infestation rates in many parts of Brazil. Pará, 55.2 per cent among 5,500 children under 5. Minas Geraes, 50 per cent of population in rural districts. Paraná, 90 per cent in some areas. Parahyba, 23,000 cases treated by health authorities in 1928. São Paulo (city), 6,600 cases treated in 1 year in a dispensary. Federal District (Rio), 60 deaths in 1931; 47 in 1932. Statistics are unavailable but the seriousness of the problem is recognized including, in addition to the above, such states as Bahia, Ceará, Espirito Santo, etc.

Hookworm disease, with other infestations by intestinal parasites, is recognized as one of the great health problems in Brazil."

STATE OF CALIFORNIA

Dr. Karl F. Meyer, George Williams Hooper Foundation, San Francisco, California, has kindly sent us the following report, addressed to the Wild Life Committee, regarding the plague situation in the State of California:

"To the Wild Life Committee:

The Subcommittee on plague appointed by Professor Kofoid met on September 14, 1934. Present at the conference were Professors C. A. Kofoid, E. R. Hall and K. F. Meyer, University of California; Dr. H. E. Hasseltine, United States Public Health Service; Mr. W. C. Jacobsen, Supervisor, Rodent and Weed Control, California State

Department of Agriculture; and Mr. Ira N. Gabrielsen, United States Biological Survey. The recent development with respect to *selvatic* (wild rodent) *plague* in California were reviewed and discussed.

(1) In 1933 the State Department of Public Health was advised concerning an increased mortality among squirrels in the Lynn Valley near Glenville, Kern County. During July and September 1,083 squirrels were killed by the survey crews in the suspected area but the cause of the mortality was not determined at that time. In March, 1934, the owners of ranches lying in an area of 6 square miles, both in Kern and Tulare Counties, approximately 30 miles north and east of Bakersfield and approximately 16 miles east of Delano, Kern County, noted a great many dead squirrels. An immediate survey by the plague crew established by gross and laboratory examinations the existence of acute septicemic and subacute bubonic plague. In Kern County, during the months of March till June, 5,317 squirrels (4,022 shot; 1,279 dead) were dissected and plague was demonstrated in 118 (2.2 per cent). No infection was recognized in 500 rats trapped in and around Bakersfield. In Tulare County 4,075 (3,148 shot; 927 dead) squirrels were examined and plague lesions with positive cultural findings established in 93 (2.9 per cent). Kangaroo rats (168) that had been poisoned were found to be non-infected. Throughout the area surveyed, the squirrel population was very heavy. As a result of the survey activities which covered approximately 2,421 square miles or 1,528,440 acres, it is believed that the plague infected area lies between the following geographic landmarks:

Beginning 11 miles north of Bakersfield it extends in the north several miles within the Tule River Indian Reservation; on the east inside the United States Forest Reserve approximately 13 miles east of Granite Station spreading towards the west within 2 miles west of Jasmine Station. The territory covers approximately 896 square miles or about 553,440 acres. The Agricultural Commissioners in coöperation with the State Department of Agriculture, the United States Forestry Service and the United States Biological Survey instituted well planned and extensive control measures covering an area of approximately 1,267 square miles. A resurvey made in July has shown that the squirrel population throughout the entire area has been greatly reduced and the menace of public health has for the time being been practically eliminated.

In June, 1934, a 10 year old school boy from Porterville who visited a ranch (10 miles beyond White River in Posy Creek County) on which plague-infected squirrels had been found, contracted bubonic plague. He died from chronic plague meningitis on September 22nd, 1934. This observation leaves no doubt that chronic latent plague may occur in man and thus suggest a number of very important inquiries into the human carrier problem.

The investigators, who have analyzed the outbreak of selvatic plague in this new area, are of the opinion that the infection was spread through the migration of diseased squirrels from the mountain regions to the lowlands and contact with the highly susceptible young squirrel population developed the 1934 epidemic. For many years similar outbreaks of rodent mortality, though not so severe as the one of 1934, have been reported to have occurred in the mountain sections in both Kern and Tulare Counties. The nature of these deaths has never been proven but it is reasonable to suspect selvatic plague. Future surveys in the foothills of the Sierra Nevada and in particular a study of the immunity of the rodents for plague will furnish data to support or refute this interpretation which has been given to the event of 1934.

(2) Representatives of the United States Biological Survey engaged in the distribution of poison on Government Lands in Modoc County observed dying and dead squirrels on ranches north and east of Alturas. A survey made early in June, 1934, proved the existence of plague-infected squirrels in the Joseph Creek District, Fandango Valley and the Fort Bidwell Indian Reservation. In an area of approximately 65,000 acres, 14 new plague foci were located. The examination of 971 Oregon ground squirrels (*Citellus oregonus*) (519 shot, 270 found dead and 182 poisoned) revealed 50 or 5.1 per cent infected with *B. pestis*. One rodent presented lesions of tularemia. One of 6 wood rats (Neotoma ?) presented an acute plague infection. Since the rodents resumed hibernation, further investigations had to be deferred until Spring, 1935. A protective area of about 256,000 acres was outlined and control activities were carried out under a coöperative arrangement between the United States Biological Survey, the United States Forestry Service, the State Department of Agriculture, Modoc County and the land owners. The recognition of an entirely new focus of selvatic plague in the northern-eastern section of California and in a new species of squirrels (*Citellus oregonus*) is decidedly alarming. Inquiries have disclosed the interesting fact that at periodic intervals over many years, epidemics have appeared in the squirrels in Modoc County. A high mortality has also

been noted in the State of Nevada. A bacteriological confirmation of a case of human plague at Lake View, Oregon (May 16, 1934) supports the unconfirmed reports that squirrel plague has existed for some time in the southern part of Oregon. In the past, the epidemic mortality among squirrels was attributed to tularemia and consequently systematic investigation was not instituted. The surveys thus far made failed to indicate the routes which introduced selvatic plague into Modoc County. It is not unlikely that the invasion occurred from the North and is in no way connected with the principal area of squirrel plague south of the San Francisco Bay region (Sacramento) located in the Coast Ranges. In any event, the Modoc focus has apparently no relationship to the Tulare-Kern squirrel epidemic.

The sad experiences with human pneumonic plague at Oakland in 1919 directly traced to infected squirrels and the equally unfortunate occurrence of the same infection at Los Angeles in 1924 dramatically outlines the inherent dangers which linger in the selvatic plague areas. California has the duty to protect its own population and as a matter of fact the rest of the United States from a slow but insidious invasion of wild rodent plague from the West to the East. The observations gathered in Asia and more recently in South Africa amply support the serious concern which the Subcommittee entertains in view of the developments in 1934. Fully cognizant of the grave responsibility and consequences which a spread of selvatic plague may bring to the state and the country at large, it appears imperative to insist that a relentless survey and control campaign be maintained for many years to come. Further, in order to guide these preventive measures, it is paramount that scientific investigations by qualified and properly trained workers in the fields of plague, epidemiology and rodent ecology be encouraged and adequately supported by the State.

With this in mind, the Subcommittee invites the Committee on Wild Life to consider the facts presented and to transmit to the forthcoming Legislature a memorandum which incorporates the following recommendations:

(*a*) The Wild Life Committee endorses the request of the California State Department of Public Health for a biennial budget of $57,215.00 in order to maintain several mobile survey crews equipped to investigate any mortality among wild rodents. The Department will locate and define the areas to be subjected to control measures and will continue to assume the responsibility to establish the extent of rodent plague within the state.

(*b*) That the Committee endorse the biennial budget of California State Department of Agriculture in the amount of $50,000.00 for the item of plague control. In view of the discoveries made in 1934, it is imperative that several counties with very heavy squirrel infestation receive immediate attention. Since it has been found difficult to organize effectively within a short time the three party agreement now in existence, it is essential that an emergency fund of not less than $10,000.00 be placed at the disposal of the Department. Thus control operations and 'fire belt' areas, in which the squirrel and rodent population is to be reduced with the aid of poisons, may be established immediately after the recognition of selvatic plague. In this connection, the Committee wishes to emphasize the desirability of establishing a state-county or two party rodent eradication programme. Such a unified undertaking encourages economy and efficiency particularly when an emergency arises. The Department of Agriculture has unqualifiably defined its position with respect to rodent control. In the programme which aims to a reduction of the squirrel population with an ultimate aim at local eradication, the plague infected areas will always receive first and painstaking attention. A close coöperation between the Department of Public Health and of Agriculture assures effective execution of the control measures.

(*c*) That the University of California be invited to participate in an investigation of certain phases of selvatic plague as they affect California. In particular, the natural immunity to plague of the squirrels in the mountainous regions, the rôle of supplementary hosts in the spread of rodent plague, their migratory habits, the diseases of rodents and their insect parasites deserve immediate study. In the opinion of the Committee, the Hooper Foundation, the Departments of Zoölogy at Berkeley and Davis, and the members of the Museum of Vertebrate Zoölogy should be invited to initiate such investigations. A recommendation incorporating these ideas should be transmitted to President Sproul for his kind consideration. The Committee feels that the Legislature, for the purpose of the study, should place at the disposal of the University an appropriation of $10,000.00 for the biannum.

(*d*) That the Committee advise the Surgeon-General of the United States Public Health Service relative to the above recommendations and express its satisfaction concerning the plans anticipated by the Service. During the season of February 15 to June

15, 1935, the United States Public Health Service in coöperation with the Biological Survey contemplates an investigation of the reports concerning the squirrel mortality in Nevada and Oregon. The survey crews will be organized along the same lines as those already established in California."

PUERTO RICO

Before the death of Colonel Bailey K. Ashford, this friend and noted investigator in tropical medicine, sent to the Director of Studies of the Survey on Tropical Diseases the following statement regarding his views concerning the etiology of sprue:

"That sprue is a complex composed of a basic condition holding good for both sprue and hookworm disease; i.e., a nutritional unbalance with its characteristic syndrome and *Monilia albicans* a super-phenomenon imposed on one which brings out by characteristic signs the picture which we know as sprue. In other words, the super-imposed phenomenon is the cause of the characteristic symptomatology, unimportant itself as far as life is concerned, but all important as a means of distinguishing it from other nutritional diseases; the real cause of sprue is this underlying nutritional unbalance which is the cause of the grave and often fatal pathologic effects on the endocrine system, the bone marrow, the liver, etc."

CANCER IN THE UNITED STATES AND CERTAIN FOREIGN COUNTRIES

As this work is going to press an interesting statistical study concerning cancer has been published by Dr. Frederick L. Hoffman (The Spectator) which includes data on cancer in the United States and certain foreign countries. Since it may be of interest to our readers to compare cancer rates in the countries included in this survey with other countries we are presenting two of Dr. Hoffman's tables herewith. This author has also published a survey concerning cancer in the North American negro (*American Journal of Surgery*, Oct., 1931) which is of interest. Studies of a similar nature, such as the reports of the Cancer Field Commission (see Sambon in the *Journal of Tropical Medicine and Hygiene*, August, 1926, for report on Holland and Italy) are being published from time to time.

Cancer deaths in the United States, 1932–1933

	NUMBER OF DEATHS		RATE PER 100,000	
	1932	1933	1932	1933
Tongue	946	1,036	0.8	0.8
Jaw	1,034	1,054	0.9	0.8
Stomach and duodenum	25,909	26,565	21.6	21.1
Esophagus	2,063	2,111	1.7	1.7
Intestines (except duodenum, rectum and anus)	12,137	12,972	10.1	10.3
Rectum and anus	5,890	6,372	4.9	5.1
Liver and biliary passages	10,452	10,595	8.7	8.4
Pancreas	3,371	3,566	2.8	2.8
Larynx	1,048	1,078	0.9	0.9
Lungs and pleura	3,166	3,410	2.6	2.7
Uterus	14,908	15,220	12.4	12.1
Ovary and Fallopian tube	2,167	2,304	1.8	1.8
Breast	11,889	12,484	9.9	9.9
Kidneys and suprarenals (male)	945	1,040	0.8	0.8
Bladder (male)	2,493	2,725	2.1	2.2
Prostate	5,466	5,980	4.6	4.8
Skin	3,137	3,358	2.6	2.7
Bladder (female)	1,266	1,368	1.1	1.1
Brain	932	1,018	0.8	0.8
Bones (except jaw)	1,639	1,814	1.4	1.4
Other and unspecified organs	5,973	6,098	5.0	4.9

Cancer death rates in certain foreign countries
Rates per 100,000

	PERIOD	RATE
Ceylon	1928–32	9.0
Greece	1923–27	24.0
Lithuania	1925–29	30.0
Chile	1925–29	48.0
Italy	1926–30	63.0
Spain	1926–30	69.0
Japan	1927–31	70.0
Uruguay	1925–29	77.0
Estonia	1925–29	78.0
Union S. Africa	1927–31	79.0
Belgium	1925–29	88.0
Canada	1928–32	92.0
France	1927–31	95.0
United States	1926–30	96.0
Australia	1928–32	99.0
Hungary	1928–32	101.0
New Zealand	1929–33	104.0
Irish Free State	1928–32	110.0
Czechoslovakia	1928–32	114.0
Germany	1924–28	116.0
Norway	1924–28	118.0
Sweden	1926–30	119.0
Northern Ireland	1928–32	120.0
Netherlands	1929–33	123.0
Switzerland	1927–31	140.0
Denmark	1927–31	142.0
England and Wales	1928–32	146.0
Scotland	1928–32	147.0
Austria	1925–29	148.0

INDEX

Abu-Rahmeh, Halim, 126
Abyssinia, 285
Addis Ababa, 286, 457
Akee poisoning, 470
Alabama, 5
Albania, 287
Amebiasis, 389
American Samoan Islands, 41
American Virgin Islands, 30
Anglo-Egyptian Sudan, 108
Anklesaria, J. A., 460, 461
Annam, 264
Antigua, 222
Argentina, 291
Arizona, 6
Arthritis (non-specific), incidence of, 450
Ascariasis, Brazil, 485
Ashanti, 79
Ashford, Bailey K., 488
Asia, British, 141
Assiut, 325
Australia, 192

Bachman, G. W., 26
Bacillary dysentery, 380
Bahamas, 195, 459
Bali, 283
Bangka, 283
Barbados, 200
Barger, G. J. P., 315
Basutoland, 88
Bechuanaland Protectorate, 90
Behar, 154, 160
Belgian Congo, 314, 473
Bengal, 154, 160
Beriberi, 437
Bermuda, 205
Bevier, George, 458
Billiton, 283
Bohol, 35
Bolivia, 293
Bombay, 154, 160
Boriraksh, Phya, 364
Borneo, 142
  West District, 283
Boyd, Mark F., 378
Bradley, John T., 118, 119
Brazil, 294, 481
Brazzaville, 256
Briercliffe, R., 146, 149
British Empire, 45
British Guiana, 210
British Honduras, 216, 464
British Solomon Islands, 187
British Virgin Islands, 229
Broorhoofi, C., 283, 284
Brucellosis, 400
Brunei, 142
Burma, 154, 160, 167, 460
Burrows, William, 470
Butler, Charles S., 333, 417
Bykoba, 55

California, 6, 485
Cambodia, 264
Cameroon, 72
Canal Zone, 352
Cancer, deaths from, 488
Cape of Good Hope, 103
Cayman Islands, 218, 221
Cebu, 35
Celebes, 283
Ceylon, 146, 465
Chagas' disease, 480
  Brazil, 483
Chandernagor, 281
Chemotherapy, 440
Chesney, Alan M., 415
Chesterman, C. C., 315
Chile, 299, 462
China, 304, 476
Cholera, Brazil, 483
Christmas Island, 161, 191
Clark, Herbert C., 348, 349, 480
Clonorchiasis, 426
Cochin-China, 264
Cochrane, E., 211
Cocos Islands, 161
Cold, common, incidence of, 444
Columbia, 312, 458

Cook, Donald H., 439
Copanaris, P. H., 329
Cort, E. C., 365
Cosmoledo Islands, 118
Costa Rica, 319
Craig, Charles F., 389
Cruikshank, J. M., 195, 459
Curry, D. P., 348, 349
Cyprus, 130

Dahomey, 250
Dakar, 250
Danish West Indies, 30
Dengue fever, 402
Diabetes, incidence of, 452
Dominica, 223
Dominican Republic, 322
Donaldson, A. W. H., 67
Drew, D., 91
Dunn, Lawrence H., 480
Dutch East Indies, 283
Dyer, R. E., 411
Dysentery, Brazil, 484

East Africa, 45
Egypt, 324
Elephantiasis, Ceylon, 466
Ellice Islands, 191
Ethiopia, 285, 457
Evans, Alice C., 400

Fajardo, Jacobo, 35
Fanning Island, 191
Farquhar Islands, 118
Faust, Ernest Carroll, 432
Federated Malay States, 161
Fiji Islands, 182
Filariasis, 434
  Ceylon, 465
Florida, 8
France, 239
Francis, Edward, 423
French Atlantic Group, 272
French Cameroun, 260, 454
French Congo, 252
French Equatorial Africa, 252
French Guinea, 272
French Indian Ocean Group, 281
French Indo-China, 264
French Pacific Group, 270
French Sudan, 250
Fulconis, —, 253
Fuszek, R. G., 344, 345

Gambia, 83
Gambier, 270
Gay, Frederick P., 393
Gentry, E. R., 348, 349
Georgia, 9
Gibraltar, 136
Gilbert Island, 191
Gold Coast Colony, 79
Graham, J. D., 468
Greece, 329
Grenada, 230
Guadeloupe, 272, 274
Guam, 32
Guinea, 250
Guzmám, Leonardo, 301, 462

Haiti, 332
Haslam, John F. C., 200
Haute-Volta, 250
Hawaii, 21
Helminthiasis, British Honduras, 464
Hernando, Eugenio, 35, 36
Herring, J. H., Jr., 305, 309
Hetherington, H. B., 187
Hoffman, Frederick L., 488
Holland, 337
Honduras, 340
Hong Kong, 177
Hookworm disease
  Brazil, 485
  British Honduras, 464
  Ceylon, 465
  Incidence of, 442
Hudson, Ellis H., 239, 240, 471

India, 154, 459, 468
Influenza, epidemic, incidence of, 445
Italy, 342
Ivory Coast, 250

Jamaica, 218, 469
Jauneau, —, 278
Java, 283
Jebel Druze, 239
Johnson, M. B., 73, 74
Johore, 169
Jonuzi, Osman, 288
Jordan, Edwin O., 470
Julianelle, Louis A., 419

Karikal, 281
Kedah, 171

Kelantan, 173
Kentucky, 10
Kenya Colony and Protectorate, 45
Kenya East Africa, 464
Kirk, J. Balfour, 111, 112
Kwang-Chau-Wan, 264

Labuan, 161
Lahore, 154, 160
Laos, 264
Latakia, 239
Leake, Chauncey, 440
Lebanon, 239
Ledentu, —, 454
Leeward Islands, 222, 270
Leishmaniasis, Brazil, 481
Leon, Rulx, 333
Leprosy, 412
  Brazil, 483
Leyte, 35
Liberia, 344
Liu, J. Heng, 305, 476, 477
Lombok, 283
Louisiana, 11
Luzon, 35
Lymphogranuloma inguinale, Brazil, 484

McClanahan, F. C., 325
McCoy, George W., 412
MacDaniels, —, 365
Madagascar, 247
Madras, 154, 160
Madura, 283
Mahe, 118, 281
Malacca, 161
Malaria, 378
  Brazil, 481
  Ceylon, 465, 468
Malnutrition, 439
Malta, 139
Margetson, N. J. L., 226
Marquezao Islands, 270
Martinique, 272, 278
Masbate, 35
Masi, Cayetano, 355, 356
Mauritania, 250
Mauritius, 111
Meyer, Karl F., 485
Millions, —, 261
Mindanao, 35
Mindoro. 35
Miquelon, 274
Mississippi, 12
Moll, A. A., 295, 481
Molucca, 283
Montserrat, 225
Morant Cays, 218
Morocco, 245
Morris, Richard M., 96
Morrison, R. V., 460
Mouchet, René, 315, 473
Moyen Congo, 259
Myiasis, Ceylon, 466

Natal, 103
Negros, 35
Nephritis, incidence of, 451
Netherlands, 283
New Caledonia, 270
New Guinea, 283
New Hebrides, 270
New Mexico, 13
New South Wales, 192
Niger, 250
Nigeria, 72
Nigri Sembilan, 161
North Africa, 108
North Borneo, 144
North Carolina, 14
Northern Rhodesia, 100
Núnez, Solón, 319
Nyasaland Protectorate, 59

Oceania, 270
O'Connor, Francis W., 434
Oklahoma, 15
Orange Free State, 103
Orissa, 154, 160

Pahang, 161
Palawan, 35
Palestine, 123
Panama, 348, 480
Panama Canal, 353
Panay, 35
Paraguay, 355
  Brazil, 485
Paratyphoid fevers, 393
Park, James L., 286, 457
Paterson, A. R., 45, 46, 464
Pearce, A. H. B., 183
Pedro Cays, 218
Pellagra, incidence of, 444
Pemba, 61
Penang, 161

Perak, 161
Perlis, 171
Peru, 359
Philippine Island, 34
Picardo, Clodomire, 319
Pirc, Bojan, 374, 375
Piroplasmosis, Brazil, 481
Plague
  Brazil, 482
  California, 485
  Incidence of, 443
Pneumonias, incidence of, 446
Poliomyelitis, incidence of, 447
Pondichéry, 281
Puerto Rico, 24, 488
Puerto Rico School of Tropical Medicine, 25

Questionnaire, form of, xvii

Rabies, Ceylon, 466
Rapa Islands, 270
Reunion, 249
Rheumatic fever, incidence of, 449
Riau-Lingga Archipelago, 283
Rossiter, P. S., 32, 42

Sahara, 250
St. Croix Island, 30
St. John Island, 30
Saint Lucia, 232
St. Pierre, 272
St. Thomas Island, 30
Saint Vincent, 234
Samar, 35
Sarawak, 141
Savons, E. C., 464
Sawyer, Wilbur A., 409
Scarlet fever, incidence of, 448
Schistosomiasis, 432
Seychelles, 117
Selangor, 161
Sénégal, 250
Shahin Pasha, 325
Shan States, 167
Siam, 364
Sierra Leone, 86
Siler, J. F., 348, 349, 402
Singapore, 161
Smallpox, Brazil, 484
Society Islands, 270
Somaliland Protectorate, 67
South Africa, 88
South China, 309
Southern Rhodesia, 96
Spain, 360
Spearman, B., 62
Sprawson, C. A., 155, 156, 459
Stafford, R. B., 30
Straits Settlements, 161
Strathairn, G. C., 131
Strong, Richard P., 380, 426
Sumatra, 283
Swain's Island, 42
Syphilis, 415
  Brazil, 483
Syria, 239, 471

Tahiti, 270
Tahiti Group, 270
Tanganyika Territory, 55
Tasmania, 192
Ta'u, 42
Tennessee, 16
Texas, 17
Thornton, E. N., 103, 104
Thyroid disease (goiter), incidence of, 451
Timor Archipelago, 283
Tobago, 236
Togoland, 79
Toledo Trujillo, H., 373
Tonking, 264
Trachoma, 419
Transjordan, 126
Transvaal, 103
Trengganu, 175
Trinidad, 236
Tropical medicine, history, xx
Trotter, F. E., 21, 22
Tuberculosis, 396
Tubuai, 270
Tularaemia, 423
Turkey, 369
Turks and Caicos Islands, 218
Turner, Edward L., 239, 240, 471, 473
Tutuila, 41
Typhoid fever, 393
  Brazil, 485
Typhus fever, 411, 462
  Brazil, 483

Uganda protectorate, 52
Ujiji, 55
Undernutrition, 439

Undulant fever, Brazil, 483
Union of South Africa, 103
United States, 3

Vargas Prada, Luis, 359
Vedder, Edward B., 437
Venezuela, 372
Virginia, 18
Vizagapatam, 154, 160

Wallis Archipelago, 270
Washington Island, 191
Wellington, A. R., 177
West Africa, 72, 250
West Virginia, 19
White, William C., 396
Wilkinson, Henry, 206
Wilson, C. J., 162, 163
Windward Islands, 230

Yanaon, 281
Yaws, 417
  Brazil, 483
  Jamaica, 469
Yaws Commission, Report of, 469
Yellow fever, 409
  Brazil, 482
Yugoslavia, 374

Zanzibar Protectorate, 61

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