

United States on the Atlantic, and its conditions are continually being improved by our Government, which realizes the importance of its betterment.

Not wishing to occupy your attention with other matters that are really foreign to the object of this convention I end my report here.

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### REPORT FROM THE DELEGATE FROM CUBA, DR. E. B. BARNET.

MR. PRESIDENT AND GENTLEMEN OF THE CONVENTION: As the delegate from the Republic of Cuba I have the honor to submit before this convention the sanitary ordinances agreed upon by the superior board of health of the island of Cuba for the sanitary management of the municipalities of the Republic, in accordance with the provisions of military order No. 159, series of 1902, of the former government of intervention of the United States.

The organic sanitary law which is in force at present is said order No. 159, which prescribes that there shall be enacted by the superior board of health general rules for the sanitary service of all towns of the Republic, and said rules are the ordinances which I now deliver, and which as soon as they are enacted by the Cuban Government will immediately be put in force for the purposes to which they are designated.

As prescribed by order No. 159 these ordinances will only be of a general character. After their enactment each municipality, within the period to be designated by the Executive, shall modify them to adapt the local conditions, subject to the approval of the superior board of health. There are at present in the Republic of Cuba 82 municipalities; but when these ordinances were drafted the importance of a city such as Havana was taken into consideration, leaving to the discretion of each municipality the power to propose the amendments which I have mentioned.

These ordinances are a work of selection and adaptation. Sanitary regulations, ordinances, provisions, codes, etc., of other countries were had in view when it was being carried out, because in sanitary matters, particularly in sanitary legislation, it is impossible to try to make original or new provisions, but one must be guided by what practice and experience have demonstrated in other countries.

These ordinances are divided into three parts. The first part consists of four chapters, and is a sort of a regulation derived from order No. 159, above mentioned. This part contains general provisions and refers to local sanitary boards, local sanitary chiefs, and inspectors. It contains instructions rather than provisions.

The second part is the one which really contains provisions, and has 27 chapters, all of them regarding the sanitary matters of a community.

The third part concerns violations and penalties. The former are classified in minor and grave offenses according to the sanitary importance, and gives the correctional court jurisdiction over them for the imposition of the proper penalty. Courts of justice are given jurisdiction over violations which constitute crimes against public health.

As a whole these ordinances have 635 sections.

As every human work, and having been carried out in a new country, which has just been born to the life of freedom, and where matters of public health were formerly unknown in practice, perhaps these ordinances contain many errors and deficiencies. Time and experience will amend and improve them. And, undoubtedly, these ordinances will help Cuba in maintaining the high sanitary reputation which she has among her sister Republics of America.

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### Ordinances of the Superior Board of Health of the Island of Cuba, for the Sanitary Administration of the Ayuntamientos of the Republic.

#### CHAPTER I.

In accordance with the provisions of paragraphs 7 (k) and (b) of sections 1, 2, and 4, respectively, of order No. 159, series of 1902, the Superior Sanitary Board has passed the following ordinances, which, upon approval by the Executive, shall regulate the sanitary service of the ayuntamientos of the Republic.

In compliance with paragraph (b), section 4, of said order, these regulations may be modified to conform to the local conditions of each ayuntamiento upon a request from the local sanitary board, approved by the alcalde and forwarded to the Superior Sanitary Board, whose action thereon shall be final.

In accordance with the provisions of the Presidential decree No. 11, of May 20, 1902, the chief sanitary officer shall himself or through the secretary of the board dispose of the business of the board together with the secretary of the interior or the Department of Havana, when it is so required by reason of the importance of a particular case.

## SANITARY ADMINISTRATION.

## CHAPTER II.

## LOCAL SANITARY BOARDS.

SECTION 1. The sanitary administration in each ayuntamiento shall be controlled by a local sanitary board, which shall be constituted and empowered in accordance with paragraphs (a) and (c) of section 4 of order No. 159. In municipalities where there is no quarantine officer of the port or chief of the section of special hygiene one of the members shall be a pharmacist, a veterinarian, an engineer, an architect, or some other professional man, if practicable. The members shall qualify as soon as their appointment has been approved by the Superior Board.

SEC. 2. The local sanitary board shall prepare the rules and regulations for its interior management, to be submitted to the approval of the Superior Board.

SEC. 3. The local sanitary board, by virtue of the powers with which it is vested, shall take special care of all matters relating to the sanitation of its respective municipal district and shall see that all sanitary laws and regulations in force and the orders or instructions of the Superior Sanitary Board in each special case are strictly complied with, subject to the provisions of these ordinances.

SEC. 4. The local sanitary boards shall be considered as deputies of the Superior Sanitary Board for the faithful execution, under a uniform system, of the functions with which they are intrusted in regard to the maintenance of public health.

SEC. 5. The local sanitary board shall have charge, under the supervision of the Superior Board, notwithstanding the provisions of paragraph (e) of section 2 of order No. 159, of the services of sanitation and hygiene within its municipal district; of the prophylactic vaccination and inoculation; of cemeteries, interments, disinterments, embalming, and of the removal of cadavers: of the inspection of the medical attendance in private houses, sanitariums, asylums, barracks, fortresses, etc., and of the sanitation of all such institutions.

SEC. 6. The local sanitary board shall publish such instructions as it may deem proper to prevent the spread of diseases, submitting said instructions previously to the approval of the Superior Board.

SEC. 7. The local sanitary board shall make frequent inspection of the schools and shall order the removal of teachers and pupils which it may find suffering from any infectious disease, prohibiting their return to the school until all danger of infection shall have disappeared.

SEC. 8. It shall see that proper hygienic methods are followed in hospitals, particularly in all that concerns the isolation of persons having contagious diseases.

SEC. 9. It shall see that all tenement houses, hotels, boarding houses, cafés, etc., comply with the sanitary provisions in force, holding the manager, owner, or tenant, as the case may be, responsible for the violation.

SEC. 10. It shall instruct the head of the family in which there is a case of infectious disease concerning the precautions which he must take, and shall notify the principal of the school who are the pupils living in the infected house and who must not be admitted to the school until said house be disinfected after the termination of the case or any other which might follow it.

SEC. 11. If the local sanitary board should not have the proper means with which to perform a bacteriological analysis, it shall send to the Superior Sanitary Board samples of the sputum, blood, defecation, or other pathological matter which the physicians may furnish for the purpose of diagnosis. As soon as the board shall receive the result of the analysis it shall notify the interested parties thereof.

SEC. 12. The local sanitary board shall send three samples of each beverage or food product suspected of falsification or adulteration, the receptacles of which shall be strapped, sealed, and signed in the presence of the interested party, in order that it shall not be possible to substitute the contents thereof without leaving traces of such substitution, and it shall deliver to the seller a sample similarly strapped, sealed, and signed, retaining one and sending the remaining sample to the Superior Board, with the minutes and the respective report, for the necessary analysis.

SEC. 13. Whenever necessary it shall make domiciliary inspections, house by house, making report upon each one of them in the form prescribed for the purpose, which report shall state chiefly: The number of persons living in the house; whether there is in it a case of a contagious disease or if any has occurred therein within a year prior to the date of the report; sanitary conditions of the house, water-closets, drains, etc.

SEC. 14. It shall order owners of houses, in writing, what alterations they must carry out in their respective houses within a definite period, which may be extended for justifiable reasons, provided that it shall not unreasonably delay the execution of the work.

SEC. 15. It shall give the respective court information of all violations which should be punished, sending in the record of each case and authorizing one of its members or employees to prosecute the offender.

SEC. 16. It shall serve notice to all those who refuse to obey the order or who delay the execution of the work that they shall be brought before the court if they do not comply therewith within the designated period.

SEC. 17. Houses, buildings, etc., which constitute a menace to public health or safety shall be declared uninhabitable and ordered closed by the local sanitary board, and if necessary it shall request the ayuntamiento to have the same demolished. The inspection of the municipal architect shall be necessary previous to the demolition.

SEC. 18. It shall recommend to the ayuntamiento the works which it deems necessary for the sanitation of its municipal district and which the residents are not compelled by law to carry out, such as the sanitation of swamps in public lands, drainage of pools, cleaning of streets, etc., sanitation of slaughterhouses and cemeteries, and all other necessary works in public places.

SEC. 19. When the sanitation recommended constitutes an urgent necessity and the ayuntamiento refuses to perform the work in due time, the local sanitary board shall notify the fact to the Superior Board of Health for the purposes stated in paragraph (e) of section 3 of order No. 159.

SEC. 20. It shall inform the Superior Board what works of sanitation must be carried out by the province or the government within its respective municipality.

SEC. 21. The local sanitary board shall submit to the Superior Board of Health an annual estimate of the expenses required for the maintenance of the sanitation of the ayuntamiento, and which must be stated in the municipal appropriations.

SEC. 22. It shall keep, besides the minutes of proceedings, a record of all its transactions, as well as a register of the physicians, pharmacists, dentists, midwives, and veterinarians within its municipal jurisdiction, in the form prescribed and furnished by the Superior Board.

SEC. 23. It shall make an annual report to the Superior Board of Health, within the month of January, on forms furnished by said Superior Board, upon the sanitary conditions and necessities of the municipality; the method of transacting its business: infectious diseases and epidemics and their interesting characteristics; other events, and all data which the Superior Board may require.

SEC. 24. When requested by the Superior Board, it shall furnish the same with sanitary and demographic statistics made on forms prescribed for the purpose.

SEC. 25. It shall report to the Superior Board the permanent causes of the diseases which may prevail in its jurisdiction, stating what measures it deems advisable for the suppression thereof.

SEC. 26. It shall see that no disinfecting materials are lacking in its district, and that drug stores are always provided with antiseptic substances and have the same for sale at reasonable prices; anything to the contrary shall be notified to the Superior Board.

SEC. 27. It shall prepare or be provided with exact and detailed maps of its municipality in order to make upon them graphic representation of the diseases and other subjects worthy of note.

SEC. 28. It shall send to the Superior Sanitary Board a monthly extract of all resolutions passed during the previous month.

SEC. 29. It shall furnish the inspectors of the Superior Board of Health with all information and data which they may require for the accurate performance of their duties.

SEC. 30. The office of member of the local sanitary board is incompatible with that of councilor or employee of the ayuntamiento.

SEC. 31. The secretary shall be selected by the board from among its members; he may employ a clerk under his supervision for the dispatch of business.

### CHAPTER III.

#### THE LOCAL SANITARY CHIEF.

SEC. 32. The local sanitary chief shall be an experienced and competent physician, appointed and paid by the ayuntamiento, subject to the approval of the Superior Sanitary Board. In case the first and second nominations of the ayuntamiento be rejected by the Superior Sanitary Board, the latter shall appoint the person which it deems capable for the position.

SEC. 33. The local sanitary chief shall be the president of the board and its executive officer.

SEC. 34. He shall submit to the approval of the Superior Board the appointment and removal of the employees of the local board.

SEC. 35. He shall make the reports, statistical data, documents, etc., that the superior sanitary chief may require in regard to the sanitation of his respective municipal district.

SEC. 36. In the performance of his duties as local sanitary chief, he shall comply with the instructions which the superior sanitary chief may give him.

SEC. 37. He shall issue orders for the detention and isolation of any person suffering from an infectious disease until the period of his liability to spread the disease is passed, in accordance with the provisions of paragraph (f) of section 3 of order No. 159.

SEC. 38. He shall make monthly and annual reports of his transactions to the local sanitary board.

#### CHAPTER IV.

##### INSPECTORS.

SEC. 39. Sanitary inspectors shall be considered as the deputies of the chief sanitary officer; they shall devote the service hours exclusively to the performance of their duties, and shall always be ready to execute the orders which are given them.

SEC. 40. The inspector shall be provided with credentials and a badge of office, and shall wear a uniform if the Superior Sanitary Board so orders it. By virtue of his office, he shall be respectful and polite to all persons with whom he may come in contact in the performance of his duties; he must always avoid discussion, and shall submit his reports in writing.

SEC. 41. He shall make in his reports, which must be specific, accurate and reliable, the recommendations which he may deem necessary to prevent the violations which may come under his observation; he shall not give any direct information or order, verbally, or in writing, to the interested parties.

SEC. 42. He shall endeavor to be well informed in all that concerns the sanitary conditions of his district, so that he may at any time furnish any information which the board or the local sanitary chief may request of him.

SEC. 43. He shall be correctly dressed, and avoid all places of disrepute during the service hours.

SEC. 44. He shall remain in his district during the service hours, unless he receives express orders to the contrary, and he shall not engage in any private business during said hours.

SEC. 45. Before entering a house he shall announce his office and the object of his visit, and he shall make the inspection with careful attention and minuteness of detail, so that the orders which may result therefrom shall not have to be modified because of deficiencies, errors, or inaccuracies therein.

SEC. 46. If he should meet with unreasonable resistance on the part of the owner or tenant of a house to allow him to make the inspection, he shall notify the fact to the sanitary chief, in order that through him the aid of the police it may be secured, after all persuasive means have been exhausted.

SEC. 47. He shall exercise the greatest prudence and reserve in regard to anything that he may observe in the houses by him inspected; he shall not exercise the powers of his office with malicious intention to injure or benefit a third person, or on behalf of his own private interests or his relatives.

SEC. 48. He shall request the leave of the local sanitary board when it be necessary for him to absent himself temporarily on account of illness or other private cause.

#### SANITARY ORDINANCES.

##### CHAPTER I.

##### WATER SUPPLY.

SEC. 49. The local sanitary board shall take particular care of the supply of water in its locality, respecting the quantity and the biochemical qualities as well, obtained either from aqueducts, springs, streams, wells, cisterns, or any other natural or artificial source; and it shall prescribe the measures necessary for the preservation of the purity and salubrity of the water intended for drinking and other domestic purposes.

SEC. 50. In towns where there are aqueducts that furnish drinkable water in sufficient quantities, and where the service is well regulated and reasonable in price, the installation of independent pipes in all houses, buildings, and upon all floors in the same that are to be rented separately, and the suppression of all wells, cisterns, and other receptacles shall be ordered unless they are used for industrial purposes, in which case the interested party shall be required to apply for the written consent of the board, which may grant the request or not, in its discretion.

SEC. 51. It shall be compulsory for the managers of aqueducts to make the water reach the highest places of the town during the daytime.



SEC. 52. When the requirements of the case shall demand it, the use of filters or other means of purification shall be ordered for the amelioration of water used in schools, asylums, cafés, and other public places.

SEC. 53. In towns where, on account of the lack of aqueducts, the use of wells and cisterns is permitted, said wells and cisterns must be provided with lids and impermeable walls, and their openings must be protected by wire gauze against the access of mosquitoes; the water conduits must also be impermeable and the entrance of the first rain water must be prevented. The well and cistern walls must be at a distance of at least 10 meters from any cesspool, sewer, etc. No cultivation of any sort shall be permitted upon cisterns and wells.

SEC. 54. The extraction of water from wells and cisterns, although they be covered, shall be made only by means of pumps, in order to prevent effectively the access of mosquitoes.

SEC. 55. In towns where it is absolutely necessary, to avail of river water for domestic consumption, a place in the river where the water can not be easily infected, shall be selected, and bathing, washing, and the drainage of latrines, sewers, distilleries, sugar mills, slaughter-houses, cemeteries, etc., shall be prohibited in any part from the head of the river to the place selected for the extraction of water.

SEC. 56. Any public sale of water for domestic consumption must be authorized by the local sanitary board, which shall regulate and inspect the service assiduously, and shall require that the receptacles be well covered and composed of materials proper for the cleaning, such as glass, iron, or clay coated with porcelain or glass.

SEC. 57. Only drinkable water shall be permitted for public consumption for drinking purposes.

SEC. 58. Only water perfectly purified shall be used in the manufacture of ice and aerated waters, and all operations of the factory shall be performed with strict cleanliness.

Ice intended for domestic consumption must be pure, without any taste, and free from all danger of transmitting infection.

SEC. 59. Soiling or in any way injuring a river or stream, thus making its water unhealthful or improper for consumption, is prohibited.

SEC. 60. He who, directly or indirectly, makes water intended for consumption dangerous to health, shall be held criminally responsible.

SEC. 61. When, on account of the appearance of a disease, the local sanitary board, suspects that an aqueduct, or a well, cistern, stream, etc., is infected, it shall cause an analysis of the water to be made immediately, and prescribe the measures showing the manner in which to continue its use without danger, or prohibit the use of such water, as the case may be.

## CHAPTER II.

### FOOD PRODUCTS AND BEVERAGES.

SEC. 62. Food products or beverages imported or intended for sale in a town must be pure or fresh, ripe or preserved, and their component materials and character must always correspond with the name under which they are sold, clearly stated on the labels of their receptacles or packages.

SEC. 63. When a food substance, or a beverage, contains one or more materials foreign to its known and accepted natural composition, it shall be considered as adulterated; it shall also be so considered when any or several of its component materials have been extracted from it, or do not correspond in nature, quality, or composition to the name under which the product or beverage is sold.

SEC. 64. Any substance shall be considered as noxious or detrimental to health, and its mixture with any food or beverage being therefore illegal, when it has been shown that it is hurtful to the human body, and when there is any doubt as to its innocuousness, either in its immediate or subsequent effects.

SEC. 65. Any food or beverage shall be considered adulterated when—

(1) It is in a state of decomposition.

(2) It has become acid, decayed, or rancid, or has undergone any alteration which might change its taste or its nutritive qualities, or which would render it detrimental to health.

SEC. 66. Adulterated or falsified food products or beverages, as well as those that have substituted for others, or may prove to be different from what is stated on the label, must be seized and deposited, or disposed of in such a manner as the nature of the ordinance requires it; the manufacturer or seller shall be held personally responsible.

SEC. 67. The sale of any food product or beverage, from which the constituent of nutritive value shall have been extracted in part or in whole, or that shall have been mixed with other substances, if its composition be not stated on the label and be made known to the purchaser, is prohibited.

SEC. 68. The sale, importation, or storage of meat, fish, poultry, game, fruits, vegetables, milk, beverages, wines, liquors, etc., which are not found in perfect condition for consumption, and also of canned goods the receptacles of which are damaged or opened, is prohibited.

SEC. 69. The sale in public streets of meat, fish, pies, candies, etc., unless they be properly covered and protected against dust, insects, and hands, is prohibited; and likewise the sale of pies, candies, viands, etc., in establishments, unless they be kept in closed show cases; the use of proper instruments for handling said articles is recommended instead of the use of hands.

SEC. 70. The use of mineral colors in which composition lead, antimony, copper, chromium, arsenic, or mercury, form a part; of organic colors, such as gum gutta and aconite; of coloring materials derived from bitumen, and, in general, of all materials which might be injurious to health, is prohibited in the coloration of any food product.

As an exception, the use of colors derived from bitumen for the coloration of food products is permitted, provided said colors do not contain antimony, arsenic, barium, lead, cadmium, chromium, copper, mercury, uranium, zinc, tin, gum gutta, coralline, or picric acid.

SEC. 71. The use of leaden tin foil for wrapping fruits, candies, chocolate, cheese, and any other food products, is prohibited.

Tin foil intended for such purpose must be composed of an alloy containing at least 97 per cent of tin immersed in metastannic acid.

This alloy must not contain more than a half of 1 per cent of lead and  $\frac{1}{100000}$  of arsenic.

SEC. 72. Likewise, tinning of vases and kitchen utensils is prohibited unless the solution contains a similar alloy to that prescribed in the preceding section.

The use of tin vases and utensils intended for containing or preparing food products is prohibited if said vases and utensils be manufactured with an alloy containing more than 10 per cent of lead or other metals which are ordinarily found alloyed with tin; such alloys should not contain more than  $\frac{1}{100000}$  of arsenic.

SEC. 73. Objects of metal or alloys, the nature of which might be injurious to health, must not be mixed with bonbons, candies, and, in general, any food product. Metallic foil used in gilding or silver-plating bonbons and pastilles must be of fine gold or silver.

SEC. 74. It shall be the duty of any person having information of the existence of unwholesome or decayed food products for sale to notify the fact to the local sanitary chief.

SEC. 75. It is prohibited to manufacture, sell, or give away, or to authorize the manufacture, sale, or giving away of food products or beverages injurious to health, whether their toxic or noxious effect be immediate or tardy.

SEC. 76. All establishments engaged in the sale or deposit of food products or beverages must be kept perfectly ventilated and clean—floors, walls, counters, kitchens, water-closets, sewers, etc., particularly.

SEC. 77. The use of poisonous substances, or substances prejudicial to health, for dyeing, painting, or coloring food products or beverages, or paper for wrapping the same, is prohibited; and also the use of said poisonous or noxious substances for painting, varnishing, tinning, or coating receptacles of any kind which might infect the food products or beverages; toys and other articles for children are included in this prohibition.

The use of colors in the composition of which lead, antimony, copper, chromium, arsenic, mercury, gum-gutta, or aconite form part, is prohibited in the preparation of paper, pasteboard, or other materials for packing food products.

SEC. 78. Wine is defined to be the liquid resulting from the fermentation of grape juice, without addition of substances foreign to the composition of said juice.

SEC. 79. Artificial wine is that which is not derived from the fermentation of grape juice.

SEC. 80. The use of the following substances in the manufacture of all kinds of alcoholic liquors, and the addition of the same to wines, is prohibited:

(1) Metallic salts, mineral or organic acids, perfumes, ethers, and essences.

(2) All antiseptic substances.

(3) Any other substances foreign to the natural composition by fermentation of wines and alcoholic liquors.

SEC. 81. Wines and alcoholic liquors containing any of the following substances shall be considered as adulterated, and noxious or not, as the case may be:

(1) More than two grams of sulphate of potash per liter.

(2) More than one gram of sodium chloride per liter.

(3) Excess of water or alcohol.

(4) Coloring substances foreign to the composition, whatever their origin may be.

SEC. 82. Alcoholic liquors obtained by fermentation must not contain foreign coloring matter.

SEC. 83. Persons selling adulterated or artificial wines not detrimental to health shall incur the penalty of seizure and payment of the cost of analysis and the fine. Those selling adulterated or artificial wines detrimental to health shall be brought before the courts of justice.

SEC. 84. The sale of wine vinegars containing less than 5 per cent of acetic acid is prohibited.

SEC. 85. Vinegars derived from alcohol, beer, cider, etc., may be sold, provided the label on their receptacles show the product from which they are derived. None of these vinegars shall contain less than 3 per cent of acetic acid.

SEC. 86. Vinegars containing substances foreign to their natural composition shall be considered as adulterated.

SEC. 87. The addition of any substance to wheat flour for the purpose of increasing its natural weight or volume is prohibited.

SEC. 88. Ordinary bread, intended for sale, must be manufactured with wheat flour without any mixture whatsoever, and well kneaded and baked. The use of any substance foreign to the natural and known composition of bread is prohibited.

SEC. 89. Any other kind of bread which is not exclusively made of wheat flour, leaven, salt, and water may be sold provided its composition is made known to the purchaser.

SEC. 90. Bakeries must be established in places with good light and the ventilation necessary for their perfect cleanliness. Floors, walls, kneading troughs, etc., must be kept absolutely clean. No bedrooms, water-closets, stables, animals, etc., shall be permitted in the premises of any bakery or in direct communication with the same.

Persons suffering from cutaneous or infectious diseases are prohibited from intervening personally in the confection, sale, etc., of bread.

The transportation of bread shall be made with absolute cleanliness and protection against dust, insects, and hands.

SEC. 91. The use of wood and other fuel that has been painted, undergone any chemical process or been saturated with substances noxious to health, for the heating of furnaces in bakeries, confectioneries, etc., is prohibited.

SEC. 92. The kind of flour used in the confection of soup pastes shall be stated on the label of the package.

SEC. 93. Only pure saffron and annatto may be used in coloring soup pastes.

SEC. 94. The sale of spices intended for food or condiments, such as cinnamon, saffron, clove, etc., that have been adulterated or the natural weight, volume, or composition of which has been increased, is prohibited, unless it be done in accordance with the provisions of section 67 of these ordinances.

SEC. 95. Products exclusively manufactured with milk, or cream derived from milk, or with both, with or without salt and coloring substances, and in the composition of which there is more than 15 per cent of water, is prohibited from being sold as or termed "butter."

SEC. 96. Any food product which, on account of its appearance or flavor might be taken for butter, or which is prepared for the same use, shall not be sold except under the name of "oleomargarine," if such be the case; in other cases the provisions of section 67 of these ordinances shall be complied with in the sale, under penalty of seizure and fine if the violation does not constitute crime.

SEC. 97. Packages, boxes, cans, paper, and packing of any kind, containing oleomargarine for sale or deposit in large or small quantities, must have printed thereon in Spanish and in conspicuous roman letters, of a half a square inch at least, the word "Oleomargarine."

The sale of such product without the above or other specification shall be understood to be of butter, for the purposes of sanitary inspection.

SEC. 98. Merchants or dealers selling products, which, not being pure pork lard, are similar thereto, or which might be taken for it on account of their flavor or appearance, under the name of "lard" or "compound lard," are hereby compelled to inform the purchaser or consumer, at the time of the sale, that said substances are not "pork lard," and to put on the receptacles thereof labels with the words "Artificial lard" printed in Spanish, with intelligible letters a half a square inch long; these labels shall be placed on the most conspicuous part of the receptacles.

SEC. 99. The only oil that shall be sold under the name of "olive oil" is that extracted from olives, free from any mixture.

Other oils intended for table use and which are not noxious may be sold, provided that the labels on their receptacles state in roman letters, in Spanish, and in an intelligible and durable way, their nature or origin. The sale of adulterated or rancid oils of any kind for table use is prohibited.

SEC. 100. The manufacture of all kinds of beverages must be made with ingredients of good quality, using for the purpose clean vessels which are not made of copper or other material that might make them prejudicial to health.

SEC. 101. The use of saccharine in beverages and food products is prohibited.

SEC. 102. The sale of watered, skimmed, or otherwise adulterated milk, and that derived from sick animals, or animals that have been fed with industrial refuse in fermentation, is prohibited.

SEC. 103. For the purpose of these ordinances, the following shall be considered as adulterated milk:

(1) Milk containing more than 18.5 per cent of water, less than 11.5 per cent of solid materials, and less than 2.7 per cent of grease, or containing any substance foreign to its natural composition.

(2) Milk obtained fifteen days before or eight days after the parturition of the animals.

(3) Milk derived from sick animals, or animals that have been fed with waste materials and products in a state of fermentation.

(4) Milk from which the cream has been totally or partially skimmed.

(5) Milk obtained from animals kept in narrow or unhealthful places.

(6) Milk to which water, other liquid, condensed milk, or any other foreign substance has been added, or curdled or otherwise spoiled milk.

(7) Milk coming from places where scarlet fever, cholera, typhus, typhoid fever, diphtheria, or other contagious diseases prevail.

(8) Milk extracted from animals that have been fed with poisonous plants or that have taken toxic substances.

SEC. 104. For purposes of inspection, milk the density of which is less than 25° (1025), ascertained by the Quevenne lactometer at a temperature of 15° centigrade approximately shall be considered as suspicious.

SEC. 105. Milk intended for sale shall not be kept on places used as bedrooms or for any other purposes.

Milk shall not be drawn off in the public streets, trains, or railway stations except when it is to be delivered to the purchaser.

SEC. 106. The sale of milk intended for public consumption shall be permitted only when the bottles, flasks, or other vessels which contain it have undergone the following treatment:

(1) Bottles, flasks, and vessels, before being filled with milk, shall be washed first with a hot solution of soap, lye, or other alkaline substance, and afterwards with hot water.

(2) Milk must be bottled in places which are not used for habitations, bedrooms, or other domestic purposes, and which are not near any stables.

(3) Vessels containing milk intended for sale must be provided with an adequate cover to protect it against dust and other impurities.

SEC. 107. Vessels used as receptacles for milk must be very clean, and their joints must be smooth and not rusty. Vessels made of untinned copper, brass, lead-coated metal, or unevenly varnished porcelain, are prohibited.

SEC. 108. If it be not desirable to cover the milk while it is in the stable or dairy, a fine cloth shall be placed upon the mouth of the vessel containing it.

Cleaning of vessels shall be done immediately after they shall have been emptied, with boiling water, soap, and brush; they shall be rewashed with boiled water only and put to dry in the sun, mouth downward, but not upon the ground.

SEC. 109. Milk stored for sale must always be deposited in a refrigerator or ice box.

SEC. 110. Ice boxes must be washed twice a week, at least, with hot lye water.

SEC. 111. The drain pipe of an ice box must not be directly connected with sewers or gutters.

SEC. 112. Measures and other utensils used for measuring milk in dairies and other places where milk is sold, must be carefully washed after the sale with boiling water to which lye shall have been added in a proportion of one tablespoonful per liter.

SEC. 113. Milk must be properly stirred in the vessel before sale, in order that the last portions extracted shall contain as much cream as the first.

SEC. 114. Ice must not be put into the milk, as a means of preserving it; milk must be kept in the ice box.

SEC. 115. Wagons assigned to the transportation of milk must be made of waterproof materials or oil-painted wood, and always kept perfectly clean.

The use to which it is assigned shall be stated in the exterior of each wagon in permanent and intelligible letters, as well as its number and the place from which it comes.

Milk dealers on horseback, or availing themselves of other means of transportation, must keep the panniers, saddlebags, etc., perfectly clean.

The transportation in wagons, panniers, saddlebags, etc., assigned to the delivery of milk, of other products or substances except fresh cheese, butter, and similar dairy products, is prohibited.

Milk dealers must carry with them during the sale hours their respective licenses, which they must exhibit to the sanitary inspectors whenever requested to do so.

SEC. 116. Vehicles and horses assigned to the transportation of milk shall be registered in the records kept for this purpose by the local sanitary board.

SEC. 117. Persons engaged in the traffic, transportation, and handling of milk intended for sale shall provide themselves with a certificate from the local sanitary officer guaranteeing the hygienic condition of the milk. These certificates shall be renewed from year to year.

SEC. 118. Milk dealers shall be provided, besides the industrial license that may be required by the municipal laws, with a copy of the regulations of these Ordinances regarding the sale of milk, which copy shall be furnished by the local sanitary board.

SEC. 119. Buildings intended for milch-cow stables must have 30 cubic meters at least of space for each animal; good light and ventilation; properly canalized pavements; and must be well roofed and provided with pure and fresh water and all that is necessary for the maintenance of cows and other milch animals in good condition of health and hygiene, in accordance with the special regulations in regard to dairies. Such stables must be located outside of the city limits, and no other industry or business shall be conducted therein.

SEC. 120. Owners or managers of stables for cows or other milch animals must keep the premises of their establishments perfectly clean, and take the cows to the pasture grounds from 4 p. m. to 8 p. m., and shall not put them in the stables but from 4 to 6 of the next morning.

SEC. 121. Persons suffering from cutaneous or contagious diseases, or those that have come in contact with them, are prohibited from milking cows or other animals, selling milk, handling vessels, measures, and other milk receptacles, or helping in any such operations, until their liability to spread the disease has disappeared. Persons engaged in dairy operations must be clean and free from filth of any kind.

SEC. 122. Milk derived from sick cows must not be sold, used in the confection of food products, or mixed with other milk. Likewise, its use for any other purpose, even if it were for feeding other animals, is prohibited.

SEC. 123. The importation, sale, or storage of adulterated condensed milk is prohibited. For the purposes of these ordinances "condensed milk" is understood to be pure milk from which a part of its water has been extracted, or from which a part of water has been extracted and sugar added. The term "adulterated," in the last case cited, refers to condensed milk in which the quantity of grease is less than 25 per cent of the solid substances contained in it, and to which any foreign substance, except sugar, has been added as a means of preserving it.

SEC. 124. Milk intended for sale shall be subject, at any time and place, and under all circumstances, to the vigilance of sanitary inspectors, who are hereby authorized to take samples in quantities not exceeding a half a liter per vessel, in order to submit them to analysis. Before taking samples the milk must be sufficiently shaken, in order that the small particles of grease be equally distributed in the liquid.

SEC. 125. Inspectors shall use the Quevenne lactometer in order to ascertain the specific weight of milk, and shall keep a record of all samples tested.

SEC. 126. As soon as there are suspicions that a certain milk is adulterated, an inspection of the dairy, stable, or place from whence it came, shall be ordered, and it is left to the discretion of the inspector to require or not the exhibition of the cows from which the milk in question was extracted.

SEC. 127. Milk dealers who do not comply strictly with the regulations prescribed for the sale of this article shall be subject to fine and subsequent seizure: if the violation constitute a crime the inspector shall notify the fact to the local sanitary chief for proper action.

SEC. 128. Dairies and cow stables must be well ventilated and kept in perfect cleanliness, and their pavements shall be scrubbed daily.

In the stable each animal shall have a manger and a trough, general mangers and troughs being prohibited.

SEC. 129. No sick cows shall be allowed in the stables, and the sound ones should be separated from each other, well fed, given fresh and pure water, and bathed daily.

SEC. 130. The premises of stables should be well ventilated and the pavement sprinkled before milking the cows in order to avoid the falling of dust into the milk.

SEC. 131. Milking must be done with perfect cleanliness; before the operation the milker should wash his hands and also the udder of the animal that is to be milked, drying them with a clean piece of cloth; he shall avoid the falling into the milk of hair or any other substance that might soil it.

SEC. 132. It is prohibited to milk cows or other animals the udders of which have any eruption, inflammation, or other disease.

SEC. 133. If, during the operation of milking, the milk turns out to be bloody, yellowish, or, in general, of a color and a flavor different from the natural ones, it shall be thrown away, carefully cleaning the vessel that contained it, suspending the operation of milking, and placing the cow under observation until the condition of its health has been ascertained and the sanitary inspector authorized the milking anew.

SEC. 134. If, for any cause, should the milk be soiled, it shall not be collated, but thrown away, washing the vessel that contained it immediately after.

SEC. 135. Farm dairies engaged in the extraction of milk for sale, manufacture of cheese, etc., must comply with the preceding provisions as much as possible, and shall be subject to frequent inspection by the local sanitary board.

SEC. 136. Owners of stables and dairies are compelled to have posted in a conspicuous place thereof a printed copy of the special regulations regarding the trade, to be furnished by the local sanitary board.

SEC. 137. The use of "preserving" substances in milk, as well as in other food products, is prohibited.

SEC. 138. The manufacture of pot cheese should be made with cream or milk of good quality and derived from sound animals, and the manufacturer shall take proper hygienic precautions approved by the local sanitary chief.

The sale of cream or pot cheese by peddlers, or others who do not keep the article in a refrigerator and protected against dust in order to avoid its decomposition and the production of poisonous substances, is prohibited.

SEC. 139. Organic substances susceptible of easy decomposition, intended for food products, shall be preserved in a refrigerator.

SEC. 140. Grains or powders sold under the name of "coffee" must be exclusively composed of this substance. The sale of coffee mixed with foreign substances, as well as the sale of "powder coffee," deprived, by the infusion thereof into water, of the constituents which give it its perfume, flavor, and peculiar qualities, is prohibited.

SEC. 141. Products prepared and sold under the name of "chocolate" shall be obtained only from cacao seeds, pulverized and mixed with sugar, aromatized or not. The maximum proportion of sugar shall be of 60 per cent: proportions exceeding this number shall be expressly and clearly stated on the label of the package containing the article.

SEC. 142. Owners or managers of grocery stores must permit the visits of the sanitary inspector; failure to comply with this provision shall be punished by fine for the first offense, and with the penalties that the court might deem proper in case of a repetition of the offense.

### CHAPTER III.

#### CONSTRUCTION OF BUILDINGS WITHIN CITY LIMITS—VENTILATION—DRAINAGE AND SANITARY PLUMBING.

SEC. 143. Lands on which houses or buildings are to be constructed should be previously drained; if it be necessary to fill the land before the construction, the filling shall be done with materials which are not noxious. Before commencing an excavation or removal of earth or materials, the local sanitary chief shall be notified in order that he may issue the necessary orders for the disinfection of the land.

SEC. 144. The building should be based on a firm ground, upon a bed of cement or other proper material. Ground-floor rooms should be isolated from the earth by a bed of asphalt or cement of a minimum depth of 15 centimeters.

In order to prevent the ascension of humidity through the walls the same should be isolated with coating of cement, asphalt, slate, or other impermeable material. This insulating coat shall be placed at about 15 centimeters under the level of the floor.

SEC. 145. If stables or storerooms for salt or other corrosive substances are to be built against a wall, a distance of 15 centimeters at least should be left between the wall and the intended construction.

SEC. 146. Glass or other material roofs are prohibited upon interior courts or yards above the stanchion of the ground floor, unless said roof be removable or be provided with ventilators of vertical faces, which openings should not be smaller than one-third of the surface of the yard or court, and have a height of 50 centimeters.

SEC. 147. Each house or building in streets where there are no sewers, and while these are being constructed shall have a cesspool for the deposit of fecal matter exclusively; but as soon as the construction of the general sewers in the streets be completed the property owners shall be compelled to construct the outlets to the general sewers and to fill the cesspools. Owners of houses or buildings in streets where there are sewers shall proceed to construct the outlets to the same within the six months following the publication of these rules.

SEC. 148. The construction, reconstruction, or alteration, partially or totally, for any purpose, of a house or building, which construction, reconstruction, or alteration might constitute a danger to public health and safety, on account of lack of substantiability ventilation, light, drainage, sanitary plumbing, or other similar requisites, shall be prohibited.

SEC. 149. The permission from the ayuntamiento must be previously secured for the construction, reconstruction, or alteration, partial or total, of a house or building, and to make or change the sanitary plumbing in the same, and the works shall be carried out subject to the restrictions prescribed by the ordinances regulating constructions and to the specifications of the department of engineering, or of the municipal architect in places where there be no such department of engineering. Before granting the license the ayuntamiento shall submit the application to the local sanitary board for its opinion, which shall be based on these ordinances, and if such opinion be unfavorable it shall point out, within

twenty days, the defects and the proper way to correct them. An appeal against the decision of the local sanitary board may be taken before the Superior Board for final action. If the decision of the local sanitary board be favorable, the license shall be granted at the earliest possible convenience, unless other legal requisites have not been fulfilled.

Sec. 150. Before a new or partially or totally rebuilt or altered house, or building, is occupied, rented, or in any other way availed of, it shall be inspected, a favorable certificate of the inspection from the local sanitary board being necessary. The inspection shall be limited to verifying the fulfillment of the prescriptions required by the approved plan and specifications. An appeal against the decision of the local sanitary board may be taken to the Superior Board, whose action shall be final.

Sec. 151. No house, building, or part thereof, shall be used for living purposes unless it has all proper conditions of capacity, water service, ventilation, light, drainage, and other indispensable requisites of cleanliness and sanitation.

Sec. 152. New houses or buildings shall be constructed leaving 15 per cent at least of the built area for uncovered surface or interior courts or yards, in order that all rooms shall have good light and ventilation.

Sec. 153. Existing houses or buildings used as residences, which have not the conditions prescribed in the preceding section, shall be provided with air shafts, or, if these be impracticable, supplemental ventilation.

Sec. 154. All rooms shall have doors and windows overlooking directly the street, garden, court, or open passage. Doors shall have transoms, protected or not by glass frames.

Sec. 155. All rooms should have a capacity of at least 36 cubic meters, and a surface in doors and windows of not less than 3 square meters, increasing this space in a proportion of  $1\frac{1}{2}$  square meters for every 30 meters of cubic contents.

Sec. 156. The pavement of ground-floor rooms shall be higher than that of courts, and the latter higher than the street level. No other exceptions shall be made outside of those expressly authorized in writing by the local sanitary board, when the requisites prescribed by the same shall have been complied with in each case, subject to these ordinances.

Sec. 157. The pavement of ground-floor rooms, as well as that of courts, shall be made of cement, compressed cement tiles, or other impermeable materials.

Sec. 158. Walls of houses or buildings shall be so constructed as to prevent the impregnation of the humidity from the ground, employing for the purpose impermeable materials.

Sec. 159. In houses or buildings, in places where the use of wooden pavements for ground floors is permitted, the space between the ground and the floor shall have ventilation.

Sec. 160. No cesspools shall be constructed under the floor of any room. Such deposits shall be located in the most central part of courts or gardens, ventilated and exposed to the sun.

Sec. 161. Water-closets shall be located in courts, passages, corridors, or other places with good light and ventilation, but never in bedrooms, and should be isolated from living rooms, kitchens, pantries, etc., by solid walls.

Sec. 162. Drainpipes from roofs, water-closets, etc., should be made of cast iron and must not be set into the walls, but placed outside of them.

Sec. 163. Each house or building shall have one water-closet for every twenty persons, with all necessary requisites to prevent emanations and infiltrations.

Sec. 164. The owner, agent, manager, or representative of a house, building, or residence shall always be primarily held responsible for the maintenance in good condition of the sanitary plumbing of the property, irrespective of the action which might be properly taken against the tenants, as the case may be.

Sec. 165. Outbuildings should have the required conditions of ventilation, light, and water, and their own water-closets and sewers; if not, the owner shall be compelled to allow the tenants the use of the water-closets and sewers of the main building, in the prescribed proportion to the number of persons.

Sec. 166. Outbuildings used for the sale of meat, milk, candies, etc., shall have the sanitary service completely separated from the store; they shall not be in direct communication with the main building; they shall have in the upper part of the door a transom 40 to 50 centimeters high by whatever the width of the door may be. Only the persons in charge of their custody, and in no case any family, shall be permitted to sleep therein, but in adjoining rooms.

Sec. 167. Owners of houses in towns where there are aqueducts and water pipes from the same in the streets are obliged to place in the houses faucets in proportion to the number of tenants, and an independent water service for each floor that is to be rented separately.

Sec. 168. The construction of wells, cisterns, or other deposits for water in new houses which streets have water pipes from the aqueduct shall not be permitted, except when they are to be assigned to industrial purposes, in which case the permission from the local sanitary board shall be necessary, and the use of such wells and cisterns shall be subject to the requisites that said board may prescribe. Pools for domestic purposes are excepted from this prohibition if they have the conditions prescribed by the local sanitary board.

SEC. 169. Cesspools, in towns where they are permitted, shall be located at a distance of not less than 10 meters from wells, cisterns, springs, or other water sources. This provision shall apply to deposits for refuse, garbage, etc.

SEC. 170. The installation of water pipes through sewers, drains, etc., is prohibited.

SEC. 171. The construction or opening of churches, theaters, circuses, foundling asylums, hotels, hospitals, asylums, and other public places shall not be permitted except upon favorable report of the local sanitary board after the examination of the plans, specifications, etc.

SEC. 172. Theaters, circuses, churches, hotels, lodging houses, asylums, etc., shall have, besides the general requisites, the following special ones: (a) Sufficient ventilation; (b) fire extinguishers and escapes; (c) abundant supply of water, and proportionate number of water-closets and urinals; and (d) perfect cleanliness in all outbuildings.

SEC. 173. No barracks and jails shall be constructed except upon favorable report of the Superior Sanitary Board.

SEC. 174. Persons having knowledge of the commission of an act or the carrying out of a work in a building dangerous or detrimental to public health shall report the fact to the local sanitary chief.

#### CHAPTER IV.

##### HOTELS, LODGING HOUSES, BOARDING HOUSES, CAFÉS, RESTAURANTS, AND INNS.

SEC. 175. No hotel, lodging house, boarding house, café, restaurant, inn, or bar shall be established unless the owner subjects the establishment to the conditions prescribed by the sanitary chief in a written license. Owners of hotels, lodging houses, etc., which are in operation at present are hereby granted a maximum period of six months from the publication of these ordinances, within which time they shall make the required improvements, under penalty of fine and closing of the establishment.

SEC. 176. Hotels, lodging houses, and boarding houses shall keep a book where the name, place of origin, date of arrival and departure, and number of the room, of each guest shall be recorded, and also the names of persons employed in the establishment.

SEC. 177. It is hereby prohibited to lodge in hotels, boarding houses, lodging houses, and inns a larger number of persons than that corresponding to the capacity of the rooms, in a proportion of 20 cubic meters of space for each person.

SEC. 178. Every room or chamber shall be numbered with permanent figures.

SEC. 179. A larger number of beds than that corresponding to the above-mentioned proportion shall not be permitted in rooms or chambers unless there be other proper means for more ventilation, approved by the local sanitary board and by license in writing, in which the number of beds permitted shall be stated.

SEC. 180. Every bedroom shall have 40 cubic meters capacity at least, and the necessary doors and windows, the latter being not less than 1 square meter, so that it shall have communication with the exterior air, unless other adequate means to furnish good ventilation be employed.

SEC. 181. Every room shall always be kept perfectly clean, as well as the furniture, utensils, bed clothing, etc. The walls shall be whitewashed once a year at least.

SEC. 182. Garbage and refuse shall be deposited in receptacles of zinc or other impermeable material in accordance with the model prescribed by the local sanitary board, and shall be collected daily.

SEC. 183. Hotels, lodging houses, boarding houses, and inns should have the urinals, water-closets, sculleries, sewers, pipes, etc., kept perfectly clean and in good serviceable condition. There shall be one bathroom and one water-closet for every twenty persons. Water-closets shall be located in places of sufficient capacity, well ventilated, and with enough light, natural or artificial, during day and night. The walls must be impermeable to a height of at least 1 meter. The pavement of bathrooms, water-closets, urinals, sewers, etc., must be impermeable, and shall always be kept perfectly clean.

SEC. 184. The above-mentioned establishments shall be provided with water supply sufficient to furnish at least 100 liters daily for each person.

SEC. 185. Cafés, restaurants, bars, etc., shall be provided with sanitary water-closets, urinals, and washstands for the public service, all of them in good serviceable and clean condition, in number proportionate to the importance of the establishment; said water-closets, etc., shall be subject to the approval of the local sanitary board, and installed in accordance with the plan and system prescribed by the board.

SEC. 186. The establishments referred to in the three preceding sections shall be provided with cuspidors, in the proportion of one for every twenty persons, in corridors, passages, etc., of the model and with the disinfecting solution to be prescribed by the local sanitary board. In cafés the number of cuspidors shall be equal to that of tables in use.

SEC. 187. It is the duty of the keeper or owner of an hotel, lodging house, or boarding house to report to the sanitary chief any case of disease on the premises which may be found to be without medical attendance; cases of infectious diseases shall be reported as well.



SEC. 188. Any person suffering from a contagious disease who is lodged in a hotel, lodging house, or boarding house, etc., shall be removed to an isolated hospital when the sanitary chief shall deem it necessary.

SEC. 189. The owner or keeper of a hotel, lodging house, inn, restaurant, or bar who shall fail to comply with the provisions of this chapter shall be held responsible for the offense. Should he find resistance on the part of any of the lodgers to comply with said provisions, or should any of such lodgers have violated the same, he shall notify the fact at once to the sanitary chief.

#### CHAPTER V.

##### TENEMENT HOUSES.

SEC. 190. For the purposes of these ordinances it shall be understood by the term "tenement house" any building or part thereof assigned as residence of three or more families who live independently from one another, with general right to use the passages, courts, bathrooms, or water-closets, and with separate kitchens.

SEC. 191. Every tenement house shall have a person in charge of it, who shall be held primarily responsible for the fulfillment of the following duties, irrespective of the action that may be brought against the owner.

SEC. 192. He shall keep a register, where the name, place of birth, age, place of origin, date of arrival, and number of rooms of each tenant shall be stated, as well as the changes of rooms which might take place within the building, or the date on which any of such rooms may be left vacant.

SEC. 193. He shall notify the sanitary chief whenever there is a sick person in the building without medical attendance.

SEC. 194. He shall ask the physician attending a sick person in the building whether the disease is contagious or not; if the answer be affirmative, he shall immediately notify the fact to the sanitary chief.

SEC. 195. He shall compel the tenants to deposit the garbage and refuse in galvanized-iron receptacles, to be furnished by the owner of the building and made in accordance with the model and number prescribed by the sanitary board.

SEC. 196. He shall see that all courts, yards, and corridors are always kept perfectly clean, and for this purpose he shall not allow garbage or dirty water to be thrown in said courts, yards, or corridors.

SEC. 197. He shall not permit the deposit in the building of furniture or articles not in use.

SEC. 198. He shall see that the inlets to sinks are supplied with water and properly covered. He shall inspect the same frequently to see that they are in good condition, as well as the faucets, traps, sinks, washstands, and other sanitary plumbing.

SEC. 199. He shall see that water-closets and urinals are always kept clean and in good serviceable condition, and that no urine or other filthy substances are deposited on the floors thereof.

SEC. 200. He shall inspect all rooms in the building in order to see that they are kept clean. Should he find any room in an unsanitary condition he shall admonish the tenant, and if such tenant refuses to comply with the notice he shall report the fact to the sanitary chief.

SEC. 201. He shall keep the courts or yards in such a condition that no puddles can be formed, and he shall see that the wells, cisterns, tanks, and other receptacles for water are properly protected with covers of wire gauze against the access of mosquitoes.

SEC. 202. He shall not allow in any room overnight a greater number of persons than that corresponding to its capacity as prescribed by the sanitary board, which number shall be posted in every room.

SEC. 203. Immediately after a room is left vacant he shall clean it thoroughly before it is rented again, keeping it closed in the meanwhile. If a case of any disease the report of which is compulsory should have occurred in the room, he shall notify the fact to the local sanitary chief for the necessary disinfection.

SEC. 204. Every tenement house shall be provided with cuspidors in the proportion of one to every 20 persons, which cuspidors shall be placed upon stands 1 meter high, in courts, passages, and corridors, and it shall be the duty of the person in charge of the building to keep them clean and supplied with the antiseptic solution prescribed by the board.

SEC. 205. Every tenement house shall be provided with one water-closet, one bathroom, and one sink for every 20 persons; the floors and walls of such water-closets and bathrooms shall be impermeable, and also the walls to a height of 1½ meters, at least.

SEC. 206. All tenement houses shall be provided with water supply sufficient to furnish at least 100 liters daily for each person.

SEC. 207. Roofs, walls, doors, and windows of tenement houses shall be kept clean, white-washed and painted, and without clefts. The walls shall be whitewashed at least once a year.

SEC. 208. The placing of cloth or paper over holes or small windows of rooms in such manner as to obstruct the access of light or air, is prohibited.

SEC. 209. Wash tubs, or other receptacles for washing purposes, should have metal hoops, and props for stands, and not barrels, cases, or other such devices. Walls, in places assigned to washing purposes, should be covered with impermeable material to a height of at least  $1\frac{1}{2}$  meters.

SEC. 210. Washing or cooking in dwelling rooms is prohibited. All newly constructed tenement houses shall be provided with special compartments, uninhabited and for general use, one for the washing place and the other for the kitchen.

SEC. 211. Dividing of rooms by means of thin walls, whatever be the material employed for the purpose, is hereby prohibited.

SEC. 212. The smallest room in a tenement house should not be less than 9 square meters in area and 4 meters high.

SEC. 213. Industrial or commercial establishments in tenement houses are prohibited; therefore, no shops of any kind can be conducted within the premises of said buildings, except in those higher than one story, the entrance and sanitary service being independent from the part assigned to living purposes, all with the consent of the sanitary board.

SEC. 214. No stables shall be permitted in tenement houses, nor can animals of any kind be kept therein, except birds in cages.

SEC. 215. Any person suffering from a contagious disease in a tenement house shall be removed to an isolation hospital whenever the sanitary chief shall deem it necessary.

SEC. 216. Should the person in charge of a tenement house encounter resistance on the part of tenant to comply with the provisions of these ordinances, or should any tenant violate any of said provisions, it shall be his duty to report the fact immediately to the sanitary chief.

SEC. 217. Newly constructed buildings shall not be used as tenement houses until the plans thereof shall have been approved by the sanitary board; nor shall buildings already existing be used for like purposes without the previous consent of the sanitary board.

SEC. 218. It shall be the duty of persons in charge of tenement houses to furnish the sanitary inspector any information in regard to said buildings, and also to accompany them upon their inspection visits.

SEC. 219. Printed copies of the rules contained in this chapter shall be posted at the entrance of every tenement house, said copies to be furnished by the local sanitary board.

## CHAPTER VI.

### PRIVATE HOUSES AND BUILDINGS IN GENERAL.

SEC. 220. All houses, buildings, constructions, etc., are hereby made subject to sanitary inspection by the local sanitary board, and their owners, keepers, agents, lessees, tenants, inhabitants, etc., shall allow and facilitate any inspection by the officers or agents duly authorized by the local sanitary board, and also carry out, or permit the carrying out of, the sanitary works in the house which might have been ordered as a consequence of the inspection.

SEC. 221. Every house or dwelling shall be provided with all the necessary hygienic conditions, so that it shall not constitute a danger or menace to the health or life of its inhabitants and neighbors.

SEC. 222. Every house, or floor thereof rented separately, shall be provided with water supply sufficient for the domestic necessities of its inhabitants, at the rate of 100 liters, at least, per day for each person.

SEC. 223. Owners or tenants, as the case may be, shall take the necessary precautions to prevent the sewers, sinks, water-closets, etc., from exhaling emanations or other annoying odors.

SEC. 224. Drainpipes should be sufficiently ventilated and have all the necessary requirements to facilitate the discharge of refuse matter, prevent filtrations through walls and pavements, and permit the escape of gases in such a manner that they shall not be detrimental to the health of tenants and neighbors: to this end the construction, installation, or alteration of the same shall conform with the engineering specifications prescribed in the respective permit. Similar specifications are required in the case of water-closets, cesspools, sculleries, sinks, and other sanitary plumbing.

SEC. 225. The construction of drainpipes, ventilating tubes, or smokestacks which may annoy or damage the neighboring houses, or that in which the same are intended to be constructed, is prohibited. The provisions of this section shall be applied to such drainpipes, etc., that are already constructed.

SEC. 226. Houses in towns where there are aqueducts and sewers shall be provided with water-closets of the system adopted by the Superior Sanitary Board, exclusive of any other system. Houses in towns where there are no aqueducts or sewers shall be provided with

cesspools, constructed in accordance with the proper engineering specifications and at a distance of not less than 10 meters from wells, cisterns, rooms, and kitchens, unless the sanitary board should adopt other system for the collection and extraction of fecal matter.

SEC. 227. Cesspools and dumps shall be constructed in such a manner as to prevent the overflow on account of rains.

SEC. 228. The construction or existence of cesspools and sinks in houses shall only be permitted in streets where there are no sewers.

SEC. 229. The owner or tenant of every house shall pour into cesspools and sinks unslaked lime, sulphate of iron, creoline, or other disinfecting substances, when so ordered by the sanitary board for special reasons.

SEC. 230. Pavements of water-closets, bathrooms, washing places, sculleries, etc., shall be made of impermeable material, and the walls shall be covered with the same material, if they are made of stone, to a height of 1½ meters, at least, and oil painted if they are wooden.

SEC. 231. Owners of houses shall see that cesspools and sinks are never filled up nor allowed to overflow, ordering the cleaning of the same whenever necessary. In case they shall fail to do so, the sanitary board shall cause such cleaning to be made by the public service of cleaning at the expense of the owner of the house, irrespective of the fine which may be imposed on him for the offense.

SEC. 232. Wells, cisterns, tanks, or other receptacles for water shall be so arranged that no dampness from the same can be communicated to rooms, and that no filtrations be received by the same from cesspools and sinks, and they shall always be protected with wire-gauze covers against the access of mosquitos.

Only fountains constantly operating with running water shall be permitted.

SEC. 233. No deposit of refuse, garbage, or offal, stanchd water, or any other matter deleterious to health shall be permitted within the premises of any house.

SEC. 234. Receptacles used for containing garbage and refuse shall be placed as distantly as possible from the rooms of the house and must not have holes.

SEC. 235. Breeding or fattening of pigs within city limits is prohibited; and it shall only be permitted at a distance of 200 meters from said boundaries.

SEC. 236. Rooms used as kitchens, or permanent stoves or furnaces, should be provided with mantles or chimneys to facilitate the escape of gases and smoke generated by combustion, so built that they shall not injure the health of tenants and neighbors. Portable furnaces shall be placed, when in use, in places where they shall not be annoying to tenants or dwellers.

SEC. 237. All rooms, outbuildings, courts, roofs, and sanitary plumbing of a house shall always be kept perfectly clean. Walls must be kept in good condition and properly painted, as well as doors and windows; pavements and roofs must be kept in good condition in order to prevent humidity in rooms, and for this purpose, wherever necessary, the construction of drainpipes and conduits shall be required.

SEC. 238. Stables shall only be permitted in perfectly ventilated places, with impermeable pavements and walls, and all the requirements prescribed by the special regulations for stables.

SEC. 239. The use of cellars and semisubterraneous places for sleeping or dwelling purposes is hereby prohibited, and no door or opening communicating a cellar with a bedroom shall be permitted. This prohibition shall be applicable to ground floors if the height of the same be less than 2½ meters and if they are not provided with windows to furnish sufficient ventilation.

SEC. 240. The accumulation of domestic animals, such as dogs, cats, rabbits, poultry, pigeons, birds, etc., in rooms shall not be permitted.

SEC. 241. If a house or a part thereof be declared unhealthy, as a result of the inspection, the sanitary chief shall notify the fact to the owner or tenant, as the case may be, giving him sufficient time within which he may make the works, repairs, or improvements that he might have been ordered to carry out. At the expiration of the time allowed a reinspection of the building shall be made for the purpose of ascertaining whether the order has been complied with or not. If not, and if the justifiable and unavoidable causes that prevented the carrying out the works ordered have not been stated in writing, a complaint shall be filed before the proper court for the imposition of the penalty fixed by law, and further period of time shall again be granted for like purpose. If after the third time the works have not been carried out the house or part thereof, as the case may be, shall be declared uninhabitable and the police shall proceed to dislodge it and close it within thirty days. It shall remain closed until the works ordered shall have been carried out.

SEC. 242. A house or building, or part thereof, used for dwelling, sleeping, manufacturing, or other purposes, which constitutes a permanent danger to health or life, and which can not be placed in proper hygienic conditions, shall be declared uninhabitable or dangerous after proper investigation and shall be dislodge and closed upon order of the sanitary chief by the police within thirty days.

## CHAPTER VII.

## SCHOOLS AND COLLEGES.

SEC. 243. No school or college shall be established without the favorable report of the local sanitary board in regard to location, hygienic conditions, sanitary plumbing, and capacity of the building in proportion to the number of pupils and school furniture.

SEC. 244. Lecture halls must be dry, with good sufficient ventilation, and an area in proportion to the number of pupils at the rate of 1½ meters per person.

SEC. 245. School and college buildings shall be provided with one water-closet for every 30 pupils at least and as many urinals as it is deemed necessary.

SEC. 246. Sanitary plumbing of schools and colleges shall always be kept perfectly clean, as well as the outbuildings, courts, floors, walls, etc.

SEC. 247. Schools and colleges are subject to inspection by the local sanitary board regarding the buildings as well as the condition of the health of professors and pupils.

SEC. 248. Every pupil in a school or college shall be vaccinated and the parents, guardians, etc., shall be responsible for violation of this provision, as well as the director and professor, as the case may be. The same provision is applicable to the director, teachers, and other subordinate employees.

SEC. 249. When the director of a school or college finds that a pupil, teacher, servant, etc., lives in a place where a contagious disease prevails, he shall dismiss such person from the school temporarily and give notice of the fact to the sanitary chief within twenty-four hours.

SEC. 250. No pupil, teacher, servant, etc., so dismissed shall be readmitted to the school or college without the proper authorization from the sanitary chief.

The provisions of this and the preceding section shall also be applicable to night and Sunday schools.

SEC. 251. The permanent or temporary closing of a school or college on account of the prevalence therein of a contagious disease or of the unhealthy condition of the building shall be ordered by the local sanitary board.

SEC. 252. Persons suffering from chronic contagious diseases shall not be permitted to discharge any office or position in a school or college.

## CHAPTER VIII.

## FACTORIES AND WORKSHOPS.

SEC. 253. Before a permit for the installation of a factory or workshop is issued, the favorable report of the sanitary board is necessary. Said report shall be prepared upon the statement submitted to the board expressing the nature of the establishment, its location, technical conditions, proper for its industrial purposes, safety, stability, light, ventilation, capacity, kind and maximum number of machines and apparatus to be operated, and number of laborers and other employees.

SEC. 254. Every factory or workshop shall have an area of 2 square meters per person and a cubic volume of at least 12 meters.

SEC. 255. Workshops shall be located in dry places, with good light and ventilation and other hygienic requirements necessary for the health and life of laborers and employees.

SEC. 256. Factories or workshops in which, due to the nature of the works, gases, dust, or liquid refuse, annoying or noxious to laborers, employees or neighbors, are indispensably produced, shall be provided with the proper means of gathering and distributing said gases, dust, or liquid refuse, without constituting any danger, by the process deemed necessary and approved by the local sanitary board.

SEC. 257. Owners of factories, workshops, establishments, houses, etc., where smokestacks are to be or have been already placed, shall construct or modify them, as the case may be, in such a manner that the smoke can not have access into neighboring houses or rooms.

SEC. 258. The discharge of refuse matter from workshops, factories, or industrial establishments into streams, canals, rivers, etc., the waters of which are used for fishing, drinking, or other purposes is prohibited, unless such refuse matter be previously purified by means of proper process approved by the Superior Board.

SEC. 259. No child under the age of 14 years shall be employed in any factory or workshop. Minors under 18 years of age shall not be employed for the handling of dangerous machines or apparatus.

SEC. 260. Factories or workshops where there are machines, or where dangerous substances are manufactured, and the number of laborers exceeds 200, shall have a permanent physician during the labor hours ready to render his assistance in case of accident.

SEC. 261. Every factory or workshop shall be provided with cuspidors in proportion to the number of laborers. Said cuspidors shall be kept perfectly clean and washed daily with boiling water or some disinfecting solution. The sanitary board shall prescribe the

model and number of said cuspidors, and the disinfecting solution which the same shall contain and that with which they shall be washed.

SEC. 262. Factories and workshops shall be provided with sufficient number of water-closets in a proportion of at least 5 per cent of persons, and urinals and washstands, all of which shall be kept perfectly clean and in good serviceable condition.

SEC. 263. Owners or managers of factories or workshops shall not permit therein any laborer or employee suffering from a contagious disease.

SEC. 264. Cigar factories shall be subject to the following provisions:

- (a) Working tables shall be so arranged that the laborers shall not sit facing each other.
- (b) Each table shall be provided with a small receptacle made of enameled iron, for the water and paste to be used in the confection of cigars. The use of saliva and the teeth in such confection shall not be permitted.
- (c) Every table shall be provided with a receptacle for the waste of materials employed in manufacturing cigars.
- (d) Walls and tables shall be cleansed once a week, at least.
- (e) Cloth used in tables for gathering waste matter shall be kept clean.
- (f) Spitting on floors shall be prohibited.
- (g) There shall be a cuspidor for every laborer.
- (h) Pavements shall be washed daily.
- (i) They shall be so kept that no cracks may be found thereon.
- (j) Windows of workrooms shall be so arranged that the upper part thereof shall remain open.
- (k) There shall be in workrooms a space of 20 cubic meters for every laborer.
- (l) The manufacture of cigars, etc., in bedrooms is prohibited.
- (m) The sale of tobacco refuse which shall have fallen upon floors shall not be permitted.
- (n) Water which shall have been used in the confection of cigars must be thrown away before it decomposes.

SEC. 265. Factories, workshops, and industrial establishments in general, where machinery, apparatus, etc., are employed, shall have the same mounted in such manner that the parts thereon which by their movement or other cause constitute a danger, shall be covered or protected with wire gauze or other material. Steam boilers or other means of generating motive power shall be kept in the best condition of safety and must be explosion proof; all buildings pertaining to an industrial establishment shall be so constructed as to prevent danger of lives.

Wells, traps, holes, etc., shall be kept closed.

The foregoing provisions are also applicable to theaters, circuses, stores, and other establishments where mechanical apparatus are employed.

## CHAPTER LX.

### DAINGEROUS, UNHEALTHFUL OR ANNOYING FACTORIES, INDUSTRIES AND ESTABLISHMENTS.

SEC. 266. Dangerous, unhealthful or annoying factories, industries, and establishments shall not be permitted hereafter except in accordance with the following requirements as to their location the respective classification and the prescriptions of the regulations concerning the same:

- (a) They shall be located far from dwellings, streets, and roads.
- (b) They may be located in the suburbs of towns.
- (c) They may be located in any part of the city, but subject to frequent inspection and governmental prescriptions.

SEC. 267. Besides the requirements of construction, engineering, etc., prescribed by the ayuntamiento, no permit shall be granted for the installation of any of such factories or establishments, without the favorable report of the local sanitary board; and it shall not be operated until after it has been demonstrated to the board that all sanitary requirements prescribed in the permit have been complied with. An appeal from the decision of the local board may be taken to the Superior Board.

SEC. 268. The kind of products sought to be manufactured in the factory or establishment shall be stated in the permit or license for the installation and operation thereof, as well as the process of manufacture to be followed and the maximum amount of goods that the warehouses or storerooms can contain.

SEC. 269. When a factory or industrial establishment shall have suspended its operations for more than a year, or has to be removed to another location, it shall have to fill the same requirements as if it were a new one.

SEC. 270. When the interest of public health shall so demand it, the removal of any establishment may be compelled through due process of law.

SEC. 271. Departments in factories or industrial establishments, where organic substances susceptible of easy decomposition are manufactured, shall be provided with perfectly impermeable pavements, and sufficient supply of water for frequent washing.

SEC. 272. No organic substances shall be stored in a factory or industrial establishment over twenty-four hours, unless they be protected against decomposition. Waste matter and refuse shall be collected every day from such establishments.

SEC. 273. The preparation or cooking of animal refuse, for industrial or commercial purposes, within city limits, is prohibited as well as the grinding or trituration of bones or shells, and other industrial operations producing fetid odors, or which might endanger public health.

SEC. 274. Renting or ceding rooms for dwelling or sleeping purposes in houses or buildings where there are dangerous or unhealthful establishments or factories, is prohibited. The connection of such establishments or factories with tenement houses is likewise prohibited.

SEC. 275. No laundry shall be established in a house, unless said house be previously inspected by the sanitary board and a favorable report from the same be secured for the purpose.

SEC. 276. In laundries where steam is not used, the clothes shall be immersed in boiling water for at least an hour.

SEC. 277. The local sanitary board shall prescribe in each case the requirements which the sanitary service in laundries must have (cemented tanks, drainage, etc.).

SEC. 278. Stables for all kinds of animals shall be considered as unhealthful establishments, subject to special regulations, and shall be located in the suburbs.

SEC. 279. No license shall be granted for the installation and operation of stables without the favorable report of the local sanitary board.

SEC. 280. The sanitary conditions required for the granting of such licenses, and to which all existing stables shall be subject, are as follows:

- (a) Stables shall be located outside of the city limits.
- (b) Buildings for stables shall be made of stone, brick or iron, 5 or 6 meters high, and shall be provided with ventilating holes, one for every 4 animals.
- (c) The stables shall be in galleries 4 meters high at least.
- (d) Galleries having only one manger adhered to the wall shall not be less than 4 meters wide in all its longitude.
- (e) The walls shall be covered with cement or other impermeable material.
- (f) The racks for forage shall be made of iron; the mangers may be made of wood.
- (g) The pavements shall be made of cement, with an inclination of at least 200 per cent.
- (h) The sewers shall be constructed with a bottom of an elliptical shape, and shall be perfectly polished.
- (i) In order to prevent the animals from slipping, or catching cold when lying down on the pavement, the same shall be covered with wooden boards about 2 inches thick, said boards to be removable and placed in such a manner that sufficient space be left between the boards and the pavement.
- (j) Each animal shall be separated one from the other by a proper distance. The stables shall be provided with proper divisions of a space  $1\frac{1}{2}$  meters wide.
- (k) Racks for forage of all kinds shall be made of stone, brick, or iron.
- (l) Stables shall have an infirmary, which shall be independent from the rest of the premises, and where only the sick animals affected with diseases not transmissible to mankind, shall be lodged.
- (m) In case there be no general sewer system in the place where a stable is located, the excreta shall be deposited in a dumping place of the capacity prescribed in each case; such dumping place shall be made of impermeable materials, and must be emptied whenever necessary, the contents being removed to the general dumping places of the city.
- (n) Stable buildings shall be provided with the necessary number of ventilators or windows.
- (o) The drinking troughs shall be made of impermeable materials and so arranged that they may be easily cleaned. There shall be one drinking trough for each animal.

SEC. 281. Dwellings in stables are prohibited, except those exclusively assigned to employees thereof; establishments having no connection whatever with stables are likewise prohibited therein.

SEC. 282. Stables shall be provided with water supply sufficient to furnish the necessary amount of water for the general cleaning, which shall be made twice a day at least.

SEC. 283. Garbage and excrement shall be removed from stables every day and taken to the general dumping places in the manner prescribed for the public collection and disposal of garbage.

SEC. 284. The excreta shall be deposited in metal receptacles which shall be cleansed and disinfected daily.

SEC. 285. Pavements of yards, workshops, and other compartments for the storage of outfits, etc., shall be perfectly filled with stone or macadam.

SEC. 286. Sick animals shall not be employed in any kind of work.

SEC. 287. It shall be the duty of owners of stables to engage the services of a veterinarian who shall inspect the cattle once a week at least.

SEC. 288. Whenever the municipal veterinarian, or sanitary inspectors, make an inspection of stables they shall record the inspection in a book kept for the purpose in every stable.

SEC. 289. Whenever there is an animal suffering from a disease transmissible to mankind, the veterinary attending such animal, or, in his stead, the owner thereof or other interested person, shall report the case to the local sanitary chief.

SEC. 290. When an animal suffering from an infectious disease is removed from the stables the municipal veterinarian shall see that a thorough disinfection is made in the place considered infected, and, in cases of glanders, that the harness used on such animal has been also disinfected.

SEC. 291. Stables in houses and private establishments shall be subject to the provisions herein contained as regards the construction and sanitation thereof.

SEC. 292. Stables in towns where there is no sewer system shall be provided with outlets to dumping places of sufficient capacity.

SEC. 293. Stables which are not provided with open sheds must have ventilating tubes projecting 2 meters out of the ceiling. Said tubes may be provided with registers to regulate the current of air.

SEC. 294. Stable utensils, such as pails, or water receptacles, sponges, forage racks, etc., shall always be kept clean.

SEC. 295. Stables shall be washed twice a day.

SEC. 296. Animals in stables shall be subjected to the test of "maleina."

SEC. 297. Dangerous or annoying establishments, deposits, or factories must always be kept perfectly clean, so that the operations therein shall not be detrimental to public health.

## CHAPTER X.

### SLAUGHTERHOUSES AND SLAUGHTERING.

SEC. 298. No slaughterhouse shall be constructed without the favorable report of the local sanitary board, approved by the Superior Sanitary Board, after consideration of the plans, specifications, and other documents.

SEC. 299. Rooms for dwelling purposes in slaughterhouses are prohibited except when specially permitted in writing by the Superior Board.

SEC. 300. Every ayuntamiento shall have a public slaughterhouse with the necessary departments, personnel, sanitary service, etc.

SEC. 301. Private slaughtering for the consumption of meat in farms or factories is prohibited, unless it shall be duly authorized and made in accordance with provisions prescribed by the local sanitary board.

SEC. 302. Slaughterhouses shall be managed by special regulations, to be approved by the Superior Sanitary Board, as regards the sanitary service therein.

SEC. 303. Slaughtering of animals for public consumption shall be made in the official slaughterhouses of municipalities only.

SEC. 304. Slaughtering in courts or yards of houses within city limits is prohibited. Slaughtering in country houses or houses in towns of lesser importance is prohibited unless it be intended for private consumption; a favorable certificate of the examination of the animal by a competent official shall be necessary therefor.

SEC. 305. Animals intended for public consumption shall be examined before and after the slaughter by the veterinarian or by a physician if there be no veterinarian. If the examination shows that the animal is not completely healthy it shall be condemned.

SEC. 306. Animals that are to be slaughtered must be perfectly clean and kept in the slaughterhouse corral during six hours before they are slaughtered. The corrals shall be thoroughly cleaned every twenty-four hours; their capacity shall be in proportion with the number of animals; said corrals must be well ventilated and provided with sufficient water and drinking troughs and other requirements which may be deemed necessary.

SEC. 307. Persons in charge of corrals shall notify to the respective veterinarian the existence therein of any animal suspected of being sick.

SEC. 308. Slaughtering of thin, pregnant, beaten, suffocated, or wounded animals or of animals suffering from ulcers, fever, or other disease which in the discretion of the veterinarian may render them unfit for consumption, shall not be permitted.

SEC. 309. Animals that are to be slaughtered must be able to go to the slaughterhouse on their own feet, except those which on account of their excessive fatness can not walk.

SEC. 310. Slaughterhouses shall be kept thoroughly clean and ventilated, and all offal, blood, refuse, and other filthy matter shall be removed after the slaughtering. All refuse matter shall be destroyed or removed to places where it can not be detrimental to public health.

SEC. 311. The transportation of meat to the places where it shall be sold must be made in the best condition of cleanliness and in oil-painted wagons, the inside of which shall be covered with tin or galvanized iron; they shall be provided with hooks where the meat shall be hanged. The transportation in any other way whatever shall not be permitted.

SEC. 312. Persons employed in the transportation of meat must be cleanly dressed and shall not be permitted to work unless they wear impermeable overcoats.

SEC. 313. The transportation or conveyance of refuse matter from slaughterhouses through the streets shall not be permitted unless it be done in the manner prescribed by the sanitary board.

SEC. 314. The insufflation of the skin of dead animals in order to facilitate the operation of flaying shall be made by means of apparatus fit for the purpose; such insufflation by means of the mouth is prohibited.

SEC. 315. The use, even though temporary, of the premises of a slaughterhouse for any other purposes than that to which it is assigned is prohibited.

## CHAPTER XI.

### MARKETS.

SEC. 316. No market shall be built or altered without the favorable report of the local sanitary board after consideration of the plans and other documents.

SEC. 317. The capacity of a market shall be in proportion with the commercial necessities of the locality; every market shall be supplied with abundant quantity of water; the pavements thereof shall be made of impermeable material and with the necessary declivity in order to prevent stagnation; the pillars shall be sufficiently high and distant from each other to furnish good ventilation; the roofs shall be provided with ventilating holes, and if they be made of metal sheets they shall be sufficiently separated from the walls in order to prevent excessive heat.

SEC. 318. Premises of markets which may be constructed hereafter shall not be used for dwelling or sleeping purposes, and the construction of dwellings therein shall not be permitted. In markets already in existence wherein dwellings are permitted and to which the provisions of this article can not be applied on account of special circumstances, such dwellings shall be subject to the necessary conditions required by public health and sanitation.

SEC. 319. The rules which the local sanitary board may prescribe for the sanitary management of markets shall be included in the special regulations for the administration of the same.

Sellers shall comply with all provisions in regard to the keeping of their stands in the best of hygienic conditions.

SEC. 320. The sale in markets of cooked food products of any kind is prohibited except feet and intestines, boiled only and without any other preparation whatever; the use of braziers, furnaces, stoves, etc., within markets shall not be permitted.

SEC. 321. Meat or fish remaining from the daily sale can be sold only when preserved on ice or salted.

SEC. 322. Stands where meat is sold shall have the following requirements:

(1) They shall be provided with an iron or steel bar, perfectly polished and clean, for hanging the meat.

(2) In towns where it be practicable to do so a water cock of sufficient gauge shall be placed upon the sink, which will be connected by means of a pipe with the market sewerage system.

(3) A sink inlet with hydraulic plug.

(4) The stands must be oil painted and kept perfectly clean.

(5) They shall be provided with wire gauze doors and covers to prevent the access of mosquitoes.

(6) There shall be in every stand a marble counter and a table of the same material.

(7) The meats shall be so placed that the customers and other persons can not touch them.

SEC. 323. The use of hatchets and wooden blocks for chopping meat is prohibited; the meat and bones must be cut with knives and saws respectively, the handles of which must be made of metal.

SEC. 324. Meat and fish sellers shall wear during the sale hours a clean white apron. Walls, counters, etc., of stands shall be washed after the sale hours.

SEC. 325. The sale of meat shall be discontinued at 11 a. m. Meat remaining from the sale of the day must be placed in the refrigerator or shall be salted; if said meat be kept otherwise it shall not be sold the next day.

The use of preserving substances other than common salt (sodium chloride) is prohibited.

SEC. 326. The giblets shall be placed in the refrigerator as soon as they are received from the slaughterhouse.

SEC. 327. The sale of fish or mollusks shall be discontinued at 10 a. m. during the summer and at 11 a. m. during the winter. The remnants from the sale shall be salted or placed in the refrigerator.

SEC. 328. Crabs, lobsters, and other crustaceans must be sold alive, precisely.

SEC. 329. The sale of oysters during the months of May and August, inclusive, is prohibited, and oysters in a decaying condition shall be thrown away immediately.



SEC. 330. The sale of scaled, flayed, beheaded, or in any other way mutilated fish, is prohibited, except fish which is usually sold in round slices.

SEC. 331. The sale of fishes which are liable to cause *ciguatera* (kind of jaundice) is prohibited.

SEC. 332. Fish sellers must be cleanly dressed and wear a white apron during the sale hours; they shall wash the counters, tables, etc., every day.

SEC. 333. Vessels used for washing vegetables, etc., must be made of enameled iron or other impermeable material.

SEC. 334. The sale of decayed or noxious fruits is prohibited.

SEC. 335. The sale of dead domestic rabbits is prohibited.

SEC. 336. Dead poultry and game must be disemboweled and perfectly fresh, it being the duty of the sellers to preserve said poultry and game in refrigerators.

SEC. 337. Other animals for public consumption, such as suckling pigs, kidlings, rabbits, etc., must be perfectly healthy, fat, and clean.

SEC. 338. Throwing refuse matter on the floors is prohibited. All refuse matter shall be deposited in galvanized-iron receptacles provided with lids; said receptacles shall be placed in the stands and marked with the corresponding number. When the cleaning of a stand has been completed, said receptacles shall be placed at the entrance in order that they may be collected by the persons in charge of the service.

SEC. 339. The sewers shall be kept covered, and every market, in towns where it be practicable, shall be provided with sanitary water-closets and urinals approved by the local sanitary board.

SEC. 340. The general cleaning of a market shall be made twice a day and at the hour prescribed in the administrative regulations of the market. The persons in charge of the cleaning shall collect the garbage from each stand, washing the receptacles and putting them back in their places. They shall also clean the water-closets and urinals, every night, as well as the sink inlets, disinfecting all of them with lime, creoline, etc.

SEC. 341. Wooden walls and other wooden constructions shall not be permitted in stands.

SEC. 342. There shall be in each market a place where, during the hours of cleaning, all articles which may have been seized, on account of being unfit for consumption, shall be deposited in order that they may be thrown away or destroyed together with the garbage and refuse.

SEC. 343. The inspection of markets shall be made daily and at different hours.

SEC. 344. The existence of cellars, cafés, establishments, etc., is prohibited within markets.

SEC. 345. It shall be the duty of inspectors: (a) To examine carefully all stands; (b) to report to the sanitary chief whatever they may deem necessary for the cleaning and maintenance of the premises of markets; (c) to inspect meats, fish, poultry, and other animal products; (d) to order the withdrawal from sale of all articles unfit for consumption, notifying the sanitary chief immediately; (e) to take samples of all articles which may be considered suspicious, in bad condition, or adulterated, giving the interested party a receipt specifying the article from which the sample is taken, in order to avoid doubts or discussions; (f) to examine the water-closets, urinals, and inlets to sewers, reporting to the sanitary chief any violations which they may observe.

## CHAPTER XII.

### MEAT MARKETS AND SALE OF MEATS.

SEC. 346. Before a meat market is opened the favorable report of the local sanitary board shall be necessary in regard to its proper sanitary conditions.

SEC. 347. Meat markets, besides being well ventilated and kept in a cleanly condition, shall have the following requirements:

(a) White marble counters, well polished.

(b) Marble or cement pavements.

(c) Smooth ceilings.

(d) The walls must be covered with glaze tiles to height of 2 meters.

(e) The stanchion therein must be 4 or 5 meters high, except in those already existing and which have sufficient ventilation.

(f) They shall be provided with abundant water supply.

(g) They shall be provided with refrigerators or ice boxes of sufficient capacity in accordance with the importance of each establishment.

(h) They shall be provided with iron-grating doors facing the street.

(i) The meat must be hung on steel hooks. Said hooks must be beyond the reach of hands of purchasers and attached to a steel bar, all of which shall be kept polished.

(j) The sanitary plumbing therein shall be adapted to the prescriptions of the sanitary board. No water-closets shall be permitted in meat markets.

(k) The premises must be kept in the best cleanly condition; the pavements must be washed one or more times daily, and the walls, etc., oil painted whenever necessary.

(l) No other industry or commerce shall be conducted in meat markets; bones, refuse, garbage, etc., must not be deposited therein; meat markets must be separated from other establishments by complete stone walls.

SEC. 348. Meat and fish remaining from the daily sale shall be placed in the refrigerators or ice boxes of the model prescribed by the local sanitary board.

SEC. 349. The sellers must wear a white clean apron.

SEC. 350. No meat market shall be permitted in wooden buildings, except when, on account of special circumstances of location, the consent in writing of the local sanitary board be secured.

SEC. 351. Meat markets already established and which have not the requirements prescribed by these ordinances shall be allowed a period of six months from the date in which these ordinances shall go into effect. Meat markets which shall not have complied with said requirements shall be closed.

SEC. 352. Premises of meat markets shall not be used for dwelling or sleeping purposes.

SEC. 353. Meats shall be kept hanging outside or inside of the refrigerator from the time of their arrival to the establishment until 10 o'clock in the morning; after that time they shall be placed in the refrigerator, which shall be provided with sufficient amount of ice.

SEC. 354. The use of hatches and wooden blocks for chopping meat is prohibited; the meat and bones must be cut with knives and saws, respectively, the handles of which must be made of metal.

SEC. 355. The sale of meat from animals which shall not have been slaughtered expressly for consumption, in slaughterhouses, is prohibited.

SEC. 356. When the owner of a meat market suspects that the meat which he has is derived from a diseased animal, he shall suspend the sale of said meat and immediately report the fact to the sanitary chief.

SEC. 357. All utensils used in meat markets shall always be kept perfectly clean.

SEC. 358. No meat other than pork or beef, nor other salt than sodium chloride, shall be employed in the confection of sausages, and utensils made of other material than wood, iron, or stone must not be used for said purpose, which utensils shall be kept perfectly clean.

SEC. 359. The importation of meat from one town into another shall not be permitted unless such meat is marked with the stamp of the slaughterhouse, and accompanied with a certificate from the veterinarian thereof, approved by the alcalde.

SEC. 360. Meats not proceeding from authorized slaughterhouses, or which have not been examined by the inspectors, shall be considered as clandestine, and be seized. Such meats shall at once be sent to the respective officer for sanitary examination.

SEC. 361. The tanning of hides or the preparation of tallow in meat markets or other places within city limits, without the written consent of the local sanitary board, is prohibited.

SEC. 362. The delivery from house to house of meats, bones, giblets, lard, etc., shall be done in boards made of polished metal or wood covered with metal foil, which boards shall be kept clean; they shall be provided with covers in order to prevent dust, insects, or hands from coming in contact with them.

SEC. 363. The use of preserving substances other than common salt (sodium chloride) for the preservation of meats is prohibited.

### CHAPTER XIII.

#### GARBAGE AND REFUSE.

SEC. 364. In houses where the service of transportation of garbage to sea shall not have been established, the garbage and refuse shall be deposited in dumping places located at a distance of not less than 1 kilometer from the city limits and in places where they can not be detrimental to public health. When crematories for garbage and refuse shall have been established, the garbage and refuse shall be transported to the same.

SEC. 365. Each ayuntamiento, when the service is not provided for by the Government, shall establish a public service for the collection of filthy water, garbage, and refuse of streets, squares, and houses in the manner prescribed by the sanitary board.

SEC. 366. House refuse and garbage shall be deposited in metal receptacles, which shall be placed in the streets near the sidewalk a few moments before the wagon for the collection of such refuse and garbage passes by; if the service be made during the day time, it shall be early in the morning; if it be at night, after 10 o'clock.

In places where there is no organized service for the collection of house refuse, and when it can not be transported outside the city limits, it shall be cremated in the yards of the respective houses every forty-eight hours, or before if necessary to prevent decomposition.

SEC. 367. Tenants must be provided with a sufficient number of waterproof receptacles, made of metal, or interiorly covered with metal foil, of a capacity sufficient to contain all garbage, refuse, etc., which may have been accumulated during the day. In places where there are no sewers, every occupant of a house shall be provided with vessels to contain the waste liquids, in the same conditions as garbage. He shall see that the receptacles are withdrawn from the street as soon as they have been emptied.

SEC. 368. Passers-by must not shake, scatter, or remove the contents of such receptacles or take possession of the latter.

SEC. 369. In places where there is no public service of cleaning, garbage and refuse from industrial and commercial establishments shall be transported to the dumping places at the expense of the owners.

SEC. 370. The throwing of fecal matter and dead animals into dumping places is prohibited.

SEC. 371. The ayuntamientos shall prescribe that the garbage and refuse thrown into dumping places be cremated or destroyed by the contractors when the service is made by contract: in case the removal of garbage, articles, or materials from dumping places for industrial purposes shall be permitted, they shall be previously disinfected, and with the consent of the sanitary board.

SEC. 372. Accumulating or depositing garbage, refuse, bones, or other matter susceptible of decomposition, or which may be annoying to neighbors, or produce fetid odors, in rooms, cellars, yards, etc., is prohibited.

#### CHAPTER XIV.

##### TRANSPORTATION OF GARBAGE AND MANURE.

SEC. 373. The transportation of garbage and manure from stables within city limits is prohibited, unless it be made in special wagons built for the purpose and in accordance with the model prescribed by the sanitary board.

SEC. 374. The wagons for the transportation of manure and garbage shall be loaded inside the stables or in the yards therein, and in no case in the street. The contents shall be so transported that no fetid odors can be produced.

SEC. 375. The manure and refuse to be transported shall be so placed that no portion thereof shall fall out of the wagon.

SEC. 376. Unloading garbage, manure, or refuse at a distance of less than 1 meter from an inhabited place is prohibited. Garbage and refuse shall not be kept over twenty-four hours in stables.

SEC. 377. The construction or use of vaults or cellars for the deposit of garbage, etc., is prohibited, unless the sanitary board shall give its consent in writing on account of special reasons.

SEC. 378. The transportation by railroad of garbage or manure shall be made subject to the following requirements:

(a) The transportation shall be made in covered and inclosed wagons.

(b) The wagon must be kept closed while containing such garbage and manure, and immediately after it has been emptied it shall be mechanically washed by means of water flowing under pressure. It shall be left open until loaded again.

(c) If it is not practicable to wash the wagon upon being emptied, it shall be kept closed until it can be washed. The washing of such wagons must not be omitted before reloading the same.

(d) Wagons assigned to the transportation of garbage and manure must not be used for any other purpose whatever, and the word "Garbage" shall be printed on both sides of the wagon in types visible from afar.

(e) The operation of loading and unloading shall be made from wagon to wagon and at a distance of not less than 100 meters from inhabited places.

(f) The pavements of premises assigned exclusively to the loading and unloading of garbage must be impermeable.

(g) Loading and unloading of garbage shall be made during the nighttime.

(h) The same provisions regarding the loading and unloading shall be followed whenever garbage is to be used for fertilizing purposes.

(i) Lighters, barges, etc., assigned to the transportation of garbage, when loaded, shall not be permitted to be anchored in wharves for over twelve hours. They shall be frequently disinfected.

#### CHAPTER XV.

##### CLEANING OF PRIVIES AND CESSPOOLS.

SEC. 379. Before granting the permit for the establishment of a plant for the cleaning of cesspools and privies, the favorable report of the local sanitary board shall be necessary.

SEC. 380. Such establishments or plants shall be located outside of the town, and it shall be the duty of the owners thereof to file their names and addresses with the local sanitary board.

SEC. 381. Owners of plants for the cleaning of cesspools and privies shall send to the sanitary chief a daily report of the privies and cesspools cleaned during the previous night, stating the street and number of the house, name of its owner, his residence, number of wagons, and capacity and condition of each cesspool or privy cleaned.

SEC. 382. Partial cleaning of privies and cesspools is prohibited. If the operation of cleaning be interrupted, it shall be continued the next night. Privies and cesspools shall be duly disinfected with iron sulphate and lime twelve hours before the cleaning. They shall also be disinfected after the operation and totally emptied.

SEC. 383. When the suppression of cesspools, sinks, gutters, etc., be ordered, they shall be filled after having been cleaned and disinfected. The material to be employed in the filling shall be mixed with lime.

SEC. 384. The cleaning of cesspools and privies shall be done from 11 p. m. to 5 a. m. A green light shall be placed in the door of the house where the cleaning is being carried out.

SEC. 385. The person in charge of the cleaning of a privy or cesspool which on account of the conditions of its construction might cause accidents due to the escape of gases shall take the necessary precautions in order to prevent mishaps.

SEC. 386. In towns where the service is not made with modern apparatus, the matter extracted, after being duly disinfected, shall be placed in air-tight receptacles, which shall be transported in wagons provided with a green light to the places assigned for the purpose outside of the town limits and where such matter can not be detrimental to public health.

SEC. 387. Wagons assigned to these purposes shall not be permitted in the streets outside of the hours prescribed for the cleaning, even though they be empty. Wagons and utensils used in the operation of cleaning shall be duly disinfected and kept outside of the town.

SEC. 388. The wagons above referred to shall be of solid construction and so conveyed in the streets as to prevent the contents from leaking. The receptacles shall be tightly covered.

SEC. 389. The persons employed in the cleaning of a privy or cesspool shall, after the operation, wash, scrub, and clean all places in the house which might have been soiled on account of the operation.

SEC. 390. In case the contents of a wagon or receptacle should, on account of an accident, be poured out partially or totally, the conductors shall gather such contents at once and wash the soiled places thoroughly well.

SEC. 391. The wagons shall always be kept clean in order to prevent the emanation of fetid odors.

SEC. 392. The throwing into cesspools and privies of garbage, refuse, dead animals, decayed vegetables, or other matter foreign to the purpose for which they were constructed is prohibited.

SEC. 393. It shall be the duty of owners or tenants, as the case may be, to keep all receptacles of refuse or sewage of the house in the best condition and perfectly clean.

SEC. 394. No fecal or other filthy matter shall be thrown into rivers, harbors, bays, streams, lakes, etc.

## CHAPTER XVI.

### RAILROADS, STREET CARS, AND OMNIBUSES.

SEC. 395. All vehicles for the transportation of persons must be well painted, washed, cleaned, and free from insects.

SEC. 396. The throwing out of refuse, ashes, and other similar waste matter from railroads, tramways, or omnibuses within city limits is prohibited, excepting the sand usually employed between the rails and wheels of engines.

SEC. 397. All vehicles for the transportation of passengers shall have sufficient ventilation.

SEC. 398. Soiled linen or other similar material shall not be permitted in the places assigned to passengers, but only in front platforms of cars or in the tops of omnibuses.

SEC. 399. All railroad cars shall be provided with water-closets for both sexes, constructed with impermeable materials and kept perfectly clean. Omnibuses, tramways, and railway coaches shall be provided with a sufficient number of cuspidors containing a disinfecting solution and shall be cleaned every day.

SEC. 400. Stations and outbuildings thereof shall also be kept perfectly clean; the walls, doors, and windows shall be whitewashed or painted whenever necessary; there shall be a sufficient number of cuspidors containing a disinfecting solution and which shall be cleaned every day; there shall also be water-closets in perfect serviceable and clean condition.

SEC. 401. Spitting upon floors of cars and stations is prohibited. Signs with this prohibition shall be posted in cars and stations.

SEC. 402. Station yards shall be kept clean and in good condition, as well as the gutters and drains.

SEC. 403. Railroad companies shall be compelled to carry, with the passenger coaches and at the rate prescribed by the committee on railroads, a special car, the property of the Superior Sanitary Board, for the transportation of persons suffering from transmissible diseases. Said cars shall be disinfected at the expense of the sanitary board whenever used and shall be kept in one of the central stations.

## CHAPTER XVII.

### STREETS AND OTHER PUBLIC PLACES.

SEC. 404. No garbage, refuse, offal, filthy or fetid liquids shall be thrown upon the streets, squares, avenues, yards, etc.

SEC. 405. No other matter or liquid than rain water shall be permitted to flow out through drain pipes discharging in streets.

SEC. 406. No garbage, animal or vegetable refuse, or other matter liable to decomposition shall be used in the filling up of streets, lands, etc.

SEC. 407. Streets, squares, avenues, etc., shall be so kept as to prevent water from forming puddles thereon, and no grass shall be permitted to grow except in the places where it is necessary for ornamental purposes.

SEC. 408. It shall be the duty of tenants to keep the sidewalks and conduits in a perfectly clean condition.

SEC. 409. Personal voidances in streets, etc., shall not be permitted.

SEC. 410. In towns where there is no public service of sprinkling the streets the residents shall sprinkle the same once a day during the dry season.

SEC. 411. It shall be the duty of the contractor in charge of the service to collect the dead animals found in the streets.

SEC. 412. It shall be the duty of street sweepers to collect all refuse matter found in the streets.

SEC. 413. Shaking and beating carpets, etc., in streets is prohibited.

SEC. 414. Hitching or turning loose pigs, horses, or other animals in the streets or public places is prohibited. The owners or persons in charge of the animals shall be responsible for the violation of this article.

SEC. 415. Unloading of cattle in public places shall not be permitted until after 10 p. m. and before 5 a. m. Cattle shall be taken to their point of destination through the remotest streets of the town, and in such a manner that it shall not be dangerous to the health or life of the residents.

SEC. 416. The transit of milch cows through the streets shall not be permitted without the consent in writing of the sanitary board.

SEC. 417. Persons in charge of the cleaning of streets shall, before sweeping the same, moisten them in order to prevent the dust from scattering.

## CHAPTER XVIII.

### HOSPITALS, SANITARIUMS, AND INFIRMARIES.

SEC. 418. Public or private hospitals, sanitariums, infirmaries, etc., shall be established outside of towns. This prohibition shall not apply to such institutions as are already established.

SEC. 419. No hospital, sanitarium, etc., shall be built, enlarged, or removed without the advice and consent of the Superior Sanitary Board, to which the specifications, plans, etc., of the building sought to be constructed or enlarged shall be submitted.

SEC. 420. Hospitals, lazarettos, sanitariums, etc., which may be established hereafter for the isolation and attendance of persons suffering from contagious diseases shall be separated from other buildings by a distance of not less than 30 meters and shall be surrounded by trees and gardens.

SEC. 421. There shall be in every hospital, sanitarium, etc., one or more places provided with double doors and windows protected with wire gauze against the access of mosquitoes, the interior of which places shall be properly arranged for the isolation of cases of any of the following diseases: Measles, diphtheria, croup, yellow fever, scarlet fever, smallpox, Asiatic cholera, exanthematous typhus, bubonic plague, whooping cough, leprosy, puerperal fever, phylarisis, and malaria.

SEC. 422. Hospitals, etc., shall be provided with apparatus and places for disinfection.

SEC. 423. Any case of the diseases mentioned in section 421 shall be isolated immediately after its appearance, and the director of the institution shall notify the sanitary chief at once.

Sec. 424. Persons suffering from infectious diseases shall not be admitted or attended to in general hospitals. Such persons shall be removed to isolation hospitals or buildings with the necessary precautions.

Sec. 425. Hospitals, sanitariums, etc., shall disinfect frequently the wards assigned to infectious diseases.

Sec. 426. Convalescents from infectious diseases and the persons who have attended them shall be disinfected before leaving the hospital.

Sec. 427. Public or private hospitals, sanitariums, lazarettos, etc., shall be subject to inspection by the sanitary board.

Sec. 428. Sanitariums shall be established and governed in accordance with the provisions contained in the following sections.

Sec. 429. Sanitarium is an establishment, maintained by a company or person, where medical attendance is given to patients at rates agreed to by the interested parties.

Sec. 430. Buildings used for sanitariums must have good conditions of height, sufficient ventilation and capacity, and shall be located in dry places, far from streams, lakes, swamps, and deposits for organic substances in state of decomposition.

Sec. 431. Companies or persons owning this kind of establishments must keep them constantly and perfectly clean, beautify them as much as possible, and provide them with all necessary requirements for the best attendance and comfort of patients. Said establishments shall also be provided with one water-closet, one washstand, and one bathroom for every 20 persons, and shall have gardens and yards.

Sec. 432. No license shall be granted for the establishment of a sanitarium without the favorable report of the local sanitary board, duly approved by the Superior Sanitary Board. Said report shall be made upon the sanitary conditions of the building, its construction, capacity, and other particulars which the board may deem proper to insert. The municipal architect shall report upon the conditions of solidity, etc., of the building.

Sec. 433. Together with the application for such license plans and specifications of the building shall be filed, stating in detail the number of bathrooms, water-closets, wells, water supply, etc., sought to be installed. A copy of the regulations for the management of the sanitarium shall also be filed with the application, where the kind of professional services sought to be rendered and rates to be charged for the same shall be stated.

Sec. 434. The application shall be filed with the alcalde, who shall forward it to the local sanitary board for its report. After the local sanitary board shall have submitted its report the municipal architect shall make a report upon the conditions of safety of the building. Both reports must be favorable and approved by the Superior Sanitary Board.

Sec. 435. The regulations for the management of a sanitarium after being approved shall be printed, and the manager of the institution shall distribute copies thereof to the interested persons.

Sec. 436. All sanitariums shall be provided with a sufficient number of boarding physicians, nurses, and attendants. The nurses must be graduates of the University of Habana. A period of three years from the date of the enactment of these ordinances is granted for the compliance of this requirement.

Sec. 437. There shall be in each sanitarium one attending physician for every twenty patients, and three boarding physicians for every two hundred patients, in order that the service be efficient.

Sec. 438. Pharmacies of sanitariums shall be placed in charge of professional pharmacists.

Sec. 439. Directors of sanitariums shall send a daily report to the local sanitary board of the cases of contagious diseases admitted therein, as well as of the patients discharged or dead. For the purposes of section 423, a daily record shall be kept where the date of admittance, discharge, and attendance of patients, and the diagnosis of the disease in each case shall be registered. Said record shall be inspected by the local sanitary chief, or his deputy, whenever he shall deem it necessary.

Sec. 440. Every sanitarium shall be provided with two independent pavilions for the isolation of infectious diseases, one of which pavilions shall be assigned to diseases transmissible by mosquitoes, and the other to those transmissible by contagion.

Sec. 441. The first of said pavilions shall be provided with doors and windows protected with wire gauze against the access of mosquitoes. The door of said pavilion shall be double.

Sec. 442. The pavilion for diseases transmissible by contagion shall be divided into two or more wards for the different diseases and to prevent the infection by a patient of a disease different from that with which he may be affected.

Sec. 443. The wards shall be divided into small rooms, in each of which not more than two beds shall be allowed.

There shall be, besides, one pavilion or special ward for persons suffering from tuberculosis, said pavilion to be at a sufficient distance from the rest of the patients and provided with all the necessary precautions to prevent the spread of said disease.

Sec. 444. Nurses and attendants in wards of contagious diseases shall by no means come in contact with the rest of the personnel of the institution.

SEC. 445. Physicians, nurses, and attendants in said wards shall wear wrappers, the collars and cuffs of which must be perfectly adjustable: they shall take off said wrappers before leaving the wards.

SEC. 446. The excreta from patients must be duly disinfected. The vessels, bed clothing, and other articles which might have come in contact with patients shall also be disinfected. Every patient, as soon as he is admitted in a sanitarium, shall deliver his clothing for its disinfection, and must wear the clothing assigned to him.

SEC. 447. Sanitary plumbing of sanitariums in towns where there are sewer and water systems shall be installed in accordance with the provisions contained in these ordinances.

SEC. 448. Sanitariums in towns where there is no sewer system shall be provided with a sufficient number of cesspools, the bottom and walls of which shall be cemented and which shall have other requirements which the local sanitary board may prescribe.

SEC. 449. Cesspools shall be located as far as possible from the building occupied by the patients, and shall be disinfected daily with crude petroleum and a solution of iron sulphate.

SEC. 450. Patients who, on account of their condition of health, are not able to go in person to the water-closet, may make their evacuations in porcelain vessels which shall be provided with lids, and be taken out of the wards and disinfected immediately after they have been used.

SEC. 451. There shall be in every sanitarium an isolated place where cadavers shall be deposited until their burial. Said place must be disinfected whenever it shall have been occupied by a cadaver.

SEC. 452. The sanitariums shall be inspected by the local sanitary board, and the sanitary chief or his deputy.

SEC. 453. Sanitariums established without the prescribed provisions shall be immediately closed, and the responsible person shall be punished accordingly.

SEC. 454. Hospitals, sanitariums, etc., shall furnish the local sanitary board such data from their private statistics and such other information as it may require.

SEC. 455. The provisions prescribed for sanitariums shall be equally applicable to hospitals, infirmaries, etc.

## CHAPTER XIX.

### ANIMALS AND LIVE STOCK.

SEC. 456. No animal affected with a disease transmissible to mankind, or which shall have been in contact with other animals suffering from contagious diseases, shall be brought or kept in a town. The owner or person in charge of animals, and all veterinarians must notify the local sanitary chief of all cases coming under their observation.

SEC. 457. Animals suffering from contagious diseases shall be isolated in the places designated by the local sanitary board.

The appearance in the Province of Habana of a case of glanders or bovine tuberculosis shall be reported to the committee created by order 66, series of 1901, for the adoption of the measures therein prescribed. In other provinces the provisions of these ordinances shall be followed.

SEC. 458. Stables, yards, corrals, etc., where any diseased animals may have been, must not be used again until they have been thoroughly disinfected, and the consent of the local sanitary board secured for the purpose.

SEC. 459. The owner, person in charge, or veterinarian who shall notice in an animal symptoms of glanders or scrofula shall notify the case to the sanitary chief immediately.

SEC. 460. Diseased or ill-treated animals found in the streets or other public places shall be immediately taken by the police to the place assigned for the purpose.

SEC. 461. The transportation of animals suffering from transmissible diseases, or of cadavers thereof, shall be so made that it shall not constitute a danger to public health. Wagons assigned to said transportation must be covered and inclosed and disinfected immediately after being used.

SEC. 462. The burial of dead animals within the city limits is prohibited; they shall be transported before becoming decomposed to the place designated for their interment or cremation as the case may be.

SEC. 463. Dogs shall not be permitted loose in the streets, if without muzzles. Dogs found otherwise shall be seized by the municipal employees in charge of the service, and who shall take them to the respective pound.

SEC. 464. Whenever a person shall have been bitten by a dog or other animal, the local sanitary chief shall be notified, which officer shall cause the animal to be placed under observation, and if it turns out to be hydrophobic he shall direct the measures which he may deem proper.

SEC. 465. Animals suspected of hydrophobia shall be captured and isolated, and the fact shall be reported to the sanitary chief.

SEC. 466. Kennels must be kept perfectly clean always, and must be provided with drinking water.

SEC. 467. Domestic animals must be kept clean always as well as the places assigned to them.

SEC. 468. Breeding or fattening live stock of any kind in dung yards, muck hills, or other places where animal and other refuse is deposited is prohibited.

SEC. 469. The removal of diseased animals from one district to another, or from one place to another in the same district, where persons or animals may be infected thereby, is prohibited.

SEC. 470. As soon as the local sanitary chief or the cattle owners have knowledge of the appearance of a case of epidemic disease (such as rinderpest) among live stock, they shall report the fact immediately to the superior sanitary chief, who shall at once enforce the measures prescribed in the circular of the secretary of the interior, in regard to rinderpest, of February 17, 1903, published in the Official Gazette of the 19th of the same month and year, the provisions of which are hereby ratified and confirmed.

SEC. 471. Parts of animals dead of infectious diseases must not be availed for any purposes whatever.

SEC. 472. Animals dead of infectious diseases must be completely cremated, and those dead of other diseases may be buried.

SEC. 473. No hospital or stables for animals affected with diseases transmissible to mankind shall be permitted within the limits of any municipality.

## CHAPTER XX.

### COUNTRY OR RURAL SANITATION.

SEC. 474. Country residences shall be constructed far from swamps and swampy lands; high and dry lands must be selected for such residences.

SEC. 475. Owners of country houses shall fill and drain the swamps and puddles which may exist therein, and if it can not be done on account of the expense, they shall pour into the same sufficient quantities of petroleum every two weeks in order to prevent the procreation of mosquitoes.

SEC. 476. Country houses must have, as much as possible, similar sanitary conditions to those of other houses.

SEC. 477. The crops shall not be deposited in dwelling places, and the keeping of domestic or other animals therein shall not be permitted.

SEC. 478. Stables, piggens, poultry yards, and other places where animals are kept must be separated from dwelling places and must be kept clean always.

SEC. 479. Muck hills and cesspools must be situated in the remotest places from dwellings, wells, cisterns, streams, and rivers.

## CHAPTER XXI.

### TRANSMISSIBLE DISEASES.

SEC. 480. It shall be compulsory for physicians to report to the local sanitary chief all cases of any of the following diseases:

Actinomycosis, anquilostomiasis, or unnicariasis, beriberi, gangrenous tumors, Asiatic cholera, cholera nostras, *diphtheria and croup*, epidemic dysentery, enteritis (any kind), *erysipelas*, scarlet fever, yellow fever, Malta fever, miliary fever, typhoid fever, *phylariasis*, grippe, leprosy, epidemic cerebro-spinal meningitis, glanders, pneumonia, granulosus and purulent ophthalmia, malaria (all kinds), mumps (epidemic parotiditis), bubonic plague, rabies, measles, puerperal septicemia and other puerperal diseases, tetanus neonatorum, exanthematic typhus, favus, whooping cough, tuberculosis (all kinds), varicella, and smallpox.

The report of suspected cases of quarantinable diseases is also compulsory.

For the purposes of these ordinances, transmissible diseases are those printed in italic in the preceding list, and quarantinable diseases are bubonic plague, Asiatic cholera, exanthematic typhus, smallpox, yellow fever, and leprosy.

The provisions of this section are applicable to private as well as to official and municipal physicians.

SEC. 481. When there be doubt as to the diagnosis, the physicians shall send to the local sanitary board samples of the sputum, blood, excreta, etc., for the purpose of ascertaining the nature of the disease. The local sanitary board shall promptly consider all consultations submitted to it, and its decision shall at once be notified to the physician.

SEC. 482. Physicians shall inform the local sanitary board whether there are any children in the house where a case of transmissible disease has occurred. The same information shall be given to the principal of the school attended by said children.

SEC. 483. The local sanitary chief shall send a report to the superior sanitary chief of all cases of yellow fever, smallpox, bubonic plague, and Asiatic cholera which shall have been reported to them.



SEC. 484. The Superior Sanitary Board is hereby authorized to add the names of other diseases to the list contained in section 480, giving due publication to such additions as it may make for the information of all concerned.

SEC. 485. The report prescribed in section 480 shall be made in writing within twenty-four hours after the first visit or consultation, or immediately after if the case be, suspected or confirmed, of Asiatic cholera, yellow fever, scarlet fever, measles, bubonic plague, diphtheria or croup, glanders, or tetanus neonatorum. Said report shall be made on printed blank forms furnished by the sanitary board.

SEC. 486. Physicians attending or visiting cases of transmissible diseases shall send to the local sanitary chief a certificate of the result of each case.

SEC. 487. The attention of physicians is particularly brought to the fact that they must report all cases of tuberculosis attended by them, even if such cases may have been attended previously by other physicians.

SEC. 488. It shall be the duty of persons affected with tuberculosis, as well as of their relatives and attendants, and of private and public institutions, to comply with and enforce all regulations and measures prescribed, in order to prevent the spread of the disease.

SEC. 489. When two or more physicians have visited in consultation a case of transmissible disease, the one taking charge of the attendance, or, if none of them take charge of it, the one who shall have visited or examined the patient first, shall report the case.

SEC. 490. Physicians shall likewise report all cases of transmissible diseases the patients of which go to their offices in consultation, stating this fact in the report, as well as the name, residence, etc., of the patient.

SEC. 491. Owners or managers of boarding houses, hotels, lodging houses, colleges, factories, and other places where many persons dwell or sleep shall also report to the sanitary chief within twenty-four hours, all cases of any of the diseases mentioned in section 480 which may occur in their respective establishments.

SEC. 492. The sanitary chief, the medical health inspector, or the committee on infectious diseases shall have the right to visit any case, suspected or confirmed, of transmissible disease.

SEC. 493. Directors of hospitals, sanitariums, etc., shall state in their reports the residence of the patient or the place where it be supposed he contracted the disease.

SEC. 494. Any person having knowledge of the existence of a case of transmissible disease, or of a death caused therefrom, without medical attendance, must report the same to the sanitary chief.

SEC. 495. Any physician attending a case of transmissible disease shall advise the head of the family, or the person in charge thereof, as to what measures should be taken to prevent contagion and the spread of the disease.

SEC. 496. All cases of diseases easily transmitted shall be isolated upon order of the sanitary chief, either in the patient's house, if there be efficient means for the isolation, or in hospital, lazaretto, or other isolated place.

SEC. 497. According to the nature of the disease, the isolation may include the entire house inhabited by the patient. The sanitary chief may, at his discretion, order the isolation of all or some of the persons residing in said house, or of the persons coming in contact with the patient. Such persons shall be subject, after the isolation, to the observation requirements which the sanitary chief may prescribe.

SEC. 498. Flags and placards shall be placed in a conspicuous position or positions upon houses where there are cases of cholera, yellow fever, bubonic plague, exanthematic typhus, smallpox, scarlet fever, and diphtheria or croup. It shall be unlawful to hinder or obstruct the placing of said flags or placards, or, when placed, to deface, obliterate, or in any manner conceal the same.

SEC. 499. The attendance of persons suffering from cholera, yellow fever, typhus, typhoid fever, smallpox, scarlet fever, measles, or diphtheria shall not be permitted in colleges, hotels, boarding houses, factories, workshops, barracks, prisons, and other places where a large number of persons dwell or gather, except when such places are provided with a suitable location for the isolation of transmissible diseases, the conditions of which are satisfactory to the sanitary chief.

SEC. 500. Every municipality shall be provided with a special hospital or lazaretto properly fitted for the isolation of cases of transmissible diseases.

SEC. 501. Physicians, nurses, and other persons attending patients of transmissible diseases must not come in contact with other persons unless they have previously disinfected themselves in the manner prescribed by the local sanitary board.

SEC. 502. When the circumstances of the case shall so demand it, a sanitary watchman shall be stationed in houses the isolation of which may have been ordered for the purposes of securing compliance with these ordinances. The persons in charge of such buildings shall be held responsible for the violations committed by the personnel under them.

SEC. 503. Persons escaping vigilance or breaking the isolation shall be punished accordingly.

SEC. 504. No person shall, without the written consent of the local sanitary chief, carry or remove, or cause to be carried or removed, from place to place any person suffering from any transmissible disease. No person shall expose himself while suffering from any transmissible disease. This prohibition includes nurses and other persons who have been exposed to such disease, until they have secured the consent of the local sanitary chief, who, before granting it, shall cause all necessary precautions to prevent contagion to be taken.

SEC. 505. The transportation of persons suffering from transmissible diseases shall be effected in suitable ambulances, which must be disinfected after having been used. In towns where there be no such vehicles the transportation may be made in carriages, which must also be disinfected in the manner prescribed by the local sanitary chief. The owners or conductors of said carriages, as the case may be, shall be held responsible for the noncompliance with this provision.

SEC. 506. It shall be unlawful to carry or transport in tramways or omnibuses persons suffering from transmissible diseases. Such transportation may be made in railroad cars, provided they are properly fitted for it and isolated. The consent of the local sanitary chief, approved by the superior sanitary chief, must be previously secured therefor. Cars used in the transportation aforementioned must be thoroughly disinfected before being used again. Persons violating the provisions of this section shall be punished accordingly.

SEC. 507. Bacteriologically confirmed cases of leprosy which are not properly isolated and cared for shall be confined in the San Lazaro Hospital of Habana or of Santa Clara, in accordance with the provisions relating thereto.

SEC. 508. Any physician attending on or visiting a case of transmissible disease shall send to the local sanitary chief a certificate signed by him certifying to the recovery of case as soon as he becomes aware of such recovery. No person who has suffered from any transmissible disease shall be permitted to go out until he shall have secured an official certificate of recovery.

SEC. 509. Children suffering from transmissible diseases, or children living in houses where cases of such diseases exist, shall not be admitted in schools, colleges, workshops, etc. This prohibition includes laborers or employees therein. Teachers and foremen shall report to the sanitary chief any case of transmissible disease which they may notice. Parents, guardians, teachers, and foremen shall be held responsible for the violations of this section.

SEC. 510. The person in charge of the house in which there is a case of transmissible disease must strictly comply with the special instructions given him by the sanitary chief in regard to the patient, his room, etc.

SEC. 511. No house, room, etc., in which a case of transmissible disease has been shall be used again until properly disinfected.

SEC. 512. Local sanitary chiefs shall notify the superior sanitary chief as soon as they become aware of the appearance of any case of acute quarantinable disease (yellow fever, Asiatic cholera, smallpox, bubonic plague, exanthematic typhus) and shall immediately enforce the necessary preventive measures.

SEC. 513. Besides the enforcement of the provisions of these ordinances, in regard to transmissible diseases, the local sanitary board shall, as soon as it shall become aware of the appearance in its locality of any case of quarantinable disease (yellow fever, bubonic plague, smallpox, Asiatic cholera, exanthematic typhus), secure the strict compliance of the preventive measures prescribed by the Superior Sanitary Board in each case, such as the isolation of cases, and, if practicable, it shall order the removal of the patients to a place properly fitted for the absolute isolation and suitable attendance. If the focuses of any of such diseases be several, it shall secure the isolation of the cases in places distant from the inhabited parts of the town. It shall request the competent authorities to order the closure of schools, theaters, etc., and to prohibit sick persons, or persons suspected of being sick, from going out of the town.

The local sanitary board shall send to the Superior Sanitary Board a daily report of all measures prescribed by it, as well as of the necessities which require prompt attention.

The official announcement of the existence of an epidemic in any place of the Republic shall be made only by the Chief Executive after hearing the superior sanitary chief.

SEC. 514. The local sanitary boards of other municipalities shall exercise the greatest care in watching over the means of communication with the municipality where an epidemic prevails, disinfecting everything that comes therefrom, and exercising a careful inspection over persons coming also therefrom. If the enforcement of more vigorous measures be necessary, the question shall be submitted to the Superior Board.

SEC. 515. While an epidemic prevails the local sanitary board shall order the disinfection of all premises where cases of the disease have occurred.

SEC. 516. All articles in use in the room or rooms of persons suffering from transmissible diseases shall be disinfected, as well as all other articles which have been exposed to infection, and school books and supplies to be taken by children to the school.

SEC. 517. Clothing used by such sick persons must not be taken to laundries unless the same have been previously disinfected and the consent of the sanitary chief therefor been secured. The same prohibition is applicable to furniture, utensils, and other articles from an infected house.

SEC. 518. It shall be the duty of the person in charge of an infected house to carry out, within the time prescribed by the sanitary board, the works or measures which at the discretion of the latter are necessary for the suppression of the unhealthful conditions of the premises.

SEC. 519. The sanitary board may order the dislodging of any house considered as a focus of infection, or which constitutes a danger to public health. Said house shall not be occupied again until all danger of infection shall have been removed.

SEC. 520. It shall be unlawful to spread, propagate, or circulate false reports or rumors as to the appearance of any transmissible disease in any part of the Republic.

SEC. 521. All measures prescribed in accordance with the provisions of this chapter shall be immediately enforced, and if appeals be taken therefrom, such appeals shall be admitted without suspending the operation of said measures.

## CHAPTER XXII.

### INHUMATIONS, CEMETERIES, UNDERTAKERS, AND EXHUMATIONS.

SEC. 522. Burials shall only be made upon written order from the respective court, which, before issuing the same, shall require the presentation of the medical death certificate.

SEC. 523. Death certificates shall be made in duplicate, in forms prescribed and furnished by the Superior Board of Health. The use of Bertillon's International Terminology shall be compulsory. The respective municipal court shall keep one of the copies of the certificate and send the other one to the Superior Board of Health within five days.

SEC. 524. As soon as a cadaver begins to decompose, it shall be inclosed in the casket.

SEC. 525. Bodies of persons who have died of any contagious disease shall be kept enveloped in sheets saturated with the antiseptic solutions prescribed by the sanitary board, and shall be inclosed in their respective caskets as soon as possible.

SEC. 526. No persons shall gather in a house in which there is a cadaver, and, when it has been carried away, until the house has been disinfected.

SEC. 527. Cadavers shall be conveyed to the cemetery in hermetically closed caskets, in order to prevent the escape of gases or liquids; the transportation shall be made by persons or in hearses; no other kind of vehicles shall be permitted unless it be necessary and the local sanitary chief authorizes it.

The caskets for cadavers to be buried in the ground must be made of wood in order to facilitate the organic decomposition.

SEC. 528. The conveyance of cadavers of persons who have died from transmissible diseases shall not be effected by persons; such cadavers shall not be conveyed to churches or other public places, and no children shall be permitted to attend the funerals of such cadavers. If the case be of a quarantinable disease no other person but strictly necessary for the conveyance shall be allowed.

SEC. 529. The conveyance of cadavers in open caskets is prohibited.

SEC. 530. The burial of a cadaver shall be made twenty-four or thirty hours after the death has occurred and the cadaver begins to decompose, unless it be properly embalmed, and the consent in writing of the local sanitary chief to defer, for several hours only, the number of which shall be stated in the permit, the burial or removal thereof to the deposit of the cemetery, be secured.

Cadavers deposited in the morgue or other place by judicial order are excepted from this provision.

SEC. 531. Cadavers of persons who have died from smallpox, diphtheria or croup, scarlet fever, bubonic plague, Asiatic cholera, or leprosy, shall be conveyed to the cemetery within twelve hours after the death has occurred, unless they be embalmed and the consent in writing from the local sanitary chief, in the manner prescribed in the preceding section, be secured.

SEC. 532. The burial of a cadaver within the city limits, or outside of the cemeteries authorized by law, is prohibited. Not only the persons intervening in the interment shall be held responsible for the violation of this section, but also those present thereon who shall not notify the fact to the authorities immediately.

SEC. 533. Cadavers of persons who have died in hospitals, sanitariums, lazarettos, etc., of exanthematic typhus, smallpox, scarlet fever, diphtheria, Asiatic cholera, bubonic plague, or leprosy, shall be removed to the cemetery directly.

SEC. 534. No casket shall be used more than once. Caskets used in hospitals and anatomical amphitheatres excepted, provided they are metallic boxes and thoroughly disinfected whenever used.

SEC. 535. No refrigerator or ice box for cadavers which model shall not have been approved by the sanitary board shall be permitted.

SEC. 536. The use of curtains, tapestry, and carpets shall not be permitted in places where cadavers are exposed.

SEC. 537. The construction of new cemeteries shall be subject to the following rules:

(1) No new cemetery shall be laid out at a distance of less than 1,000 meters from the boundaries of an important municipality; or of less than 500 meters from the boundaries of towns of lesser importance; or of less than 200 meters from remote villages, highways, or roads. The probable extension of the town or village toward the site sought for such construction must also be taken into consideration.

(2) No new cemetery shall be laid out at a distance of less than 200 meters from springs, cisterns, wells, fountains, or aqueducts containing or carrying water for drinking purposes.

(3) A high location, slightly sloping, situated leeward of the town, and which ground can be easily dug to a depth of 2 meters, permeable to air and water for the purposes of organic decomposition, shall be selected for site of a new cemetery.

(4) The area of the site must be in proportion with the number of inhabitants of the town, its probable increase, its morbidity, and the expiration of the lease of each grave, which shall be for the term of five years, at least: such proportion shall be estimated allowing 3 square meters for each grave, and taking into consideration the space necessary for passages, buildings, deposits, monuments, parks, trees, etc.

(5) Cemeteries must be inclosed with good and sufficient walls and fences not more than 2 meters high, so that the free circulation of the air, or the action of the sun, shall not in any way be obstructed.

(6) The construction of niches is prohibited. The ground of vaults or graves must be earthen and perfectly permeable.

(7) There shall be in every cemetery a special room for the deposit of cadavers and another one for autopsies, properly provided with water, tables, washstands, etc.

(8) Other sanitary requirements to which the interior management of cemeteries must be subject shall be specified in special regulations.

The enlargement or alteration of cemeteries existing at the time of the passage of these ordinances shall be made in accordance with the foregoing provisions in so far as they are applicable.

The advice of the local sanitary board and the Superior Board shall be necessary for the establishment of country cemeteries.

SEC. 538. The following requirements shall be specified in the special regulations for cemeteries:

(1) Size of and minimum distance between graves, which shall be as follows: Depth for all graves, 2 meters; length, for cadavers of adults, 2 meters; width, 85 centimeters; distance in all directions, 40 centimeters; for cadavers of children, the length and width may be reduced in proportion with the age of each cadaver.

(2) The layer of compressed earth covering the grave shall be  $1\frac{1}{2}$  meters thick; the cadaver shall be covered before with a layer of lime 2 or 3 centimeters thick.

(3) The burial of cadavers in ditches shall be prohibited.

(4) The advice of the local sanitary board shall be necessary for the opening or removal of graves, etc., the deposit of remains in ossuaries, the partial or total cleaning of closed cemeteries, and the removal therefrom of remains to other cemeteries.

(5) Approval of the special regulations by the Superior Sanitary Board, upon report of the local board of the respective municipality.

SEC. 539. Every cemetery shall have an isolated place suitable for the cremation of coffins, shrouds, and other articles collected from disinterments.

SEC. 540. No beverages, candies, and other food products shall be sold or offered for sale, or kept in cemeteries.

SEC. 541. Hearses which have been used in the transportation of cadavers of persons who have died of exanthematic typhus, typhoid fever, smallpox, measles, scarlet fever, diphtheria or croup, Asiatic cholera, bubonic plague, erysipelas, puerperal fever, tuberculosis, or glanders shall be disinfected by the undertaker in the cemetery immediately after being used, in the manner prescribed by the sanitary board.

SEC. 542. Private carriages which have been used in the transportation of cadavers shall be likewise disinfected by the respective owners.

SEC. 543. It shall be the duty of undertakers to register their names, residences, etc., in a record kept for the purpose by the local sanitary board.

SEC. 544. Persons desiring to open an undertaking establishment, or to engage in the practice of undertaking, must provide themselves with the necessary license. The sanitary board shall issue such license if the applicant furnishes satisfactory proof that he is acquainted with the methods of disinfection in general, and the handling of cadavers of persons who have died of transmissible diseases.

Sec. 545. It shall be the duty of undertakers to send to the local sanitary board a weekly report of all burials effected by them during the week.

Sec. 546. No disinterments shall be made within two years after the burial, except upon a judicial order, or when the cadaver has been embalmed.

Sec. 547. No disinterment shall be made without the written consent of the local sanitary board, where it shall be stated that such disinterment will not constitute a danger to public health.

Sec. 548. Disinterments shall be made in the presence of a physician authorized by the sanitary board to represent it; said physician shall take the greatest precautions to prevent any danger to public health, ordering the disinfection of the grave, the coffin, and the cadaver or its remains.

Sec. 549. In no case shall a grave be opened in which has been buried the body of any person who has died of bubonic plague, Asiatic cholera, diphtheria, smallpox, scarlet fever, leprosy, or glanders, within five years after the burial. The consent of the local sanitary board shall be necessary therefor.

### CHAPTER XXIII.

#### AUTOPSIES, EMBALMINGS, ETC.

Sec. 550. No autopsy shall be performed outside of hospitals, morgues, cemeteries, and medical schools. No autopsy shall be made within twelve hours after the death. It shall be unlawful to embalm, mummify, or petrify any cadaver within twelve hours after the death.

It is likewise prohibited to mold the face, neck, or any part of a cadaver within twelve hours after the death and without the consent of the local sanitary chief. Such operation shall never be permitted in cadavers of persons who have died of smallpox, measles, scarlet fever, bubonic plague, or leprosy.

Sec. 551. The following requirements shall be necessary for the carrying out of any of the operations referred to in the preceding section: (a) The consent of relatives of the deceased person, (b) the death certificate, and (c) the presence of the local sanitary chief or of a physician authorized by him to represent him. The presence of this officer shall not be necessary in autopsies.

Sec. 552. The local sanitary board may order the carrying out of any of such operations whenever the interests of public health shall so demand it.

Sec. 553. The operations above referred to must be performed by professors of surgery or medicine exclusively.

Sec. 554. The local sanitary chief, his deputy, or the professors performing the operation shall draw up and execute a certificate, to be signed by him or them and two witnesses, in which the contents of the death certificate, the hour and day of the operation, the process employed for the embalming, mummifying, etc., and the composition of the liquids injected into the cadaver, or used otherwise, shall be stated.

Sec. 555. The death certificate and the certificate referred to in the preceding section shall be sent by the local sanitary chief to the Superior Sanitary Board, in which office the same shall be filed.

Sec. 556. No embalmed cadaver shall be deposited in a house or church for more than twenty-four hours after it has been embalmed, except with the consent of the local sanitary chief. During said time the cadaver shall be under the custody of the physician who witnessed the operation of embalming.

Sec. 557. The provisions of this chapter may be suspended or amended by the health authorities in time of epidemic.

### CHAPTER XXIV.

#### CONVEYANCE OF CADAVERS.

Sec. 558. No cadaver of a person who has died of smallpox or bubonic plague shall be conveyed from one municipality, town, or province to another.

Sec. 559. The conveyance of cadavers of persons who have died from typhoid fever, tuberculosis, Asiatic cholera, yellow fever, exanthematic typhus, diphtheria or croup, scarlet fever, measles, erysipelas, puerperal fever, glanders, anthrax, or leprosy shall only be permitted after such cadavers have been prepared therefor and disinfected in the following manner: (a) Arterial and capillary injection of an efficient antiseptic solution, (b) disinfection and tamponage with absorbent cotton of all orifices, and (c) exterior washing of the body. These operations shall be performed by a physician and with the consent of the local sanitary chief.

Sec. 560. After the cadaver has been disinfected in the manner prescribed in the preceding section it shall be enveloped, first, in a cotton coating three centimeters thick, and then with a sheet perfectly adjusted; then it shall be placed on a case made of zinc, tin,

copper, or iron, and which shall be hermetically sealed. This case shall be inclosed in a wooden box.

SEC. 561. Cadavers of persons who have died from diseases different from those mentioned in the preceding sections may be conveyed to places that can be reached within thirty hours after the death. Such cadavers shall be inclosed in hermetically sealed metallic cases, which shall be placed in wooden boxes. If the place of destination can not be reached within the time prescribed, the same requirements prescribed in the preceding section shall be followed.

SEC. 562. No person who has been exposed to infection shall be permitted to attend the funeral of the cadaver of a person who has died of any of the diseases mentioned in section 559, except with the consent of the sanitary chief certifying that said person has been properly disinfected.

Station masters shall carefully examine the permit for the conveyance of the cadaver, in which the names of the person in charge of the conveyance, and of those authorized to attend the funeral shall be stated.

SEC. 563. The local sanitary chief shall notify, by telegram, the local chief of the place where the cadaver is to be conveyed, stating in the notice the name of the disease, the date, hour, train, or steamer by which it is sent, and the station or wharf at which it shall arrive.

SEC. 564. Every cadaver transported must be accompanied by a person who shall carry with him the permit from the local sanitary chief, and of a copy of the death certificate. It shall be stated in said permit whether the disease is transmissible or not, the place of destination, and the names of the persons authorized to attend the funeral.

SEC. 565. A certificate from the embalmer as to the manner in which the cadaver has been prepared for the transportation shall also be necessary. A copy of this certificate shall be attached to the exterior case.

SEC. 566. The permit for the conveyance of a cadaver shall be made in duplicate and shall be signed by the attending physician, the local sanitary chief, and the embalmer. One of the copies shall be delivered to the person in charge of the cadaver and the other shall be sent to the superior sanitary chief.

SEC. 567. The exterior case shall be provided with four handles, at least.

SEC. 568. The transportation of cadavers by express shall be made in accordance with the provisions of sections 559, 560, 561, 563, 564, 566, and 567. The documents mentioned in said sections shall be sent to the agent in the place of destination.

SEC. 569. Disinterred cadavers, whatever the cause of death may have been, shall be considered as infectious and dangerous to public health; the consent of the Superior Board of Health and the favorable report of the local sanitary board shall be necessary for the removal thereof.

Such cadavers, or parts thereof, or the boxes containing them, shall be enveloped in a woolen blanket saturated with a solution of hydrargyric bychloride at 1 per 1000 and inclosed in a metallic case which shall be hermetically sealed.

SEC. 570. Cadavers which have been embalmed and prepared in the manner prescribed, and which have been temporarily deposited in a vault, shall not be considered as disinterred if the transportation be made within thirty days after the death, and it shall not be necessary to secure the permit of the local sanitary chief of the place of destination

## CHAPTER XXV.

### BARBER SHOPS.

SEC. 571. Metallic instruments used in barber shops, such as razors, combs, scissors, as well as shaving brushes, immediately after being used shall be sterilized by being immersed in boiling water, which shall be changed every time, and to which 50 grains of carbonate of sodium shall be added.

SEC. 572. Only metallic combs and razors with metallic handles shall be used, so that the same may be properly disinfected.

SEC. 573. The strop must not be used until the razor has been previously disinfected. The razor must be cleansed with a new piece of paper whenever used, or with a rubber device which must be disinfected in the same manner as other utensils.

SEC. 574. The use of powder puffs and sponges is prohibited; cotton, to be renewed every time, shall be substituted therefor. No alum or other material shall be used to stop the flow of blood unless the same be used in powder or liquid form.

SEC. 575. No barber shall permit any person to use the head rest of any barber's chair under his control until after the head rest has been covered with a towel that has been washed since having been used before, or by clean, new paper.

SEC. 576. Every barber shall cleanse his hands thoroughly with brush and soap immediately before serving each customer. No barber shall use for the service of a customer any towel or wash cloth that has not been boiled or laundered since last used.

SEC. 577. No person suffering from a communicable disease shall be permitted to act as barber. No services shall be rendered to persons suffering from a similar disease, unless such persons be provided with their own utensils.

SEC. 578. Every manager of a barber shop shall keep said shop and all furniture, tools, appliances, and other equipments used therein at all times in a cleanly condition.

SEC. 579. The owner or manager of any barber shop shall keep a copy of the sections of this chapter, and other provisions of law concerning the trade to be furnished by the local sanitary board, posted in a conspicuous place of said shop.

## CHAPTER XXVI.

### PUBLIC BATH HOUSES.

SEC. 580. The favorable report of the local sanitary board shall be necessary for the establishment of a public bath house; said report shall be rendered after due consideration has been given to the plans and specifications, etc., of the establishment.

Minero-medicinal bath houses shall be governed by special regulations.

SEC. 581. Every public bath house shall be provided with water-closets and urinals in sufficient number.

SEC. 582. The bath tubs must be made of marble, porcelain, or enameled iron, with direct outlets to the general sewer.

SEC. 583. The pavements of each bathroom shall be kept in a cleanly condition, and must be dried before any person is permitted to use it again.

SEC. 584. Every bathroom shall be provided with windows, electric bells, and doors which can be easily opened in case of an accident.

SEC. 585. Every swimming pool must be provided with ropes, cables, etc., for the safety of bathers; the water therein must be constantly renewed; children under ten years of age, unless accompanied by a person to take care of them, shall not be permitted to bathe therein.

Water that has been used once in swimming pools, bath tubs, etc., must not be utilized again.

SEC. 586. Clothing, towels, wash cloths, etc., must not be used for the service of any customer unless the same has been laundered since last used, and must be sterilized when so ordered by the local sanitary chief.

SEC. 587. Every therapeutic bathing establishment shall be under the management of a physician.

SEC. 588. No person suffering from a communicable disease shall be admitted in a public bath house, and if this prohibition be violated, said public bath house shall be immediately disinfected, irrespective of the penalty provided for such violation.

SEC. 589. No public bath house shall be used for dwelling purposes, nor rooms therein shall be rented, without the special consent in writing of the local sanitary board.

SEC. 590. A copy of this chapter, to be furnished by the local sanitary board, shall be posted in a conspicuous place of every bath house, for the information and guidance of all concerned.

## CHAPTER XXVII.

### GENERAL PROVISIONS.

SEC. 591. Owners of uncultivated lands within city limits must keep the same in a cleanly condition and free from excavations, and shall prevent the deposit therein of garbage or any other matter detrimental to public health.

Depositing or spreading garbage or other organic matter for fertilization purposes in yards or uncultivated lands in towns is prohibited.

Breaking up new ground within city limits may be permitted, provided that no garbage or other filthy matter be employed for fertilization purposes.

SEC. 592. Spitting or expectorating on sidewalks, in parks, squares, public buildings, railroad cars, tramways, steamers, public vehicles, etc., is prohibited.

It shall be likewise unlawful to spit or expectorate on the pavements or walls of places where it is compulsory to keep cuspidors.

SEC. 593. Every industrial establishment, factory, hospital, asylum, church, school, prison, public and private office, café, public house, etc., shall be properly provided with cuspidors, of the model prescribed by the local sanitary board.

SEC. 594. Notices forbidding such expectorating or spitting shall be kept posted conspicuously in each and every one of the places mentioned in the two preceding sections.

SEC. 595. The police force and the owners, managers, and employees shall enforce the foregoing provisions; they shall notify the sanitary chief of any violation they may observe, giving the name and address of the violator.

SEC. 596. Cuspidors shall be cleansed every day, and must contain water or an antiseptic solution. In public places designated by the local sanitary board, cuspidors shall be affixed to walls at a sufficient height.

SEC. 597. Cafés and other similar places must be kept in a cleanly condition always.

SEC. 598. Pavements of cafés, bars, hotels, restaurants, and other public places must not be covered with sawdust, except in rainy days.

SEC. 599. Pavements of public places must be washed and scrubbed every day.

SEC. 600. Door mats and foot scrapers must be placed at the entrance of every public place during rainy days.

SEC. 601. Fruit stands must be provided with receptacles for peels and other fruit waste; no decayed fruits shall be sold or offered for sale in such fruit stands, and must be kept in a cleanly condition.

SEC. 602. Vehicles of all kinds must be kept perfectly clean and shall be disinfected whenever the local sanitary chief shall order it.

SEC. 603. The sale of wearing apparel, bed clothing, carpets, curtains, tapestry, and other articles where a case of any transmissible disease has occurred shall be unlawful, unless such articles have been duly disinfected before being taken out of the house. The seller or the purchaser, as the case may be, shall be held responsible for the violation of this section. The disinfection should be performed in such a manner as to cause the least possible injury to the articles.

SEC. 604. Second-hand clothing offered for sale in time when there is no epidemic in the town shall be duly disinfected. If an epidemic prevails at the time, such sale shall be prohibited.

SEC. 605. Rags must not be sold or offered for sale unless previously disinfected.

Deposits for rags and other materials which may constitute a focus of infection must be situated outside the boundaries of the municipality, and the consent of the local sanitary board shall be necessary therefor.

SEC. 606. No serums or vaccine virus shall be distributed unless they be derived from laboratories authorized by the department of the interior.

SEC. 607. Serums and vaccine virus must be distributed on their original receptacles, and with labels stating the name of the laboratory, date of preparation, and directions for use.

SEC. 608. The cultivation of germs of communicable diseases which do not exist in the Republic is prohibited.

SEC. 609. All public laboratories and the products therefrom are hereby made subject to inspection by the local sanitary board.

SEC. 610. Physicians, surgeons, pharmacists, veterinarians, accouchers, midwives, and dentists must register their names, signatures, and addresses in the office of the local sanitary board.

SEC. 611. It shall be the duty of physicians, surgeons, etc., to call upon the local sanitary chief on any matter concerning public health.

SEC. 612. Plumbers shall secure a license from the local sanitary board, and register their names and addresses in a book kept for the purpose by said board. They shall be subject to special regulations, which shall be duly published.

SEC. 613. Any person who renders medical assistance in an accouchement, or who separates the umbilical cord, without the necessary antiseptic precautions, shall incur criminal responsibility.

SEC. 614. Every municipality shall be provided with antiseptic substances for the treatment of navels of newly born infants, for free distribution among persons applying for the same.

SEC. 615. Any physician who deliberately makes alterations in a diagnosis or in a death certificate, or who furnishes the local sanitary board with false information for the purpose of concealing a case of any particular disease, shall incur criminal responsibility.

SEC. 616. No wells, cisterns, etc., which may constitute a danger to public health, or which are not properly protected against the access of mosquitoes, shall be permitted in houses within city limits.

SEC. 617. No birds or other animals which may be detrimental to health or annoy neighbors shall be permitted in any place of the town.

SEC. 618. Besides the general sanitary provisions, the following special ones shall be observed in churches and public chapels. (1) They shall be provided with the number of cuspidors prescribed by the local sanitary board; such cuspidors shall contain an antiseptic solution and be washed daily; (2) the confessionals must be provided with metal lattices which shall be cleansed frequently; (3) the pavements shall be kept in a cleanly condition and washed frequently; (4) the holy water must be changed daily and the fonts disinfected with boiling water or other antiseptic solution; (5) notices prohibiting spitting or expectorating on the pavements, etc., shall be kept posted in conspicuous places therein.

SEC. 619. Wells or excavations containing filthy or decayed matter are prohibited in orchards or cultivated lands. It shall be unlawful to irrigate or fertilize lands with such matter.



SEC. 620. Before any municipality undertakes the construction of any public work relating to public health, such as the water supply, slaughterhouses, cemeteries, etc., the report of the local sanitary board shall be necessary, which report shall be submitted to the Superior Board for approval.

SEC. 621. The local sanitary board shall give the necessary orders for the desiccation of swamps, puddles, etc., and if such desiccation be impracticable, it shall order that sufficient quantities of crude petroleum be poured periodically into such swamps, puddles, etc., for the eradication of mosquito larvæ.

It shall also enforce the necessary measures for the suppression of the causes of spread of malarial fever.

SEC. 622. It shall be the duty of every municipality to issue, within thirty days, the necessary license for the execution of the works ordered by the local sanitary board. If the municipality has special reasons to refuse the granting of such license, it shall submit said reasons to the local sanitary board within ten days.

If the execution of a particular work be urgent, the municipality shall issue the license within the time suggested by the local sanitary board.

SEC. 623. It shall be unlawful to hinder or obstruct the inspection by the sanitary chief, or by the inspectors of the sanitary board duly authorized.

The police shall render its assistance whenever requested by the inspectors.

### PART III.

#### VIOLATIONS AND PENALTIES.

SEC. 624. Violations of these ordinances which are not defined in the penal code as crimes, shall be considered as misdemeanors against public health, and shall be prosecuted before the respective courts.

SEC. 625. He who commits a misdemeanor in violation of these ordinances, or who refuses to comply with the orders of the sanitary chief, shall be punished, in accordance with the provisions of paragraph (e) of section 3 of civil order No. 159, series of 1902, with a fine from \$10 to \$100, official currency, or imprisonment from ten to thirty days, or both, at the discretion of the court.

SEC. 626. The sanitary chief, or his duly authorized deputy, shall take charge of the prosecution of said violations.

The written reports of the sanitary inspectors shall form part of the evidence and shall be taken by the court into consideration in accordance with the rules of evidence.

SEC. 627. The payment of the fine or the expiration of the imprisonment do not exempt the violator from the execution of the work ordered, or the compliance with the order given by the sanitary chief. The repetition of the offense shall be considered as an aggravating circumstance.

SEC. 628. Whenever an official corporation, authority, public officer, local sanitary board or chief, shall refuse to comply with the provisions of order No. 159, series of 1902, of these ordinances or of other sanitary regulations approved by the Executive, the superior sanitary chief shall report the facts to the secretary of the interior requesting him to take the necessary steps for the enforcement thereof.

SEC. 629. The misdemeanors committed by sanitary inspectors in violation of these ordinances shall be punished by the sanitary chief, by admonition, suspension of salary from one to thirty days, or removal, with the advice of the Superior Board. If the violation constitutes a crime, the case shall be brought before the courts of justice.

SEC. 630. The concealment or repetition of an offense shall be considered as an aggravating circumstance.

SEC. 631. The misdemeanors shall be classified as minor and grave in accordance with their importance in regard to public health.

SEC. 632. The following shall always be considered as grave misdemeanors: (1) Violations committed by sanitary officers, if the offense does not constitute a crime; (2) concealment of cases of diseases the report of which is compulsory; (3) unjustified delay in making such report; (4) failure to take the necessary precautions of disinfection whenever required; (5) the admission in charitable and educational institutions of persons suffering or convalescing from communicable diseases; (6) refusal by managers of charitable and educational institutions to furnish information required by the sanitary chief, or furnishing false information, in regard to the sanitary conditions therein, etc.

SEC. 633. Violations of the chapters which shall be mentioned in this section shall be considered as important misdemeanors.

SEC. 634. All other violations, not constituting crimes, shall be considered as minor misdemeanors.

SEC. 635. All decrees, ordinances, regulations, provisions, etc., inconsistent with these ordinances are hereby repealed.

**REPORT FROM THE DELEGATES FROM ECUADOR. DRS. M. H. ALCIVAR AND SERAFIN S. WHITHERS.**

Mr. PRESIDENT: In compliance with the programme of the convention, we have the honor to make the following report:

First. From February 1, 1904, to December 31 of the same year we had in Guayaquil 190 cases of yellow fever. During the present year, due to the radical measures taken by the superior board of health since the first appearance of yellow fever in 1903, which was imported from Panama, this disease has disappeared almost entirely, because, although some weeks one or two cases are recorded, we can assure that they come from distant points from the city, from the zone included between Chimbo, Bucay, and Yaguachi, as the border of the Yaguachi River in almost all its extension, and the quaking bogs and swamps which are in abundance in this section of the country and never get dried, even in summer, offer a very adequate place for breeding the larvæ of the mosquito, thus facilitating the propagation of the species of the epidemic. In order to destroy such foci and to protect the patients from the infection, as long as the sanitation of Guayaquil would be almost impossible if such a constant menace be maintained, the superior board of health is going to commence a campaign with the cleaning all foci of infection and the construction of a small lazaretto, protected with wire screens and equipped with the personnel and utensils which an institution of this kind requires, in accordance with all modern improvements. The superior board of health, therefore, expects to have the germs of yellow fever totally destroyed within a short time.

Second. Since the appearance of the first cases of plague in the southern Pacific coast the superior board of health of Guayaquil closed all ports of Ecuador to vessels coming from infected ports and prescribed energetic sanitary measures for the sanitation of the coast towns. At that time Dr. Miguel H. Alcivar, who had been in Europe and witnessed remarkable experiments of the application of the Clayton gas, recommended to the board of health the immediate and urgent convenience of equipping the port of Guayaquil with a disinfection plant of the "Clayton" system, and to this effect the consul in New York was instructed by cable to purchase a steam launch with a Clayton apparatus, Type A, and an apparatus, Type B, to be mounted in a special wagon. Guayaquil was, therefore, the first port of the southern coast of the Pacific to have a disinfection plant of the Clayton system, and since that time it was reopened to vessels coming from ports infected with plague, thus making quarantine useless, because the disinfection by means of the Clayton sulphurous gas destroys all germs completely. A remarkable fact is that the plague invaded ports contiguous to Guayaquil Gulf, as Paita, in Peru, and north of Ecuador; in Panama there was also a case officially recorded, and although vessels coming from infected ports were admitted in Guayaquil the port has been preserved free from the disease, due to the thorough disinfection to which the superior board of health subjects all ships which touch the port, by means, as we have said, of the Clayton process. Another fact worthy of notice is the circumstance that the only vessel from infected ports which was not admitted in Guayaquil nor disinfected brought the infection to Panama. From these experiences it may be inferred that when the vessels engaged in the transportation of passengers and merchandise have been equipped with disinfection apparatus of the Clayton system, and the disinfection shall be carried out under the supervision of the health officers in the respective ports, then the immunity against flagellat diseases, as the plague, will be accomplished.

During the second half of the year 1904, there were 94 vessels fumigated in the port of Guayaquil by the Clayton process.

We inclose herewith the regulations concerning the disinfection of vessels and quarantine stations.

In order to expedite trade the superior board of health has established in Guayaquil Gulf, in Puna, a floating sanitary station for observation, with a capacity for 30 persons and with all modern comforts, disinfection apparatus, medical attendance, etc.

This plant is not considered sufficient, and for this reason the superior board of health has ordered the construction of another one of the same kind with a capacity to hold comfortably 60 passengers in observation.

The measures which the superior board of health has prescribed to prevent the importation as well as the spread of yellow fever are as follows: (1) Considering the fact that quarantines are unquestionably useless to prevent the introduction of yellow fever, whenever a suspected or confirmed case takes place in a vessel the patient is removed in a litter screened by wire netting to the city lazaretto, similarly protected against the access of mosquitoes. The other passengers remain under the surveillance of the health officer during the period of incubation. (2) A similar procedure is followed as to nonimported cases, isolating the sick immediately, whether confirmed or suspected, and removing them to the lazaretto with the same precautions. The rooms where a suspected or confirmed case has taken place are immediately disinfected with the Clayton apparatus. Besides the lazaretto the board of municipal beneficence has given the board of health possession

of one of the pavilions of their magnificent hospital, entirely isolated and protected by wire netting, and which is assigned to suspected sick who come to the hospital while under observation and before they are taken to the lazaretto. The statistics for the first half of this year show that all the measures taken by the superior board of health have given as results the reduction and almost complete destruction of the disease in the city, because the very few cases that are once in a while recorded are always imported from Yaguachi and its suburbs.

We close this report calling the attention of the conference to the necessity of international quarantine regulations, which are of vital importance to the interests of commerce in general, and any effort to accomplish an agreement in this respect would be the best and most practical of all triumphs of the Second Sanitary Convention of 1905.

#### EXHIBIT 1.

### REGULATIONS GOVERNING THE DISINFECTION OF VESSELS AND BAGGAGE.

SECTION 1. Vessels coming from infected ports shall be subjected to the following procedure of disinfection:

(1) The hold, including the cargo, shall be fumigated and disinfected by means of the Clayton gas, excepting flour, cereals, and other food products which might be damaged under the action of said gas.

(2) After the decks of the vessel have been washed with considerable amount of water, the purpose of which washing is to soak and remove the organic substances that are stuck to the floor and walls, they shall be sprinkled with a solution of hypochlorite of lime at 10 per cent. This solution must be kept in action for an hour at least, after which time the decks shall be washed again with ordinary water. This operation shall be made by the vessel.

(3) The transportation of cargo in general upon deck is prohibited. The importation of fruits and vegetables is strictly prohibited when coming from infected ports.

(4) The walls, floors, doors, and windows of staterooms and saloons shall be thoroughly washed with cloth saturated in a solution of boracic acid at 6 per cent after the ordinary washing of the ship.

(5) After the disinfection of the vessel all dead rats and animals, and also the garbage and refuse, shall be gathered, and, upon order of the health officer, they shall be thrown into the furnace for their complete cremation, but in no wise shall they be thrown overboard.

(6) Open baggage shall be thoroughly disinfected with formol steam or by other process, at the discretion of the health officer.

(7) Clean wearing apparel in use by the passengers, baggage in good condition, polished metal articles, cotton, furniture, and flumber, wrought or unwrought, shall also be subjected to sanitation and disinfection, at the discretion of the health officer.

(8) The importation of the following articles is prohibited: Old and soiled wearing apparel, mattresses, pillows, worn-out carpets and mattings, woolen, feathers, and animal hides, tanned or not; and in general all kinds of articles which might be suspected on account of their soiled condition, as well as all animal or vegetable substances in a state of decomposition. Should any of such articles be found they shall be cremated in the ship's furnace.

(9) All new polished metal articles and iron materials, or of other metals, for the construction of machinery, shall be admitted without any sanitary precaution.

#### PASSENGERS.

SEC. 2. All passengers, whatever their places of origin may be, shall be admitted under the following rules:

(1) The health officer shall make a thorough medical examination of the passengers and shall not allow the debarkation of any person on whom he might have found the slightest suspicious symptom, and who shall be removed to the observation lazaretto, where he shall be held under observation till he is restored to health.

(2) Passengers coming from infected ports shall be received in the quarantine station for observation and isolation for a period of ten days, if necessary, from the date they left the infected port.

(3) If the passengers come from an immune port, but in ships which have touched any infected port, they shall be allowed to disembark after individual disinfection, and the health officer shall issue them a certificate in which their places of origin and destination shall be stated, according to the information furnished by themselves.

These certificates shall be unipersonal, and the passengers shall exhibit them to the president of the board of health, who shall order the health officer to visit the residences of each one of them during ten days, and to report in regard to their health.

(4) The health officer shall order the isolation, in the lazaretto, of any passenger on whom he might have found the slightest symptom of sickness, and shall cause to be made a thorough disinfection of the wearing apparel, articles of personal use, bed clothing, baggage, and all other effects which might have come in contact with said passenger, as well as the room occupied by him.

(5) The individual disinfection of passengers shall be made in the following manner: A general bath with boricated water; special disinfection of the hands by means of the brush, with soap and water first, and then with a solution at 1 per cent of sublimate; disinfection of mouth and throat with boricated water; complete change of clothing for another that shall have been previously disinfected by means of the formol steam, or by other process at the discretion of the health officer.

Traveling clothing shall be delivered to an employee of the health department for its disinfection.

#### LIVE STOCK, POULTRY, AND DOMESTIC ANIMALS.

SEC. 3. Sheep, cows, goats, and pigs shall not be subjected to other procedure than the repose and observation for a period of ten days in clean, large, and ventilated corrals, under the daily inspection of the municipal veterinary.

SEC. 4. Mules, horses, asses, and other animals shall also be subjected to inspection in proper corrals and for the same period of time.

SEC. 5. Poultry and other birds shall similarly be subjected to ventilation and repose during the same length of time.

SEC. 6. All articles derived from animals, which might be vehicles for pathogenic germs, shall be carefully disinfected or cremated.

SEC. 7. All instruments used in the debarkation and removal of animals shall be thoroughly disinfected under the supervision of an employee of the health department.

#### TRANSITORY PROVISIONS.

SEC. 8. While the superior board of health has no sanitary stations or lazarettos to carry out the provisions of sections 1, 2, and 3 of these regulations, vessels coming from an infected port shall not be given free pratique and shall be held incommunicated during the time required for loading and unloading; passengers in these vessels shall not be admitted till fifteen days after leaving or touching an infected port, or disembarking from an infected ship.

#### EXHIBIT 2.

#### REGULATIONS CONCERNING THE SANITARY STATION.

SECTION 1. There shall be established a provisional maritime sanitary station for the isolation and observation of passengers coming from infected or suspected ports.

SEC. 2. The sanitary station shall be located in a place to be previously designated by the superior board of health.

SEC. 3. The sanitary station shall be provided with the necessary craft for the purpose, as well as with the furniture, kitchen and table utensils, drugs, and other articles indispensable to the good service and care of passengers.

#### SERVICE PERSONNEL.

SEC. 4. The service personnel shall consist of:

One director physician.

One inspector.

One practitioner.

Two attendants.

One female attendant for ladies.

One cook.

Two nurses.

Two sailors.

And other employees for the disinfection of vessels.

## THE PHYSICIAN.

SEC. 5. The physician in charge of the Puna station shall be the director physician of the maritime sanitary station. His duties and powers are:

(1) To make the sanitary inspection of all vessels coming from abroad, in accordance with the regulations of the board of health, and the regulations which it may hereafter pass.

(2) To make the disinfection of all vessels coming from infected and suspected ports in accordance with the instructions of the board of health.

(3) To visit the passengers subjected to quarantine observation twice, or oftener if necessary, and to inform the board of health of any event that might happen.

(4) If any passenger subjected to observation be taken sick the health physician shall render him medical attendance after having been isolated, if the illness be infectious.

(5) In such a case the health physician shall immediately notify the board of health in order that it may at once send another physician to take charge of the sanitary service in the port.

(6) To see that the disinfections are thoroughly made, and that the employees charged with this duty fulfill it satisfactorily.

(7) To see that the passengers are attended and cared for in the best possible way, and that their wishes are satisfied in all that is not in conflict with the provisions of these regulations.

(8) To see that all employees strictly fulfill their respective duties, and to make a weekly report to the board of health of all the transactions of the service.

## THE INSPECTOR AND SUBORDINATE EMPLOYEES.

SEC. 6. It shall be the duty of the inspector:

(1) To make the disinfection of the vessels under the supervision of the physician, endeavoring to carry it out in accordance with the instructions of the board.

(2) To see that good order and service are maintained in the craft assigned to passengers, giving them all accommodations not in conflict with the condition and isolation to which they are subjected.

(3) To arrange and look after the kitchen and table service and the cleanliness of the craft, and he shall watch the discipline and behavior of his subordinates, specially in regard to the good treatment which must be given to passengers.

(4) To accompany the physician in his visits whenever requested to do so, and shall receive from him daily the instructions regarding the service.

(5) To see that the craft assigned to the service are completely isolated, and to prevent the passengers from coming in contact with other persons.

SEC. 7. Servants and other subordinate employees shall be under the inspector, and they shall strictly execute all orders which he might give them.

## THE PRACTITIONER.

SEC. 8. The practitioner shall perform his duties under the supervision of the physician, and, specially, take care of the sick. He shall accompany the physician in his visits, keep a clinical record of the sick, and a book in proper form with the physician's instructions for treatment; he shall see that the physician's prescriptions are filled, and that the medicines administered are applied to the sick; he shall take care of the diet of the sick and shall see that the nurses and servants give them careful and proper attention.

## PASSENGERS.

SEC. 9. Passengers coming from infected or suspected ports shall be held in quarantine in craft assigned for the purpose.

This quarantine shall be for a period of ten days from the day in which they left the last infected or suspected port.

If any passenger should prefer to spend his quarantine in another vessel hired by him, he may do so, provided he follows the provisions of these regulations.

SEC. 10. Under no circumstances shall passengers be allowed to come in close contact with other persons, nor abandon the ship on which they must spend their quarantine.

If any passenger be taken sick during the period of the quarantine, he shall be isolated or not, in the discretion of the physician, in the place to be by him designated.

SEC. 11. Isolated patients shall not come in contact with anybody but the physician, the practitioner, and the nurses. The isolation shall be discontinued when, at the discretion of the physician, the patient is in the period of convalescence.

SEC. 12. If any passenger, upon his arrival at Puna, is afflicted with any contagious disease, such as plague, yellow fever, typhoid fever, or other similar fevers, he shall not be received at the sanitary station.

SEC. 13. All passengers are subjected to the daily visit of the physician and must follow his instructions.

SEC. 14. Passengers shall pay \$5 a day, besides the extraordinary expenses which they might make.

These regulations shall be made known to passengers in order that their provisions may be fully complied with.

APPROPRIATION.

One physician.  
One inspector.  
One practitioner.  
Two attendants.  
One attendant for ladies.  
One cook.  
One assistant.  
Two sailors.  
Two nurses.

SEC. 15. The board shall have power to amend these regulations whenever they may deem it necessary.

Given in the hall of sessions of the superior board of health the 22d day of September, 1904.

ANTONIO GIL, *President*.

J. CUEVA GARCÍA, *Secretary*.

REPORT FROM THE DELEGATE FROM GUATEMALA,  
DR. JOAQUIN YELA.

MR. PRESIDENT AND GENTLEMEN: When the Republic of Guatemala was invited to take part in the First International Sanitary Convention of the American Republics, which took place in Washington, D. C., in December, 1902, I had the honor to be officially designated by my country to represent it before such an important and eminent congress. As at that time I was absent from the United States, when I received the appointment I started for this country, but, unfortunately, due to an unforeseen and casual accident, I arrived in this capital when the conference was already closed.

Once more I have been honored with the appointment by cable as official delegate from Guatemala to the Second International Sanitary Convention. At the same time I have been notified, also by cable, that they are sending me by mail the recent governmental regulations in regard to public health and important clinic observations upon the present yellow-fever epidemic in the towns of Zacapa and Galan by the physicians that treat the patients. Unfortunately up to the present time I have not received this document.

On account of the foregoing reasons this report will not be as complete as it should be.

Malaria, under its various forms, has been the commonest disease in the coasts of the Republic and in other towns. Pernicious fevers which after the second or third access would cause the death of the patient are almost unknown at present, due to the sanitary measures enforced by the authorities and the health service.

Only two invasions of the dreadful cholera morbus have been recorded, which epidemics decimated the Republic and the entire territory of Central America. The last took place in 1857, and was imported from Nicaragua at the return of the soldiers that went there to cooperate in the expulsion of the hosts that endangered our independence. Since that time a few sporadic cases of cholera nostrus take place once in a while during each year, not every one, at the beginning of the rainy season, but they are always overcome by proper treatment.

A large portion of the population of Guatemala consists of the native Indian. The native Indian is strong and active, being simple in his habits and clean minded. His only vice is his fondness for alcoholic drinks, mainly that called "chicha." He never suffers from syphilis, and marries as soon as he reaches the pubescent age, creating a numerous family. The epidemics are the only causes that put an end to his life, smallpox particularly, because he fears vaccination with dreadful horror. As people of this race always live piled up in small dwellings called "ranchos," when one of them is taken sick the whole family follow and then the entire town. Fortunately, due to the constant efforts of the Government and the superior council of hygiene, which compel vaccination and revaccination under severe penalties, we no longer see at present the frequent and deadly epidemics of old, and only once in a while we have a few single cases of a mild character.

In the important towns we have salaried physicians, and the people from small towns are brought there by the respective authorities for vaccination, taking special care in watching whether the inoculation has produced good results, and repeating the operation until the desired effect has been obtained.

No new cases have been registered of elephantiasis, which formerly prevailed throughout the country until a governmental decree, strictly enforced, ordered the gathering and arrest of all persons suffering from the disease, and their confinement in the asylum called "La Piedad," where they are well attended and have all they want, being absolutely isolated from the rest of the world.

Bubonic plague, which during the last few years has made many victims in some of the American countries where it was unknown, has never invaded Guatemala, and I hope that with the sanitary measures in force it will never visit our shores.

Thirty-five years ago an epidemic of scarlet fever caused severe damages throughout the country. Since that unfortunate time not a single case has been registered, although cases of diphtheria, which caused great damage among children, have occurred periodically until the serum against this dreadful disease was discovered.

Influenza is the disease which has appeared most frequently.

Typhoid fever and tuberculosis are very uncommon in Guatemala. The conditions of the country are fit to cure tuberculosis rather than to produce it. So much so that persons suffering from it come to Guatemala from distant points of the world seeking the restoration of their health, and most of them succeed.

Yellow fever prevails at present in two of our important towns—Zacapa and Gualan. A great number of physicians, for the sake of philanthropy, have gone there to risk their lives on behalf of their fellow-creatures, some of which physicians have perished while in the performance of their professional duties. Among those that died appears the name of the distinguished Dr. Jorge Arriola, who, as I have been informed, expired without completing an important clinic work showing, from facts that have come under his observation during this epidemic, that the *Stegomyia fasciata* is the only means of transmitting the infection. The epidemic is dying out very rapidly thanks to the active measures enforced by the Government and the superior council of hygiene, with the efficient cooperation of the medical profession, thus restricting its invading action to a limited zone. This disease has never been endemic in Guatemala.

There is a superior council of public hygiene in the capital of the nation, under the secretary of the interior, and in each capital of department a special board of health, under the supervision and control of the superior council. By a special law the military health corps was organized separately, its main duty being to take care of the health of the soldiers.

The superior council has advisory powers only, its resolutions as well as the sanitary laws being enforced by the secretary of the interior.

Among the several and interesting sanitary laws passed by the Government, on recommendation of the superior council, we have the law making vaccination and revaccination compulsory: that regulating prostitution, and the one requiring the report of cases of the following diseases: Typhoid fever, exanthematous typhus, smallpox, bubonic plague, cholera morbus, diphtheria, elephantiasis, scarlet fever, and measles. The physician attending a person suffering from any of the above-mentioned diseases or the head of the family to which such person belongs, is compelled, under severe penalties, to report the case immediately to the competent authority.

The medical surveillance in the ports of the Republic is intrusted to competent physicians, who are under the immediate supervision of the local authorities and receive orders from the superior council. Each port is equipped with proper apparatus for disinfection.

As soon as the Government has reliable information that an epidemic prevails in one of the countries with which it maintains commercial relations, it prescribes sanitary provisions and measures in order to prevent the importation of the disease into the Republic. Among the recent decrees relating to this purpose we have that of July 26, last, which prescribes that, for consequent results, vessels coming from Valparaiso, Chile, shall be considered as suspected, for which reason the authorities of the ports on the Pacific shall strictly enforce all laws and regulations previously passed by the Government.

On September 6 last the President of the Republic ordered that the ports of San José, Champerico, and Ocas on the Pacific coast be closed to vessels coming from Panama, as suspected of yellow fever and bubonic plague.

If the several and wise sanitary provisions embodied in previous laws continue to be enforced as at present, we could almost assure without hesitancy that no other diseases, outside of the traumatic ones, would exist in the capital of Guatemala, and that its inhabitants would only die from senility.

There is a magnificent general hospital in the capital of Guatemala, situated on the east side of the city. It has 500 beds, contained in large and well ventilated wards. Physicians, nurses, medicines, food, comfortable lodging, and everything needed for the restoration of health is furnished without cost to the patient. This hospital has a competent staff of distinguished physicians and surgeons and able practitioners and nurses. It is equipped with all modern scientific improvements. It has an annex, called "Casa de Salud," for people that are able to pay a reasonable fee, which is also provided with a complete equipment of surgical instruments and medicines, frequently imported from the United States and Europe.

On a picturesque site called La Reforma Park, three miles from the city, the military hospital is located, a modern institution where the soldier finds the remedy for his illness.

We also have a very well-organized insane asylum.

At 12 miles north of the city La Piedad Asylum is situated, where all those suffering from elephantiasis are confined. There they find all that is necessary to make their life more tolerable. Near to it is the cemetery assigned to the interment of their corpses.

The Model Hospital, so called because it is for women suffering from syphilis, is situated east of the city, on the suburbs, the majority of the women who are in it being composed of prostitutes. The organization of this hospital and the regulating of prostitution have contributed to make this dreadful disease much less frequent, and that the few cases that occur are of a rather mild type.

For cases of epidemic and contagious diseases, which on that account can not be admitted to other hospitals, we have a very large one in the suburbs of the city, with competent personnel, medicines, and all that is necessary for the proper attendance of the patients, thus curing them and preventing the spread of disease.

I wish to make special mention of the organization of a highly philanthropical institution for men and women suffering from the exceedingly mortal disease for which, in spite of the present wonders of science, no remedy has yet been found, and which is called "senility;" there, engaged in mild occupations proper for their age, they wait tranquilly for the end of their days.

There are also private sanitariums conducted by distinguished professors, among which institutions I have the pleasure of mentioning that of the brothers Doctors Ortega, which, besides an excellent medical service, has the last scientific improvements in apparatus, instruments, and all that is necessary for the clinic attendance of patients.

We have hospitals not only in the capital of the nation, but also in the capitals of departments. The principal ones are the hospitals in Quezaltenango, La Antigua, Amatitlan, and Escuintla.

Among so many charitable institutions there one was lacking for those unfortunate persons who, though not being considered as ill, are convalescent from severe diseases. For this reason Señor Estrada Cabrera, President of the Republic, is going to fill so great a necessity with the magnificent and large building which is being constructed south of the city, on the same site formerly occupied by the Central-American Exposition. This building shall be assigned especially for the lodging and care of convalescents. It will soon be completed because the construction is being carried out with assiduous efforts, the President himself inspecting the works daily.

To close this report I will only make mention of the honor which has been conferred upon Guatemala by the selection of its capital for the place where the Fourth Pan-American Sanitary Conference is to be held. The Government and the faculty of medicine and pharmacy are working assiduously in order to make the stay of our illustrious guests pleasant.

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## REPORT FROM THE DELEGATE FROM MEXICO, DR. EDUARDO LICÉAGA.

[Translation furnished by Doctor Liéaga.]

GENTLEMEN: I present the following report in accordance with the scientific programme that was accepted by the international committee of the American Republics.

(a) *Data regarding the prevailing diseases, especially plague, yellow fever, and malaria, starting from the 1st of January, 1901, being approximately the date on which the convention should have met in Santiago de Chile.*

### I. BUBONIC PLAGUE.

In a collection of the special bulletins of the supreme board of health, which were published in connection with the appearance of the bubonic plague in the port of Mazatlan, State of Sinaloa, and forwarded to the international committee of the American Republics, a detailed report was presented of the appearance of this disease in December 1902, of the course followed by the epidemic, and of the series of measures which were adopted until the disease was finally stamped out in May, 1903.

Incidentally I may observe that from the adoption by the previous sanitary convention of the resolution that each one of the Republics here represented should be bound to declare the existence of transmissible disease in its territory to the international committee of the American Republics, that Mexico has never neglected to comply with this obligation, giving weekly reports either by mail or by wire whenever it was considered necessary.



*Under No. 1.*—I present a collection of those bulletins and I will read this paper in which I present a résumé of that epidemic, because I believe that it will give a knowledge of the measures adopted against it, and which not only extinguished the epidemic in its place of birth but liberated the rest of the Mexican Republic and the whole of North America from all danger of its spread.

#### I. PROBABLE ORIGIN OF THE EPIDEMIC.

Mazatlan is a port situated on the Pacific coast in 23° 11' 2" of north latitude and 7° 17' 34" of longitude west of Mexico. It is in the torrid zone and has a tropical climate. The population is about 25,000 inhabitants.

This port has frequent communication with that of San Francisco, Cal., in the United States, where for three years previously the bubonic plague prevailed in a central part of that city called "Chinatown."

It was probably through fear of quarantine restrictions which might have been imposed on the foreign trade that the authorities of San Francisco had carefully maintained secrecy on the existence of the disease and issued clean bills of health to the vessels leaving the port.

On the 13th of October, 1902, the steamer *Curaçao* reached Mazatlan with a cargo of Chinese goods which were landed in that port. The first case of the disease was observed seven days after, but no diagnosis could be made because it had never been seen in the Mexican Republic, its symptoms were unknown by the physicians and for this reason it was supposed that the patients were suffering from a rare and malignant form of malaria.

It has never as yet been discovered whether these goods came directly from "Chinatown," in San Francisco, Cal., or whether they were transhipped to the *Curaçao* from some vessel that came directly from Asia; but what is beyond question is that the steamer came from San Francisco and that the cargo contained goods of Chinese origin.

#### II. FIRST NEWS OF THE APPEARANCE OF THE EPIDEMIC DISEASE.

In the month of December, 1902, the delegates of the supreme board of health in Mazatlan reported by wire that a rare disease had appeared in the locality; that of the nineteen cases which had been observed eight had terminated fatally, all within the time elapsed from the 20th of October to the 13th of December and that the disease presented as principal characteristics a violent fever and the appearance of buboes in the groin, axillæ, and neck.

The supreme board of health, which is by law charged with the international sanitary police in the port, had no knowledge of the above facts during the first days of the month of December or that the steamer *Curaçao* had brought in goods of Chinese origin; but bearing in mind that it had extra-official knowledge of the existence of the plague in a ward of San Francisco, Cal., and that the only transmissible disease that is accompanied by fever and buboes is the plague, it instructed its delegate in that port to indorse on the bills of health that a disease prevailed in the port which was suspected of being bubonic plague. The board at the same time addressed itself to the local authorities of Mazatlan and to the governor of the State of Sinaloa, in which that port is situated, urging on them to take the steps that are provided by the sanitary code for stamping out any epidemic disease.

In order to proceed with the necessary enumeration of these measures, I will first deal with those that were adopted against the disease in order to extinguish it in the locality in which it made its first appearance, after which I will describe the measures taken to prevent its propagation by sea, and lastly the measures taken to prevent its spread by land.

#### III. MEASURES ADOPTED TO EXTINGUISH THE DISEASE IN THE LOCALITY IN WHICH IT APPEARED.

The political authorities of Mazatlan were instructed to remind the physicians, heads of families, managers of workshops and factories, and directors of schools and colleges of the duty imposed upon them by the sanitary code, of reporting the cases of bubonic plague which might come within their knowledge.

The local authorities at once ordered house-to-house visits to be made in order to discover the patients who might have been hidden by their relations. In order to render this measure practicable the city was divided into wards, and the physicians, with the assistance of 125 men of the sanitary police, were commissioned to carry on the investigations. At the same time and in compliance with the provisions of the Federal sanitary code the isolation of the patients in a lazaret was strictly enforced.

In order to make this isolation really effective, the lazaret was arranged on the Belvedere Island, where a department was established in which to receive the patients suffering from confirmed cases of plague, another was isolated from the above in order to receive those

suspected of suffering from the plague, and another for the convalescents, dedicating rooms in the latter department for baths, a dispensary, and dwellings for the medical assistants as well as for the staff of servants.

The establishment of the lazaret on an island rendered the isolation of the sick easy and secure. But considering that the persons who had been attending the patients before taking them to the lazaret might have the disease in the state of incubation, an observation camp was established on the slopes of the Velodromo Hill close to the beach and outside of the town.

This observation camp consisted of a series of sheds intended to furnish shelter for the families of the patients, in which they would receive the food required for their sustenance and be kept under observation for ten days without their being allowed to leave the camp unless they were in enjoyment of good health on the expiration of that period. The poorer people were supplied with fresh clothing and a certain amount in money on leaving the camp.

As the poorer quarters of the port of Mazatlan contain many houses crowded with people, orders were given to expel the extra inhabitants of each house and oblige them to live in tents.

In accordance with the provisions of the sanitary code, orders were also given for the disinfection of the houses that had been occupied by patients as well as of the clothing which they had used, and whenever this was of slight value it was burned.

In order to carry on the disinfection service in the different wards of the city, eight physicians were appointed with their respective staffs and they employed a solution of bichloride of mercury at one per thousand, which was sprayed by means of force pumps over the roofs, walls, and floors of the dwellings. When these dwellings were of slight value, and especially when they could not be disinfected, they were destroyed by fire, and in this way 375 houses have disappeared.

As the epidemic had been preceded by a great mortality among the rats and mice, war was declared on these animals by all the means that are ordinarily employed, among which was a virus that was intended to produce among them an epizootia that could not be transmitted to man.

At the same time the local authorities gave orders for a thorough cleaning of all the houses and to enforce the sweeping of the streets, for a complete cleansing of the slaughter houses and markets as well as the collection and incineration of all garbage.

The fact that the bubonic plague had never made its appearance in the Mexican Republic had rendered unnecessary any preparation by keeping a stock of serums that would cure or prevent that disease, but a request was immediately made to the Pasteur Institute for 1,000 flasks of Yersin serum and 500 flasks of Haffkine serum, although other and much larger quantities were subsequently consumed.

#### IV. MEASURES FOR PREVENTING THE SPREAD OF THE EPIDEMIC DISEASE BY SEA.

As already stated, the plague had never presented itself in the Mexican Republic. During the last few years, when it again invaded Europe and some towns of South America, it became necessary to reform the maritime sanitary regulations by the addition of a special chapter which was intended to protect our ports against the invasion of the plague, as previous to that there was no mention of that disease in our sanitary code because it was thought unnecessary. The additions to Chapter II of the maritime sanitary regulations, which were intended to give us protection against the plague, were promulgated on the 30th of May, 1900. Since that time they have been in full force, and would have defended us from the disease, if the sanitary authorities of San Francisco had not hidden its existence and issued clean bills of health to the vessels leaving that port. This is the way in which the plague was able to reach Mazatlan.

The first instruction given to the delegate of the supreme board of health in the port of Mazatlan was to indorse on the bills of health the statement that an epidemic disease had made its appearance there which was suspected of being bubonic plague. This declaration was made in order to protect, not only our own ports, but also foreign ports against arrivals from Mazatlan.

The steps which were intended to prevent the spread of the disease by sea may be divided into two groups: (a) Those which were taken in the port of departure and (b) those which were taken in the ports of arrival.

(a) A commission of physicians was appointed to issue health passports to the persons who might reach the port for the purpose of embarking, thus preventing any sick or suspected person from going on board. This commission was also charged with the disinfection of the passengers, baggage, and the goods that might be shipped, and the sanitary delegate in the port was ordered to destroy the rats and mice on departing vessels. With these precautions safety was insured; but in order to comply with the provisions of our maritime sanitary regulations as amended, all the delegates in the Pacific ports were reminded of the rules to which I make reference below.

(b) The ports on the Pacific coast are very numerous and as some of them have no medical delegate—who is the sanitary authority charged with the medical visit to the ships and with the direction of the disinfection work—these ports, which are of slight commercial importance, were closed for all direct traffic with Mazatlan which was only allowed with the ports of Guaymas, San Blas, Manzanillo, and Acapulco, and even then entirely subject to the legal provisions above mentioned and which can be summarized as follows:

The ships were to be kept out in the bay on a special anchorage which was dedicated to suspected vessels; the sanitary delegates would approach the side of the arriving vessels in order to notify the master that he would be detained for ten days to be counted from the date of his departure from the infected port. The object of this detention was to ascertain that no person amongst the passengers or crew had developed the disease. During this period of observation a disinfection would be carried out of the passengers' baggage and clothing as well as of the cargo in the hold and the rats and mice would be killed by means of sulphurous acid, by burning sulphur in the proportion of 40 grammes per cubic meter of space in the hold, which was left hermetically sealed for the space of twenty-four hours. Meanwhile, a disinfection of the ship's decks was carried out by spraying with a solution of bichloride of mercury of one to a thousand or of carbolic acid at 5 per cent. Only the articles which were to be subjected to a surface disinfection were treated with formaldehyde vapor. Once these operations were terminated, and the discharge commenced, the delegate revised the goods, package by package, so as to make certain that the wrappers or cases carried no rats or mice and that there were no holes in them. If any package was found in these conditions there would be reason to fear that the animals might have penetrated into its interior and in such cases it was opened in order to ascertain the truth. Such packages were so arranged, that should the rats jump out they would fall into boiling water from which they were only extracted with the help of forceps, and after anointing with petroleum they were burned.

If the vessels should arrive with sick persons on board or if the plague should make its appearance during the ten-day period of observation, she would have to proceed to the Port of Acapulco, where there is a lazaret properly adapted to receive patients who are suffering from plague, cholera, or yellow fever.

If the final destination of the ship was not one of the above-mentioned ports, after the expiration of the ten-day period and the disinfection required, the delegate would give the vessel a certificate recording the above facts and with this document she would be allowed to enter any port of the Pacific coast.

In order to facilitate the introduction of provisions into Mazatlan as well as substances for disinfection and other objects that might be required, special permits were issued to certain vessels by the supreme board of health, in order that they might carry those goods to Mazatlan, but without entering the port. In these cases the vessels laid off at sea and the vessels that carried the sanitary delegate would go alongside and receive the goods that were brought, without permitting the people from the shore to communicate with those on board. The delegate would issue a certificate declaring all these facts and the vessel would be allowed to proceed to her port of departure or any other without being subjected to quarantine.

These measures were so efficacious that not a single case of plague appeared on any vessel, nor was any carried to any other port within the six months during the epidemic.

#### V. MEASURES FOR PREVENTING THE SPREAD OF THE PLAGUE BY LAND.

The most efficacious means for stopping an epidemic is to diminish the number of inhabitants in the town in which it prevails, as we can easily understand that this diminishes the material on which the disease can feed itself. The public authorities can not order such a step except when dealing with very small towns; but in the present case, the residents of Mazatlan departed and it is estimated that the emigrants reached as many as 8,000 persons. At the same time it is necessary that in procuring the emigration from a city care should be taken that the emigrants do not carry the contagion either on their persons or in their baggage. In order to avoid this danger the following measures were adopted.

A medical commission was appointed to examine the persons who desired or attempted to leave Mazatlan; if they were found healthy they were given passports which recorded their names and surnames, their state of health, and destination. This commission forwarded a similar notice to the authorities of the place to which the passengers were traveling and at the same time kept a record of all this information.

In the roads which pass from Mazatlan (as yet it has no railroad communication) to other points in the State of Sinaloa and to the other States and territory that surround it, and in the most frequented parts sanitary stations were established which consisted of a department for the persons arriving with the disease already confirmed; another which was dedicated to those who were simply suspected of suffering from the plague; a third in which the convalescents were lodged with their proper bathrooms; a fourth department with the

disinfecting stove—a chamber dedicated to the fumigation of goods by means of sulphurous acid; and lastly, dwelling rooms for the staff.

These stations were under the direction of a hygienic physician.

Besides this a second zone of sanitary stations was established at a certain distance from the first and the adjoining States also organized their own sanitary stations as follows: Two in the Territory of Tepic; two in the State of Jalisco; three in the State of Durango; and one in that of Sonora.

The defense by land was organized as follows: In the first place an inspection was made by the medical commission in Mazatlan of all persons who attempted to leave the city; if any traveler fell sick before the second day from his departure he would be received into the first sanitary station; if the disease showed itself before the second and fourth day he would be detained in the second station, and if it made its appearance when the traveler left the State of Sinaloa he would be detained in one of the stations of the adjoining States; but even in the case of delayed incubation by which the disease would become evident before the tenth day the traveler would still be under the vigilance of the authorities at his new residence, as they would be previously notified of his arrival by the medical commission in Mazatlan.

It is believed that over 8,000 persons left Mazatlan in a comparatively short space of time and we can therefore understand that many of them escaped the inspection in Mazatlan and evaded the sanitary stations. This explains the appearance of some cases in three villages that I will refer to later on, but their number was so limited that without any danger of exaggerating I may say that the plague was concentrated in Mazatlan and consequently that the measures adopted to prevent the spread of the disease by land brought about the desired result.

#### VI. PLACES TO WHICH THE EPIDEMIC SPREAD FROM MAZATLAN.

A small village of 400 inhabitants called Oso and situated on the left bank of the river El Fuerte formed a small focus which was originated as follows: A family left Mazatlan on the 24th of January and on reaching the village of Elota, on the 27th, a girl fell sick, and in order to escape the sanitary station which was established in that place the family fled to Oso, where they arrived seven days after. The girl died there, after having passed the contagion to her mother, from whom it was passed to the grandmother, and these two also died. As soon as the fact was known a physician was sent from Culiacan, the capital of the State of Sinaloa, and he was able to prove that the patient whom he saw alive was suffering from the pneumonic form of the plague. The disease was propagated to three other persons, but as all the patients were isolated, together with the persons who attended them, and as not only the clothing and other objects which might have any infection were burned, the houses in which the patients lived being also burned, and all persons who ran any danger of contagion were vaccinated with Yersin serum, which was the only one at that time available, and as the rats and mice throughout all the adjoining houses were destroyed, the epidemic was finally stamped out in that place.

I should state that the village of Oso, which is situated about 170 kilometers from Mazatlan, is the most distant that has been reached by the disease.

The village of Villa Unión, situated 26 kilometers to the southeast of Mazatlan, was invaded by the families who emigrated from the port when the epidemic declared itself there, and the frequent connection which they maintained with the port gave rise to the development of another focus, in which seven persons were attacked, but with only one death. The first patient hardly fell sick before physicians, disinfecting stoves, and operators were sent, and the patients were isolated as well as all suspected persons and convalescents. As in Mazatlan an observation camp was established in order to isolate the families of the sick, the houses in which the patients had lived were destroyed, rats were exterminated, and the epidemic was stamped out. Two important factors contributed to this result: the first was the establishment of a sanitary organization similar to that of Mazatlan, and the second was the inoculation with Besredka vaccine of 645 persons who were liable to take the disease.

Another village called Siqueros, situated 34 kilometers from Mazatlan and 15 from Villa Unión, received the emigrants from the latter village and with them the disease, but the same elements to fight the evil were accumulated in that new focus as in Mazatlan and Villa Unión, so that although nine cases developed, with six deaths, the epidemic was also stamped out in this village.

Before closing my report of the measures which were adopted to prevent the propagation of the epidemic by land, I must mention a step that powerfully contributed to preventing the emigration of the sick people, which consisted in the organization of a flying brigade of sanitary police, accompanied by an ambulance and under the orders of a physician, which traveled over the road and visited the smaller villages, thus exercising a very efficient vigilance.

## VII. CONFIRMATION OF THE NATURE OF THE DISEASE.

As stated at the commencement of this paper, the supreme board of health established the struggle against the plague basing its operations on the clinical data of the disease, but the present scientific conditions required its nature to be confirmed by bacteriological proof. For this purpose the board sent Dr. Octaviano González Fabela, the learned bacteriologist of the corporation, properly equipped for that purpose and with a supply of small animals with which to carry on his experiments. As soon as the doctor reached Mazatlan he made a clinical study of a patient who was suffering from the disease in its pneumonic form, collected the sputa and the liquid from the periganglionic tissue of the buboe, and thus was able to prove the existence of the Yersin bacillus. With the culture of this pure bacillus he inoculated some guinea pigs that shortly after presented all the characteristics of the experimental disease. On receipt of this diagnosis by wire, on the 31st of December, the supreme board of health at once made public declaration that the epidemic which had made its appearance in the port of Mazatlan was the bubonic plague, and so communicated to the Federal authorities of the Republic and of the States, to all the sanitary delegates in the ports, to the sanitary authorities of the United States, and to the international committee of the American Republics in Washington.

## VIII. NUMBER OF CASES AND DEATHS.

The number of cases of which the authorities had any knowledge numbered 351, and the number of deaths is entirely correct, because under Mexican law no interment can take place without the certificate of the registrar, which records the cause of the death.

We can not say the same as regards the number of cases, as the same thing happened in Mazatlan that has been seen in all parts of the world—that is, that many cases are hidden in order to prevent the transfer of the patients to the lazaret. The number of such hidden cases was notably diminished from the moment that house visits were established together with an unceasing watch throughout the town. The fear which possessed the poor and ignorant people of being carried to the lazaret led to the emigration of some unfortunates from the town, while others were picked up sick on the roads and carried to the lazaret, and this fact explains the difference between the cases recorded and the deaths.

The largest number of cases recorded in one week was 65 and the largest number of deaths 56. The decrease was rapid and pronounced until the epidemic entirely disappeared.

## IX. MEASURES INTENDED TO PREVENT THE REAPPEARANCE OF THE DISEASE.

As the disappearance of the disease was not sufficient to guarantee the cessation of all danger it became indispensably necessary to adopt a series of measures intended to prevent its reappearance. The character of this paper does not allow me to enter into details, and I will confine myself to a statement of the principal measures that have been adopted for that purpose.

In the first place, the house visits were kept up, especially as regards those houses that had been occupied by the first patients when the nature of the epidemic had not been established. These visits were repeated in the houses which adjoined those which had been inhabited by sick persons who were directly or indirectly in contact with the victims. In all of these houses a second disinfection was made and those that were of slight value were destroyed, if the disinfection was found difficult. The clothing found in all of these houses was also disinfected and it was repeated in all that which was deposited in the pawnshop. Operations were continued for the cleansing of the streets, slaughterhouses, markets, and other meeting places, as well as for the destruction of all garbage by fire. Before the schools were reopened after they had been closed at the commencement of the epidemic, the schoolhouses were disinfected, and the persons who attended the religious services in the churches were required to present themselves in clean and previously disinfected clothing, with a certificate that they had taken a bath. The destruction of rats and mice, against which a ceaseless war had been declared during the whole of the epidemic, was still continued, until a special commission which was charged with the special study of the blood and tissues of these animals had demonstrated that they were no longer infected with the plague. This commission continued its labors for nearly a year. The medical commission which issued the certificates of health to travelers leaving Mazatlan, and which was charged with the disinfection of their clothing and baggage as well as all goods that were shipped by sea or land, was continued in the full exercise of its office. The sanitary stations were for some time maintained in activity and the service perfected, with the object of exercising a vigilance on the passengers and goods which left the port, as well as over the persons who, after emigrating during the epidemic, now desired to return.

In the villages I have above mentioned, in which cases of plague had appeared, the same precautions were continued as in Mazatlan.

The extermination of rats was advised not only in the places that were invaded by the plague, but was also carried out in many cities of the Republic, and specially in Culiacan, about 240 kilometers distant from Mazatlan, where over 35,000 rats were killed.

With these measures we can safely assert that the bubonic plague will not reappear in Mazatlan or in any other point of Mexican territory.

## II. YELLOW FEVER.

After the serious epidemic which spread from the State of Vera Cruz along the interior of the littoral to those of Tamaulipas, Nuevo León, San Luis Potosí, as well as to some towns of Coahuila, to one in the State of Hidalgo, to Oaxaca, and to Yucatan, we were able to extinguish it completely in all those places which were situated to the north of the parallel which passes through Vera Cruz, so that at the commencement of the year 1904, cases only existed in the State of Vera Cruz, part of Oaxaca, and in Yucatan, as can be seen from the annexed table, marked "No. 4."

The vigorous campaign which has been undertaken, and the details of which will be found on Table No. 5, can be summarized in the following statement, which, on account of its brevity, I will read:

Before yellow fever can be transmitted it is necessary to have a combination of three factors: A yellow-fever patient, a mosquito of the genus *Stegomyia* to bite the patient, and a nonimmune person to be afterwards bitten by the mosquito.

The problem of fighting yellow fever, therefore, consists in the disassociation of these three factors, and I will now show the manner in which we arrive at the solution of this problem.

### I. ISOLATION OF THE PATIENTS.

In order to isolate a patient, the first thing to know is that the patient exists, and in order to find him we proceed in the following manner: In each village where there is yellow fever, or it is feared that it will develop, we organize a sanitary brigade. Some of its members busy themselves in making a list of all the people who are not immune and who live in the locality. In this register a note is made of the age, sex, and nationality of each person and the place of his residence. The sanitary agents who form part of this brigade divide the city or town in which the fight is waged against the yellow fever in such a way as to be able to visit the nonimmunes daily. When one of these is found to have fever, whatever its origin may be, the patient is separated immediately, being put in a room whose windows have been provided with fine wire screens, which will prevent the entrance of the mosquitoes, and a double door, also of wire, is provided and so arranged that when the outside door is opened the inside one will automatically close, and vice versa. This can be done by means of a chain of a certain length which unites the two doors. This is much more satisfactory than covering the beds with mosquito netting, for the latter has to be opened frequently in order to observe the patient, to give him medicine, food, etc., and each time the curtain is opened you run the risk of letting a mosquito in, or, should the curtain accidentally come in contact with the patient's body, the mosquito can bite the patient from the outside of the curtain; whereas if the patient is in a room from which the mosquitoes have been previously driven out, and where they can not come in again, the contact with the patient is impossible. This means of isolation has another advantage; that is, that you may put in the same room a patient who has already been proved to have yellow fever and another whom they only suspect of having it, without the latter being liable to catch the disease.

As we have just seen, in our plan of campaign we do not wait until we are satisfied of the existence of yellow fever, but we isolate the patient from the first day that any fever appears, and consequently we isolate him during the first three days, which are the dangerous ones, and those in which the mosquitoes become infected. Experience has demonstrated the sufficiency of the methods we have adopted for the isolation of the sick.

### II. DISINFECTION OF THE HOME OCCUPIED BY THE PATIENT.

During the time which elapses between the moment in which a person takes the yellow fever and that in which it is discovered by our agent, he may have been bitten by the mosquitoes and infected them, so that they are ready to spread the disease. In order to prevent this danger we proceed to disinfect the house as soon as it is left empty by the patient. The disinfection in this case has for its only object the destruction of the mosquitoes. In order to accomplish this we close the room as it is ordinarily closed, pasting manila paper over all cracks, and after this has been done we proceed to burn sulphur in the proportion of 20 grams per cubic meter of capacity. The sulphur must be spread in a thin layer, so that all will be burned. In this practice, which is so common and known to all, we have introduced another innovation which seems to me of great importance and

it is this: As it is very difficult to know whether the disinfection has been complete or not we take some mosquitoes which have not been infected and which have been taken from the exterior of the room and put them in the farthest room from the one in which the sulphur is burned. These mosquitoes are put in open vessels, or which are only closed with a coarse cloth, so that it will allow the sulphurous acid to penetrate into the vessel and prevent the mosquito from getting out. These mosquitoes serve us as witnesses. If, at the close of the disinfection, these mosquitoes, which were in unfavorable conditions to suffer from the action of the sulphurous acid, are found dead, we have proof that all the others in the same room and under more favorable conditions for receiving the sulphurous acid are dead also. If, on the contrary, we find them alive, it is a proof that the disinfection was not well done and that it will have to be repeated.

I have already explained in our last meeting the way in which the huts, which in our country are called "jacales," are disinfected. I will therefore not have to repeat it now, and it will be all-sufficient to state this fact: That there is not a house which can not be made perfectly free from the mosquito.

In disinfecting the Pullman cars, other railroad cars, or any limited space where there are delicate objects which can be damaged, we use formaldehyde.

In dry-goods stores, where the sulphur, the pyrethrum, and even the formaldehyde might alter the color of the merchandise, we have used hydrocyanic acid, the result of which is as satisfactory as that of the sulphur and has not the objectionable effect of injuring the merchandise, but on the other hand it can not be used except by a person who is very skillful in its use.

### III. DESTRUCTION OF THE MOSQUITO LARVÆ.

Another group of the sanitary agents is employed in making a daily house-to-house inspection of the cisterns which supply the families with water. If the deposit is found to contain larvæ it is emptied and the place in which the water flows is covered with petroleum, the deposit is washed, and the inside surface is searched in such a way that not a larva is left alive; then it is filled with pure water and is covered with a close-fitting lid, with a wire netting, or with a layer of petroleum. All other deposits of water are covered with petroleum, whatever their size, even when they are very small.

As you have just heard, those methods in which we have introduced innovations over those adopted in other countries are the following:

I. Making a register of the persons not immune.

II. Visiting the houses daily, so that the patient can be discovered the same day that the disease begins.

III. The disuse of the mosquito curtains, because their use is insufficient to isolate the patient, and the placing of the patients in rooms whose windows are screened and which have double doors of wire screen.

IV. In order to convince ourselves that the disinfection has been complete we put mosquitoes in the house under unfavorable conditions, so that they can be reached by the action of the disinfectant. If at the close of the disinfection the test mosquitoes are dead we can be sure that the disinfection was well done.

V. We have the means of making impossible the escape of the mosquito from the disinfected houses, even if these are only huts whose walls and roofs are made of grass, or of branches, or of any other penetrable material.

To prevent the disease from attacking a place where there are *Stegomyia* we have proceeded in the following manner:

In all towns of this class we establish an inspection upon the arrival of the trains, and in other places where passengers reach the town on horseback, on foot, or in carriages. Each passenger who is to remain in the locality is examined and is kept under watch by our sanitary agents or by the police for five days after his arrival. In the places already invaded by the yellow fever the same inspection is made of all the passengers who take the trains, and they are prevented from leaving if they are ill and if they are not immune and have fever. Could not the passengers take the trains between the points where the inspections are made? The sanitary agents travel continually on the trains which traverse the infected districts, which are at present the small towns in the State of Veracruz and the towns traversed by the Tehuantepec Railroad, so that agents travel between Veracruz and Tierra Blanca, from Cordova to Tierra Blanca, from Tierra Blanca to Santa Lucrecia, from Coatzacoalcos to Santa Lucrecia, from Santa Lucrecia to Tehuantepec and Salina Cruz. If a patient is found on any of these routes he is taken to the nearest hospital and at night the Pullman or railroad car in which the patient traveled is disinfected.

Having thus organized our system of inspection, we have followed it in Yucatan, notwithstanding the fact that for a long time past not a single case of yellow fever has been found either in Merida, Progreso, or in any of the other towns of the State above mentioned. There has not been a single case of yellow fever in Veracruz since December 29, 1904, up to this year. In spite of the vigilance which we have exercised it is possible that

a patient who did not arrive by the railroad nor by the most frequented roads had clandestinely entered the town and was able to remain hidden, and as he was not on the register he was not visited by the sanitary agent. This is the only explanation which we can give of the appearance of this disease in the harbor of Veracruz. We have established a sanitary brigade and a lazaret in Tehuantepec, notwithstanding the fact that the last case that originated in the town was observed many months ago. Another service is established in Salina Cruz and, lastly, in Tierra Blanca, where a small focus was formed. Tierra Blanca is a village at the junction of the three branches of the Veracruz and Pacific Railroad. The village is inhabited by nonimmunes who are employees and workmen on the railroad. As the village is cosmopolitan and very poor and dirty, it has been truly difficult to completely extinguish the disease, and for that reason a brigade has been established there.

In the other places of the small infected zone, when isolated cases appear a physician and sanitary agents of some experience are sent immediately to proceed with the house-to-house inspection and to disinfect where ever it is necessary and to destroy the mosquito larvæ.

The inclosed table (No. 1) shows the number of yellow-fever cases registered in the above towns, giving the number of cases in each one of them, and that of the deaths caused from this disease in the same places during the year 1904.

It can be seen there were 635 cases registered and that there were 197 deaths in the whole the Republic.

The inclosed table (No. 2) shows the number of cases registered and the deaths caused in each one of the towns mentioned in the statistics from the first day of January to the 3d of August of the present year. It can be seen that 70 cases were registered and 33 deaths. As you can see by comparing the numbers in these registers with those of last year, there is a difference of 565 as the result of the campaign made during that period of time.

Map No. 1, which is marked with yellow dots, shows the places which were invaded by that disease, and the red dots show where the sanitary agents are established.

Table No. 3 shows the number of domiciliary visits made to the persons who are not immune, the tanks of water which were examined and cleaned of larvæ, the number of deposits of water covered with petroleum and the disinfections made, of houses and back yards cleaned, and the notices given to proprietors for the improvement of their houses.

The success which has been reached in Mexico in the struggle against yellow fever and the certainty that in a not far distant future the disease will be completely extinguished, as has been done in the island of Cuba, can be easily seen from the statements already made.

*(b) Summary of the sanitary and quarantine laws that have been enacted since the first convention.*

The legal enactments that have been issued in the Mexican Republic since the convention of 1902, amending the sanitary legislation which existed before that date, are set forth in the sanitary code of the United Mexican States under Title I, Chapter I, and in articles 24 to 30, which I here present:

"ART. 24. The consuls will report by wire to the board on the appearance of cholera, bubonic plague, or yellow fever in their places of residence, giving the dates on which the first cases have appeared, and as long as the epidemic lasts they will take care to report to the same board when any ship leaves for the Mexican Republic, the sanitary condition of the same, and of the port of departure.

"ART. 25. In the foreign ports in which yellow fever is endemic the consuls at the time of issuing or indorsing the bills of health will note thereon if at the time of their issue there are any cases of that disease in the port.

"ART. 26. The prophylactic measures to be taken in Mexican ports with the object of preventing the introduction of epidemic and transmissible diseases will consist of the following:

" I. Of the medical sanitary inspection of the vessels.

" II. Of the vigilance over and even isolation of suspected passengers.

" III. Of the isolation of the patients till they are completely cured in the lazarets or other isolated places in the locality.

" IV. Of the disinfection of the vessels, baggage, and merchandise that may require it.

" V. Of the destruction of the animals that might carry the contagion.

"ART. 27. The prophylactic measures referred to in the preceding article will be in every way subject to the provisions of the sanitary regulations, and both the supreme board of health as well as its delegates in the ports will be authorized to detain vessels for as long as may be necessary for the execution of those measures.

"ART. 28. The sanitary control of the ports will be subject to the maritime sanitary regulations in everything relating to the admission of vessels, the visits on entry and departure,



issue of bills of health, prohibition against the importation of merchandise, the destruction or disinfection of the goods as well as of the baggage and vessels.

"ART. 29. The substances which present danger of contagion and whose disinfection can not be guaranteed shall not be cleared for consumption, and if abandoned by the vessel which has brought them will be destroyed by fire.

"ART. 30. On reports presented by the supreme board of health the executive of the Union will declare when foreign ports are to be considered infected or suspected."

I would call your special attention to articles 26 and 27, because practically they tend to abolish quarantine, substituting for it, as you have just heard, a sanitary inspection of the vessels, a vigilance and even isolation of suspected passengers, isolation of the sick until they are completely cured, disinfection of the vessels, baggage, and merchandise that may require it, and destruction of the animals that might carry the contagion. Article 27 declares that the vessels may be detained in the ports only for the time necessary to carry out the measures that I have just mentioned.

As you have just heard, Mexican legislation is entirely in accordance with the formula which I had the honor to propose in the convention of 1902 relative to the doctrine which ought to govern the quarantine measures from the moment that science has served as the basis for the resolutions which are adopted in conventions of this character. This formula is as follows:

To protect the interests of public health without injuring more than is absolutely necessary the interests of trade and the free communication between men.

Among the resolutions adopted by that convention, the second one reads as follows:

"Resolved, That the period of detention and disinfection in the maritime quarantine stations shall be as brief as possible, bearing in mind the public safety and the teachings of science."

As you will see, in issuing its sanitary code of the 30th of December, 1902, the Mexican Republic adhered strictly to the resolutions adopted by that convention on the 5th of the same month and year.

It would be very desirable, gentlemen, that the governments of the Republics which are here represented, inspired by the resolution unanimously adopted by the convention of 1902, should bring their sanitary laws into accord with this resolution, which has already been converted into law by the Mexican Government.

It is necessary that we should understand that the present state of civilization requires of the governments of all countries that fear should no longer be the moving sentiment of quarantine provisions, because in that way they will always be excessive in their severity, will go beyond the object desired, will be inefficient, as shown in my paper in 1902, and that they should be substituted by measures enacted under calm reasoning and founded on the one side, on the exact knowledge which is now furnished to us by sanitary science, and, on the other side, on a zealous desire not to injure more than is absolutely necessary the interests of trade and free communication between men.

As in our last meeting I heard a opinion expressed that my proposals were to some extent theoretical and would encounter difficulties in daily practice, as by shortening the periods for the detention of suspected vessels we would incur the danger of not sufficiently protecting the interests of public health, I will now take the liberty of calling the attention of those who kindly listen to me to this consideration:

Our sanitary laws, which are inspired by the two precepts that I have just mentioned have enabled us to defend our ports on the Pacific coast, and consequently to defend foreign ports, during the epidemic of bubonic plague which invaded the port of Mazatlan from the month of October, 1902, to the month of May, 1903. These same sanitary laws have enabled us to prevent the yellow fever, which still prevailed during the past year in the ports of Veracruz, Coatzacoalcos, and Progreso, from spreading to that of Tampico and our other ports on the Gulf coast. These laws, without any amendment or modification whatever, have served for our defense against the epidemic in Belize and at this moment are defending us against the great epidemic in New Orleans without our having to add a single restrictive measure with regard to the vessels which arrive from the above-mentioned places, and they continue to give us the protection we require against the plague that has continued to prevail in the Republic of Chile. We can therefore assert that our sanitary laws, being inspired by the doctrine that for a long time I have sustained—that we must protect the interests of public health with the least possible injury to trade and personal communication—are not a Utopia, but a precept that can be enforced in our daily practice and that has triumphantly supported the test of experience.

Our legislation on international sanitary police is as liberal, or more so, than the English, but is unquestionably more liberal than the legislation of all other countries, and I now come to beg of the convention that the Republics here represented should adopt a practice similar to ours, which is founded on scientific precept, guaranteed by experience, and more than any other favors the interests of trade and the free communication between men.

Although not of a legal character, but on account of the interest which they bear for all nations that are suffering the invasion of yellow fever, I believe that some interest will be felt in the statement of the measures which have successively been adopted by the Mexican Republic in the struggle against that disease, and which, respectively, bear the titles of "Defense against yellow fever" and "New plan of campaign against yellow fever," and lastly, the summary which I read at the commencement of this paper. I present the two first pamphlets as annexes, with the numbers 7 and 8.

I desire not to close this part of my paper without stating, even if only in a summary manner, the measures which are about to be adopted for the purpose of stamping out malarial fever.

### III. MALARIA.

One of the contagious diseases that has caused the greatest number of deaths is malarial fever. The bubonic plague, cholera, yellow fever, etc., can not be compared with it from this point of view, because these diseases are acute and localized, while their geographical distribution is limited; but malarial fever is chronic and universal, and all countries of the world have had and still have reason to lament its presence.

The scientific knowledge which we now have regarding the etiology, pathogeny, diagnostics, progress, varieties, and treatment of malaria will allow us to reach the complete extinction of this plague, which has been one of the calamities that have inflicted most injury on humanity.

Malarial fever requires for its production a malaria patient, anopheles mosquitoes, and an individual who is predisposed to take the disease.

When the patient is bitten by a mosquito of the genus anopheles, the latter takes from the blood a parasite which has been called by its discoverer, Laveran, "hematozoaria of paludism."

The Laveran "hematozoaria" is found in the blood of malaria patients in four principal forms, which are called spherical bodies, flagellata, semilunar bodies, and segmented or rosaceous bodies.

The only infallible means of discovering whether a patient has malaria is that furnished by the microscopic examination of the blood. In fact, our practice has taught us that the symptom of "intermittent fever" is not an exclusive accompaniment of malaria, but is also found in other and different morbid conditions. In order to diagnose malaria with certainty, a microscopic examination of the blood is absolutely necessary. The observation of any of the parasites above described in a globule is sufficient to establish the diagnosis, as these parasites are exclusively found in the blood of malaria patients.

The evolution of Laveran "hematozoaria" requires that it should go through two entirely different organisms in order to run through all the phases of its evolutive cycle. One of those organisms is man and the other is the body of the anopheles mosquito.

The females of the insects deposit their eggs in shallow pools of clear water on the edges of the streams or swamps, and even in the small hollows that are left by animals in passing over soft ground. The eggs, larvæ, and pupæ require water for their development.

As in the case of yellow fever, the propagation of paludism requires the concurrence of these three elements:

Firstly. A patient suffering from malarial fever;

Secondly. A mosquito of the genus anopheles to bite him; and

Thirdly. A predisposed person to receive inoculation through the bite of the mosquito.

It is therefore necessary, in order to prevent the propagation of malaria, that we should be able to disassociate the first two elements and give immunity to patients and other persons who may be predisposed by the administration of quinine, which exercises a special action on the hematozoaria of Laveran.

These considerations bring us to the measures which should be adopted in order to prevent the propagation of this disease, and which are the following:

Firstly. The isolation and cure of the patients.

Secondly. The destruction of the mosquitoes that are already infected.

Thirdly. The immunization of predisposed persons.

Fourthly. The means which are intended to prevent the development of new generations of mosquitoes and the destruction of the larvæ that may have been formed.

#### I. THE ISOLATION AND CURE OF THE PATIENTS.

The first of these measures, the isolation, is in this case more difficult of execution than in that of yellow fever, because it is an acute disease, which obliges the patient to keep his bed. The rapidity with which the disease passes and the necessity of the patient's keeping his bed renders the isolation easy and short. On the other hand, in cases of malaria the patient does not find himself obliged to keep his bed except when the disease assumes an acute form or is very intense. Other persons suffering from malaria can go about their ordinary business, and are thus liable to be bitten by anopheles.

The isolation is therefore a not very efficient method for the prevention of the first requisite; that is to say, a patient who can be bitten by a mosquito.

But, insufficient as this method is, it should be employed whenever possible, as every patient who is placed in a situation in which he can not be stung by the anopheles mosquito is one focus less in the propagation of the disease. The isolation of the patient in this case, as well as in that of yellow fever, consists in placing him in a room the windows of which are provided with fine wire gauze screens, which will not allow the passage of the mosquitoes, and double doors, which should also be screened and arranged in such a manner that on opening the outer one the inner door automatically closes, and vice versa. This can be arranged by means of a chain of a certain length.

Another method of isolation consists in placing a mosquito curtain around the bed, but in speaking of yellow fever I have already related the objections that I find against this method, that, on the other hand, may be very useful if it is employed as a prophylactic measure.

The second of these measures, which is intended to cure the patient, is demanded by this special circumstance: That an attack of yellow fever confers immunity on the person who suffers from it for the first time, but this immunity is not conferred on the person who suffers from malarial fever. Another reason is that the yellow-fever patient can not furnish the germ which produces the disease except during the first three days of the attack, while the malaria patient preserves the hematozoaria as long as the disease lasts. From these observed facts we conclude that the yellow-fever patient ceases to be a focus of infection as soon as the first three days of the attack have passed, while the malaria patient is a focus of propagation as long as he continues sick, and as the disease often allows the persons who are attacked to attend to their ordinary business, they are continually exposed to the bites of the mosquitoes, which are thus infected. Hence the necessity of not only isolating the patients, but also of attending them until they are thoroughly cured.

Fortunately we have two resources on which we can rely. The first is to oblige them to leave the place in which anopheles are found that might bite them. This means has been known from the most ancient times. The other resource consists in the administration of salts of quinine, as it is known that this medical substance possesses the property of destroying the hematozoaria in the blood.

I will not at present enter into the detail of the method of curing this disease with the help of quinine, as that would go outside of the plan which I have proposed to follow in this paper, but from what I have above stated we can form these two conclusions: First, that it is necessary to isolate the patient whenever possible; second, that it is necessary to cure him, so as to obtain the disappearance from the blood of the hematozoaria of Laveran.

As can be seen, these methods are not as efficacious in dealing with yellow fever. The ideal plan would be to obtain the complete isolation of a malaria patient for as long as he is suffering from the disease; but as this is not always practicable, it should be done as far as the circumstances will allow.

## II. THE DESTRUCTION OF MOSQUITOES ALREADY INFECTED.

The second measure is as efficacious in dealing with malaria as it has been found in cases of yellow fever. As a matter of fact, the malaria patient is only dangerous because he is liable to be bitten by the mosquitoes of the genus anopheles, which are infected by sucking up the hematozoaria of Laveran in the blood of the patient.

The destruction of these mosquitoes is effected by the same means that are used in dealing with yellow fever, and for that reason there is no need for me to enter into a description of them.

## III. THE IMMUNIZATION OF PREDISPOSED PERSONS.

If, unfortunately, the person who suffers a first attack of malaria does not acquire immunity against that disease, and if as yet we have not discovered any substance that will serve as a vaccine that would grant that immunity, we still have the resource that lies in quinine, and which, administered in small doses and for a long period, produces the desired immunity. From this comes the rule of administering small doses of quinine to all persons who live in swampy countries during those seasons in which malarial epidemics make their appearance.

Repeated experiments and continuous observations have demonstrated that the daily administration of 10 to 20 centigrams of quinine is sufficient to confer immunity on persons who have any predisposition to take the disease.

The experiments that the supreme board of health has been carrying on in a rural property denominated "El Dorado," situated in the State of Sinaloa, and one of those places

in which that disease is a scourge, as can be seen from the map that I present herewith, have been highly satisfactory, as is shown by the following table:

*Prophylactic results of the daily administration of a small dose of 10 centigrams of quinine during the cane-cutting season.*

Number of persons—	Not attacked.	Attacked.	Total.
Who took it regularly.....	85	2	87
Who took it irregularly.....	33	12	45
In whom the effect could not be observed because they left the locality.....			18
To whom it was given in a period of 3½ months.....			150

#### IV. THE MEANS WHICH ARE INTENDED TO PREVENT THE DEVELOPMENT OF NEW GENERATIONS OF MOSQUITOES AND THE DESTRUCTION OF THE LARVÆ THAT MAY HAVE BEEN FORMED.

As it may not be possible to enter into the details of every one of the methods that have been taught, firstly by observation and secondly by practical experiments, I will now proceed simply to enumerate them.

A very old experiment that was systematically carried on in England three-quarters of a century ago has shown that the drainage of swamps, the furnishing of an easy outlet to the waters, and the conversion of swampy lands into arable lands, together with the planting of trees of rapid growth which require for their nutrition and development a great quantity of water, as in the case of the eucalyptus, are all measures that have entirely reestablished the health of a district that had previously been for many years a focus of malaria, and at the same time has opened up those lands to agriculture. This measure is therefore of unquestionable efficacy as a prophylactic against malaria, because it prevents the development of mosquitoes of the genus *Anopheles*, the vehicles for the transmission of the disease.

The small swamps and pools, that on account of the conditions of the ground can not be drained, can be filled up with earth, and in this way we can obtain the disappearance of the waters in which the female *Anopheles* could deposit her egg.

Those other water ponds, which for some circumstances can not be drained, planted with trees, or filled up with earth, we can always cover with a thin layer of crude and refined petroleum mixed.

And lastly, the destruction of the larvæ in the water cisterns inside of the dwellings or in the immediate neighborhood, and carried out in the form that is employed for the destruction of the larvæ of the *Stegomyia* mosquito, to which I have referred at length in dealing with yellow fever, is another resource of which we can avail ourselves to diminish the generations of the *Anopheles* mosquito in places in which these insects habitually live.

I have here presented a very brief summary of the measures which the Mexican Government proposes to adopt in its campaign against malaria.

In order to comply with the programme that has been adopted by the convention, I beg to present to the delegates a map which shows the geographical distribution and the comparative intensity of malaria in the different States of the Republic; a diagram which shows the mortality from this disease in those States; and lastly, a diagram which shows the mortality caused in different parts of the Mexican Republic during a period of ten years.

(c) *All special sanitary work now in execution or which it is proposed to execute.*

The Mexican Government intends to establish sanitary conditions in all the important ports of the Republic, and has already commenced and is about to terminate the sanitation and water-supply works, in accordance with the necessities of the inhabitants, together with a good system of paving on the streets where it is possible to preserve them, in the ports of Tampico, Veracruz, Coatzacoalcas, Salina Cruz, and Manzanillo, and has undertaken investigations in the port of Mazatlan and others for that same purpose.

The sanitation works in Tampico are approaching their termination, as out of the projected system of sewers with a total length of 12,500 meters, 10,000 have already been laid while the whole of the mains and 10,500 meters of distributing pipes have been laid.

The water-supply works are practically complete, as the only thing left to be done is a part of the settling tank in Camalóte and some filling up in the low grounds of the town. The drainage in front of the Government wharf has been completed, and a continuation is being made in front of the lateral wharves.

In Veracruz the construction of the main sewer and of the outfall sewer has been completed, together with the erection of the pumps on the water's edge. The sanitation works in the most crowded part of the city have been completed and a commencement made on the construction of the main drains for the surface drainage of the land that was reclaimed from the sea.

The water dedicated to the necessities of the inhabitants is properly piped and distributed to the different houses.

A contract has been granted for the paving of the city, and the work will shortly be commenced. The principal streets will be paved with asphalt and the others with stone blocks or bowlders.

A sanitary station has been erected in the port of Veracruz which contains the offices of the delegation, warehouse, incinerating furnace, department for disinfection by means of sulphurous acid or formaldehyde; first, second, and third class baths for men; ladies' and gentlemen's toilet rooms, and disinfecting stoves of the latest models. In Veracruz there is also a lazaretto for sick and suspected persons which is erected on a small island called Sacrificios.

Sanitation works have also been commenced in the port of Coatzacoalcos and have already improved the sanitary conditions of that town. Seventy thousand square meters of land have been reclaimed from the river, while all the streets and houses have received a thorough cleansing.

A well-fitted-up lazaretto has also been established in this port.

On the Pacific coast we have a lazaretto in Acapulco, that has been erected on the "Isla de la Roqueta."

In the port of Manzanillo work has commenced on a canal to connect the northern part of the Cuyatlan Lagoon with the ocean so as to keep the waters pure, and this is divided from the southern part of the lagoon by a dike so that the salt beds there can be worked. A canal has also been excavated for the purpose of either draining the San Pedrito Lagoon or of allowing the entrance of the sea water.

Sanitary stations similar to that in Veracruz are being constructed in the ports of Tampico, Mazatlan, Coatzacoalcos, and Salina Cruz, and the construction of similar establishments is under consideration for the ports of San Blas, Manzanillo, and Progreso.

Disinfecting stoves have been established in the ports of Tampico, Veracruz, and Progreso, on the Gulf, and in Acapulco, Salina Cruz, Mazatlan, and Guaymas, on the Pacific coast. Similar stoves are about to be erected in Manzanillo, San Blas, La Paz, Santa Rosalia, and Enseñada, on the Pacific, as well as in Coatzacoalcos, on the Gulf of Mexico.

Disinfecting stoves have also been erected in the cities of Laredo, Porfirio Diaz, Juarez, and Nogales.

*Cases and deaths caused by yellow fever in the Republic during the year 1904.*

	Veracruz.				Yucatan.			Oaxaca.		Total.
	Veracruz.	Jaltipan.	Coatzacoalcos.	Tejis-tepec.	Acayucan.	Mérida.	Progreso.	Tehuantepec.	Salina Cruz.	
Cases.....	76	6	99	253	6	49	34	72	40	635
Deaths.....	13	2	25	77	5	25	15	30	5	197

*Cases and deaths caused by yellow fever in the Republic from January to August, 1905.*

	Veracruz.			Yucatan.		Oaxaca.		Total.
	Veracruz.	Coatzacoalcos.	Tierra Blanca.	Progreso.	Mérida.	Tehuantepec.	Juchitan.	
Cases.....	18	15	27	1	1	5	3	70
Deaths.....	4	4	18	.....	2	1	3	33

## REPORT FROM THE DELEGATE FROM NICARAGUA, DR. J. L. MEDINA.

GENTLEMEN AND MEMBERS OF THE SANITARY CONFERENCE: I feel that I am greatly honored to have the opportunity to address you on this occasion. In compliance with the requirements of the scientific programme of this conference, I am pleased to make the following brief statements:

## BUBONIC PLAGUE.

I am happy to state, with all certainty, that in Nicaragua we have not had one single case of plague.

Since the appearance of this scourge in Panama and other places in the American continent radical measures were taken in Nicaragua to protect ourselves against this most dreaded disease.

## YELLOW FEVER.

We had two cases of yellow fever in Managua during the past year. One of the cases was that of a passenger brought by a vessel from Panama, developing the disease right after his arrival in Nicaragua. The second case also had been exposed to the infection. Both were treated according to the latest methods, isolating the patient and protecting him with the usual wire netting, preventing in this way the spread of the disease.

On the Atlantic side, although our ports are so near to New Orleans, where for months yellow fever has prevailed, not a single case of the fever has been reported, and we expect to continue free from all infection.

## MALARIA.

Cases of malarial infection, under different forms, are very common in Nicaragua, just the same as in most of the tropical regions. The treatment is usually rewarded with great success with the usual drugs, but more so with the change of climate.

Our climate is extremely favorable to the general health of the natives as well as foreigners. We enjoy a nearly uniform temperature the whole year, ranging from 70° to 80° F.

Nicaragua has fairly good hospitals in all the principal cities, provided with separate pavilions for the isolation of cases of contagious diseases and supplied with modern appliances in the hands of competent men.

The municipalities under the supervision of the governor of each State have charge of the formation of local sanitary boards of health, performing their duties to the best of their ability, with power to enact and institute the necessary laws for the efficiency of their measures in the interest of sanitation of their locality.

The importance of marine board of health, under uniform laws and regulations, is felt greater to-day than ever before in Central America, due to the construction of the Panama Canal. The work on the Isthmus is to-day and will be for years to come a constant threat to the health of all the neighboring countries.

This being an international and purely American sanitary conference, each one of the different countries here represented, I am sure, will do their utmost for the success of the conference by carrying out faithfully to a practical point all its suggestions.

The Republic of Nicaragua, being well aware of the progress of the world in the science of medicine and sanitation, is willing to do all that lies in its power to bring to the public and our neighbors the confidence that only a well-established marine sanitary corps can bring to a civilized country.

This conference has under consideration now the enactment of treaties binding the Governments here represented to the observance of prescribed rules regarding quarantine service, insuring in this way the health of the people of those countries and avoiding at the same time unnecessary interference with commerce.

To carry out fully the agreements of this conference, it seems to me that our Central American Republics ought to do what Cuba and Mexico have already done, with most wonderful results and the applause of the whole world. The reorganization in Central America of the different boards of health for the quarantine service, under uniform laws and regulations, and purely scientific basis, would be the first step to accomplish this project; and if this conference should help us in this direction, it will deserve our lasting gratitude.

## REPORT FROM THE DELEGATE FROM PERU, DR. DANIEL E. LAVORERIA.

The Republic of Peru, in whose name I have the honor of speaking, for reasons regretted in my country, did not have any official representation at the First International Sanitary Conference, which met in this city on December 2, 3, and 4, 1902, at which matters of such interest were discussed and at which conclusions of so much importance were reached. On this occasion the Government of Peru did not desire the same to occur, and on receipt of the invitation from the Bureau of the American Republics for the meeting of the Second Convention, intrusted to me the high honor of representing it at this illustrious meeting.

A short time since my country entered on a new era of life. After the misfortunes it suffered in the war of 1879 to 1881 and the internal convulsions which followed it, which caused so much damage to its progress and the normal progression of its institutions, it has entered on a path of concord and labor, the beneficent results of which are already being felt, notwithstanding the few years it has been on said road. The various branches of the public administration are becoming systematized and perfected, there being taken as an example that which is done in countries more advanced than Peru in civilization and in culture, and among those which are not left behind in the general advance movement is public hygiene.

In accordance with the recommendation of the International Conference of Mexico, "all measures on matters related to the international sanitary police, the purpose of which is to prevent the invasion of contagious diseases and the establishment and vigilance of international maritime and land detentions—that is to say, health stations—are completely under the charge of the National Government," being in charge of a special technical institution, forming part of the department of fomento, the bureau of public health, to which I have the honor of belonging. This office, created by a law of November, 1903, but which did not enter on its duties until February, 1904, is at the present time endeavoring to place the country, from a sanitary point of view, in the most advanced possible situation with the means at its disposal, and, due to its establishment, it is possible for me to give the information contained in this report, in which I make an attempt to confine myself to the programme published by the Bureau of the American Republics.

## I.

## (A) DATA ON THE PREVALENCE OF CONTAGIOUS DISEASES, ESPECIALLY PLAGUE, YELLOW FEVER, AND MALARIA.

The infectious diseases present in Peru are, with little difference, those found in other American countries. There is only one, the Peruvian "verruca" or "Carrión" disease, which is peculiar to the country, and even this disease is to be found only in some valleys in the mountain range, such as those in the province of Huarochiri, in the department of Lima; others in the province of Canta, of the same department, and some of the Callejón de Huailas, in the department of Anachs. Although its geographical distribution is at the present time limited, it appears that it was not so in remote times, because, according to the statements of the historians of the times of the conquest of the country by the Spaniards, it existed also in other sections of Peru, Ecuador, and even Colombia. At any rate, at the present time it is to be found only in the valleys of the said provinces, either because conditions have changed or for other unknown causes.

This peculiar disease, which may be inoculated, which attacks man and some species of animals, is not contagious from person to person, and does not develop an epidemic character. In order to take it it is necessary to go to the sections where it is produced, which, as has been said, are small valleys in the mountainous section of the country. It is characterized clinically by fever of a very variable type; by anemia, or a considerable reduction in the number of red corpuscles of the blood, the number of which sometimes descends to a million, or even less, per cubic millimeter; by pains in the bones and articular pains, and by an eruption of the skin, and even of the mucous membranes, especially on uncovered portions, consisting of pimples of a red appearance, the size of which varies between that of a millet seed and an orange seed, which bleed easily and dry up, assuming a callous appearance and falling off without leaving any traces. They consist of conjunctive and vascular tissue, resembling a sarcomatous production. This disease, as has been said, is not contagious. Cases of "verruca" are constantly seen in the hospitals of Lima without its transmission to the persons in the vicinity of or attending the patients having been proved.

Malaria is endemic in Peru in many places in the coast regions of the country. The valleys—that is to say, the sections irrigated by the rivers rising in the Andes and emptying in the Pacific, most of which sections are used for the growing of sugar cane, cotton, rice, and some other vegetable products—are the places in which malaria is most prevalent.

Even though it has somewhat decreased in the last few years, especially in Lima, it still remains the disease responsible for the greatest number of deaths in Peru, and although, as a general rule, the forms most commonly observed are the intermittent fevers of the tertian or quartan type, which are easily cured by the quinical treatment when taken in time, all other forms known are seen, cases of pernicious and chronic types with cachexia and extreme denutrition not being rare, although not frequent. The last-named form is seen only when the patient neglects placing himself under the proper treatment in time. The bureau of public health is at present studying the most adequate means for destroying the anopheles, in order to extirpate malaria or reduce it to the lowest possible minimum.

A few cases of malaria are also found in the high or mountainous sections of the country in some valleys where, on account of their warm climate, in spite of their height, the development of the anopheles is favored and in which, on account of their peculiar topographical conditions, small lakes or ponds may be found, favoring the reproduction of these insects; but, as a general rule, it may be said that the Peruvian mountain region is not a malarial country.

In the transandine section, where the climate is hot and damp and the vegetation exuberant and luxurious, in the region of forests and rubber, malaria also exists in some places, but there are others entirely free from malaria.

If the morbidity due to malaria is relatively great in Peru, the mortality, on the other hand, is small. Excepting in very backward hamlets or towns whose inhabitants are ignorant of or reject the quinical treatment, the deaths from malaria, even in the pernicious forms, are relatively rare.

Yellow fever does not exist in any section of the Peruvian territory. After the epidemics which took place on the coast of Peru in the years 1854, 1868, and 1881 no other cases of this disease have occurred. On rare occasions, escaping the sanitary restrictions, there have arrived at our ports, coming from Guayaquil or Panama, passengers or members of crews of vessels suffering from this disease, but, being immediately isolated in the lazarettos and protected against the sting of the *Stegomyia*, no foci were formed.

The danger to Peru of being infected by yellow fever is her proximity to Ecuador and Panama, countries in which this disease is endemic. This proximity makes the duration of the trip by water from Panama or Guayaquil to Paita and other northern Peruvian ports a short one, consequently permitting of the arrival there of apparently healthy persons, but already infected, within the period of incubation of the fever. On the other hand, the *Stegomyia* may be found in some of our ports, and by stinging a sick passenger coming to our coast might at any moment cause a more or less serious epidemic. In order to avoid this, the Government of Peru is directing its efforts, first, to prevent the importation of sick persons or infected mosquitoes, and, second, to the destruction of the mosquitoes susceptible of becoming infected. With this end in view, upon the arrival of vessels at the port of Paita, which is the first port at which vessels engaged in the Peruvian coastwise trade stop, they are subjected to disinfection by sulphurous anhydride, the purpose of which is to destroy any mosquitoes which may be on board the vessel, and after this disinfection—that is to say, after the persons on board can not be infected—the vessel is permitted to load or unload freely and take on new passengers, but the arriving passengers are subjected to observation for seven days; and, on the other hand, a supreme resolution was issued under date of August 1 of the present year commissioning Dr. A. Barton to consider and execute the works to be undertaken for the purpose of destroying the mosquitoes which transmit yellow fever, at the principal points on the coast.

With the same end in view, and the fruit trade between Guayaquil and Panama and the Peruvian coast constituting a danger of the importation of mosquitoes which might be infected, the supreme resolution of September 1 of the present year was issued, which prescribes that such fruits must be placed on the vessels in compartments permitting the destruction of the mosquitoes, which, as is known, in tropical countries conceal themselves in the fruit and even feed on it, this being especially so with bananas (*banana edulis*).

With regard to bubonic plague, it was unknown in Peru until the month of April, 1903. The ravages this terrible plague of the Ganges caused this year and the previous ones in the western part of America had not extended to the Peruvian coast. San Francisco and Mazatlan were attacked before we were, but it is difficult to say whether it was from one of these places or from the ports of Australia or of India that the epidemic was imported to Peru, because the trade in products susceptible of carrying the Yersin germ or rodents infected with it existed at that time in all of the ports mentioned. It is, nevertheless, very possible that the plague came to Peru in a cargo of rice and wheat left by a German steamer in various Peruvian and Chilean ports.

The first appearance of the disease in man occurred on April 28, 1903, in the port of Pisco; almost simultaneously, on April 29, a laborer in the mill of Santa Rosa in Callao was taken sick.

In Pisco, which has a population of about five thousand, there was no epidemic; only 4 persons were attacked who had come in contact with sick or dead rats. Of these 4 persons 3 died, and 1 recovered. The last case died on May 3, 1903. Since that time—that is



to say, for twenty-nine months—there have been no cases either in man or in animals; that port, therefore, is free.

In Callao, the population of which is 31,000, there were 10 cases between April 29 and June 1, 1903; since that time it has not been necessary to open the lazaretto of the port, because the few cases which have occurred in the twenty-eight months since said date has been transferred to Lima for treatment, which city is only twenty minutes distance by train. Notwithstanding the strenuous campaign undertaken against it, the disease has not disappeared from Callao, because from time to time, sometimes at intervals of three months, there appear cases of plague in man or rodents dead from the disease.

The total number of cases in Callao from April 29, 1903, to June 30, 1905, was 65, with 37 deaths, giving a death rate for bubonic plague in Callao of 56.92 per cent; but there must be taken into consideration in noting this mortality, that many of the deaths due to plague, especially during the first days of its appearance in Callao, occurred because the sick did not subject themselves to the specific treatment, sometimes through ignorance, other times through fear of isolation. A confirmation of this statement is found in the fact that of the only 4 cases which occurred in Callao in the first six months of 1905, which were treated in the lazaretto of Lima, 1 died only, giving a death rate of 25 per cent.

In Mollendo, the principal southern port of the Peruvian coast, with a little over 4,000 inhabitants, the plague also appeared in this year. The first case in man occurred on July 26, and the epidemic lasted until October 8, during which time there were 51 cases and 20 deaths, that is to say, an absolute mortality of 39.60 per cent. After seventeen months of freedom therefrom, in March, 1905, there was a new epidemic which lasted until the 14th of June, last; during this epidemic there occurred 125 cases with 49 deaths, giving a mortality of 39.28 per cent. Of the 125 cases, 115 were treated by the antiplague serum of the Pasteur Institute of Paris, at various stages of the disease, resulting in 40 deaths, or a mortality of 34.78 per cent, and 10 did not receive this treatment, of which 9 died—that is, a mortality of 90 per cent. Adding these figures to those of the previous epidemic, we have for Mollendo a total of 176 cases, with 69 deaths, giving a mortality of 39.20 per cent. Of these 149 were treated with serum, with 49 deaths, giving a mortality of 33.10 per cent; and 28 did not receive this treatment, with 20 deaths, or a mortality of 71.42 per cent.

After Mollendo, the disease invaded the province of Pacasmayo, beginning in the port of the same name, and extending afterwards to San Pedro, the capital of the province, to the suburbs of the same, and to the districts of Jequetepeque, Guadalupe, and Chopén. In this province the disease assumed more of an endemic character than in any other, as between August, 1903, to April 5 of the present year, there were always, with some small intervals, cases of plague in some of the towns composing it. Since April 5 this province has been free from the disease. The total number of cases which occurred in these 20 months was 366, with 211 deaths, representing an absolute mortality of 57.65 per cent; of this total number of cases, 234 received the serum treatment, of which number 117 died—that is to say, a mortality of 50 per cent—and 132 cases did not receive the specific treatment, resulting in 94 deaths, giving a mortality of 71.21 per cent.

The figures for the different sections of the province were distributed as follows:

*Pacasmayo*.—From August, 1903, to October, 1904 (with short intervals of freedom): Cases 65, deaths 35, absolute mortality 53.84 per cent; treated 44, deaths 20, mortality 45.45 per cent; not treated 21, deaths 15, mortality 71.33 per cent. In January, 1905: Cases 3, deaths 3, mortality 100 per cent; treated 1, deaths, 1, mortality 100 per cent; not treated 2, deaths 2, mortality 100 per cent. Total for Pacasmayo: Cases 68, deaths 38, absolute mortality 55.88 per cent; treated 45, deaths 21, mortality 46.66 per cent; not treated 23, deaths 17, mortality 73.91 per cent.

*San Pedro and suburbs*.—From October, 1903, to February 1, 1905: cases 135, deaths 92, absolute mortality 68.14 per cent; treated 61, deaths 45, mortality 73.77 per cent; not treated 74, deaths 47, mortality 63.51 per cent.

*Jequetepeque*.—From September 1 to November 8, 1904: cases 48, deaths 28, absolute mortality 58.50 per cent; treated 24, deaths 7, mortality 29.16 per cent; not treated 24, deaths 21, mortality 86.66 per cent.

*Guadalupe*.—From November 13, 1904, to March 12, 1905: cases 105, deaths 45, absolute mortality 42.85 per cent; treated 97, deaths 39, mortality 40.20 per cent; not treated 8, deaths 6, mortality 75 per cent.

*Chopén*.—From January 23, 1905, to April 5, 1905: cases 10, deaths 8, absolute mortality 80 per cent; treated 7, deaths 5, mortality 71.42 per cent.

In Lima, the first case of plague occurred on October 6, 1903, in the vicinity of the warehouse of one of the railroads which connect Lima with Callao, and the following days, nine cases occurred in the same section; this leads to the belief that the disease was imported from Callao to Lima by infected rats which came in the merchandise brought from Callao, which rats in their turn infected the other rats of the town, beginning, as was natural, with those of the district in which the railway warehouse is situated, which district is also one of the least sanitary of Lima and in which dead rats were first found. Since that time

cases of plague have not failed to appear, although on some occasions at intervals of ten, fifteen, twenty, and even twenty-five days between them. The worst months of the year, 1904, were March and April, which months correspond to the beginning of autumn.

The total number of cases in the province of Lima—that is to say in the city and its suburbs, which may be estimated as having a population of 200,000 (the census of 1903 giving the city alone 130,289 inhabitants) was to June 30, 1905—that is to say, in twenty-one months—463, of which 222 were fatal, corresponding to an absolute mortality of 47.94 per cent. Of the 463 cases, 415 were treated with serum and 48 did not receive this treatment, the former resulting in 174 deaths, equivalent to a mortality of 41.93, and the latter in 48 deaths, or a mortality of 100 per cent.

In Paita, a port situated on the northern section of the Peruvian coast, which has a population of 3,500 inhabitants, epidemics of plague have occurred. The first occurred in the month of April, 1904, and lasted to September 9 of the same year, during which time there were 174 cases, with 73 deaths, giving an absolute mortality of 41.95 per cent. These cases are distributed as follows: Treated with serum, 132, with 40 deaths; not treated with serum, 42, with 33 deaths; which gives a mortality of 30.30 per cent for the former and of 78.57 for the latter. From September, 1904, to May, 1905—that is to say, for eight months—the plague disappeared from Paita, there being no cases either in man or in rodents; it reappeared in May of the current year, and continued until June 30, causing 6 deaths in 10 cases (absolute mortality 60 per cent), of which 8 treated with serum, resulted in 4 deaths, and 2 not treated, 2 deaths, or a mortality of 50 per cent for the former and of 100 per cent for the latter. The total number of cases, adding those in the two epidemics, on June 30, reached the sum of 184, with 79 deaths, equivalent to a mortality of 44.02 per cent; of these 140 were treated with serum, with 44 deaths, and 44 not treated, with 35 deaths, equivalent to a mortality of 31.42 per cent and 79.54 per cent, respectively. At the time of my departure from Lima the epidemic had not disappeared from said port, there being some patients in the lazaretto when I passed through the port.

The port of Salaverry, which has a population of about 1,000 inhabitants, was invaded after that of Paita, the first case in man appearing on June 27, 1904, and the last on September 4 of the same year, and in the sixty-eight days between these two dates 36 cases occurred, with 20 deaths, giving an absolute mortality of 55.55 per cent. Of the 36 cases, 27 were treated with serum, resulting in 11 deaths, and 9 not treated, with 9 deaths, giving a mortality for the former of 40.74 per cent and of 100 per cent for the latter. At present this port is free from the disease.

The small village of Huanchaco, adjoining that of Salaverry, which has about 400 inhabitants, was free during the epidemic in Salaverry; but although the latter had concluded the beginning of September, 1904, as has been said, in the month of January, 1905—that is to say, four months afterwards—it appeared in Huanchaco, where there occurred 31 cases, with 13 deaths, up to February 2 of the same year, when the last case occurred. The absolute mortality was, therefore, 41.93 per cent. The 31 cases were treated with serum, so that the mortality with relation to the specific treatment was the same as the absolute mortality.

In the department of Lambayeque the plague appeared on September 14 in the town of Eten, which has from three to four thousand inhabitants. On September 26 it invaded the city of Lambayeque, and on February 2, 1905, that of Chiclayo, which is the capital of the department. The epidemic, concluded in Eten and in Lambayeque in the month of April, and in Chiclayo on May 28 of the present year, since which date the department has been free from the disease.

The cases which occurred were: In Eten, 103 with 67 deaths, giving an absolute mortality of 65.04 per cent: treated with serum, 63, with 29 deaths; without treatment, 40, with 38 deaths; mortality among the former 46.31 per cent, among the latter 95 per cent. In Lambayeque, 61, with 28 deaths; absolute mortality 45.90 per cent; treated, 53, with 20 deaths, mortality 37.73 per cent; not treated, 8, with 8 deaths; mortality 100 per cent. In Chiclayo, 167, with 122 deaths—that is to say, an absolute mortality of 73.05 per cent; treated, 82, with 46 deaths; mortality 56.09 per cent; not treated, 85, with 76 deaths; mortality 89.41 per cent.

Finally, the small village of Yaminchad, of the district of San Pablo, in the province of Cajamarca, was invaded by the plague, coming undoubtedly from the province of Pacasmayo, which it adjoins, on March 2, 1905. The epidemic was extinguished on the 31st of the same month, after having caused among its 500 inhabitants 14 cases, with 14 deaths, of which 7 were treated with serum and 7 not, all of them succumbing and the epidemic disappearing.

If we make a recapitulation of the data contained above on the bubonic plague, we have:

Locality.	Time of the epidemic.	Duration.	Popula- tion.	Total of cases.
Pisco.....	Apr. 28 to May 3, 1903...	6 days.....	5,000	4
Callao.....	Apr. 29, 1903, to June 30, 1905.	2 years and 2 months.	33,000	65
Mollendo.....	July 26, 1903, to Oct. 8, 1903; May 1, 1905, to June 14, 1905.	178 days.....	4,000	176
Pacasmayo (province of).....	Aug., 1903 to Apr. 5, 1905.	20 months.	50,000	366
Lima (province of).....	Oct. 6, 1903, to June 30, 1905.	1 year and 9 months..	200,000	463
Paita.....	Apr., 1904, to Sept. 9, 1904; May, 1905, to June 30, 1905.	7 months.....	3,500	184
Salaverry and Huanchaco.....	June 27, 1904, to Sept. 9, 1904; Jan. 15, 1905, to Feb. 2, 1905.	87 days.....	1,400	67
Lambayeque (department of).....	Sept. 14, 1904, to May 28, 1905.	7½ months.....	50,000	331
Yaminchad.....	Mar. 2 to 31, 1905.....	29 days.....	500	14
Total.....			347,400	1,670

Locality.	Morbidity per 1,000 inhabi- tants.	Restored to health.	Dead.	Absolute morbidity, per cent of pest stricken.	Treated with serum.	Restored to health.
				<i>Per cent.</i>		
Pisco.....	0.80	1	3	75.00	1	0
Callao.....	1.87	28	37	56.92	(a)	(a)
Mollendo.....	44.00	107	69	39.20	148	99
Pacasmayo (province of).....	7.32	155	211	57.65	234	117
Lima (province of).....	2.31	241	222	47.94	415	241
Paita.....	52.57	105	79	44.02	140	96
Salaverry and Huanchaco.....	47.85	34	33	49.25	58	34
Lambayeque (department of).....	6.62	114	217	65.55	198	198
Yaminchad.....	28.00	0	14	100.00	7	0
Total.....	4.80	785	885	52.99	a 1,201	a 690

Locality.	Patients that died.	Morbidity per 100 dead.	Treated without serum.	Restored to health.	Dead.	Morbidity per 100 not treated.
		<i>Per cent.</i>				<i>Per cent.</i>
Pisco.....	1	100.00	3	1	2	66.66
Callao.....	(a)	(a)	(a)	(a)	(a)	(a)
Mollendo.....	49	23.10	28	8	20	71.42
Pacasmayo (province of).....	117	50.00	132	38	94	71.21
Lima (province of).....	174	41.93	48	0	48	100.00
Paita.....	44	31.42	44	9	35	79.54
Salaverry and Huanchaco.....	24	41.37	9	0	9	100.00
Lambayeque (department of).....	95	48.02	133	11	122	91.72
Yaminchad.....	7	100.00	7	0	7	100.00
Total.....	a 511	42.52	a 404	a 67	a 337	83.41

a The numbers corresponding to the items of "Treated with serum" and "Without serum" in Callao are lacking, because many of them were before the organization of the bureau of health

It should be noted that in the figure 1,201, which is the number of those who received the serum treatment, and in that of 42.54 per cent, which is that of the mortality among them, are included all who received inoculations of this specific at any stage of the disease, some of them a few hours before their death. The death rate would be much lower, it might be reduced to 25 per cent or 30 per cent, if there were taken into consideration only those who received the inoculations during the first twenty-four or forty-eight hours of their sickness. Logically, those who received inoculations during their last moments, when their organism had already succumbed to the infecton and the poison of the plague bacilli, can not be considered as having received the serum treatment.

Of the other infectious diseases there is little to be said in so far as Peru is concerned.

Typhoid fever is prevalent in many sections of the Republic, but the average general death rate is low; it is higher in the very populated sections of the coast, such as Lima, the capital; it is less prevalent in the mountain districts. In 1903 the number of deaths due to enteric fever

in Lima amounted to 142, which with reference to 130,289 inhabitants, which is the figure given by the census of that year, represents a mortality of 1.08 per 1,000 inhabitants. In 1904 this figure fell to 0.88 per 1,000, as, with a population of 131,499, which may be accepted as the population of Lima, there were 117 deaths in the year. It is as yet impossible to give exact figures for the rest of the Republic.

The hydric origin of this disease, which is one of the easiest to prevent, being known, the municipalities and the Government are installing or improving potable waterworks of many towns of the country, especially in those where this disease is of most frequent occurrence. Lima is supplied with works furnishing potable water of very good quality, but at certain seasons of the year it is necessary to use river water in order to increase the supply of the city, and at the present time the municipal board of the capital is seeking some means to correct this defect. In Callao, a service of potable water to houses has been established for some years. In the principal towns of the coast and of the mountain district the same is true, and at the present time this service is being installed in El Cuzco, in Puno, and other towns, and plans are under consideration for its establishment in Moquegua and Iquitos.

Examthematic typhus does not exist on the coast, but it is frequently found in the towns of the mountain district, where it is known by the name of "tabardillo." It is not as yet possible to give figures respecting its morbidity and mortality, because up to the time of the creation of the bureau of health there was no central office whose duty it was to gather the respective data, which were first received from the provinces a short time since. It appears in some towns of the mountain section from time to time in the form of small epidemics, but causing a high death rate. The general sanitation of the towns of Peru which was undertaken in connection with the bubonic plague, which will improve the sanitary conditions of the country, will cause this disease to diminish, if not to disappear altogether.

Smallpox, in spite of the large number of vaccinations in past years, has not as yet disappeared from the country. From time to time in different places small epidemics appear which are limited by themselves on account of an absence of susceptible subjects. Vaccination is made obligatory by the law of January 3, 1886, during the first six months after birth, and at the ages of 11 and 21, and revaccination every time the sanitary officials believe it necessary. In the month of March of the present year, in view of the epidemic of smallpox which existed on the coast of Chile, a supreme resolution was issued ordering a general revaccination throughout the Republic and creating, with this end in view, a corps of official vaccinators, who, together with the physicians who ordinarily perform this work, will render the extraordinary service which is still being conducted.

Measles appears also in small epidemics periodically in Lima and other cities of the Republic. It does not, excepting on very rare occasions, assume a grave form. It attacks children almost exclusively.

Scarlet fever and diphtheria are diseases which are extremely rare in Peru. The former produced in Lima in 1903 only 3 deaths and 5 in 1904, there being some years, as 1902, 1900, etc., when there was not a single death from this disease. Diphtheria was responsible for 12 deaths in 1903 and 8 in 1904.

Influenza was unknown in the country until 1890. Since that year it has not failed to appear, there having been a serious epidemic in 1892, which in Lima alone caused 354 deaths; in 1900 there was another which caused 195 deaths, and in 1904, the last, which caused 103.

Tuberculosis of the lungs is a disease which causes the greatest ravages on the coast of Peru. In Lima it may be estimated that the mortality due to tuberculosis is 25 per cent of the general mortality. The number of deaths due to tuberculosis of the lungs in Lima in the years 1903 and 1904 were 288 and 228, respectively. It is to be hoped that by means of the works of sanitation already executed or in course of execution this figure will be considerably reduced, as may already be noted by comparing the figures for the last two years. In the mountain district tuberculosis is an exceedingly rare disease, which is explained by the altitude at which the towns are situated, and especially on account of the outdoor life and the small population.

Uta is a disease peculiar to certain hot regions of the mountainous section of Peru. It has been confused by many observers with lupus or tuberculosis of the skin, but there are certain small differences between them, which perhaps give sufficient reason to separate them. Its form is that of ulcerations, with a tendency to phagedena, which, if not treated in time, mutilates the organs attacked, producing irreparable lesions and deformities of a repulsive aspect, as they most commonly affect the face or uncovered portions of the body. The investigations made by the observers of the country have not all been concluded as yet, but the majority of them consider, as has been said, that "uta" is a cutaneous tuberculosis, or lupus.

Cholera has never invaded the national territory, notwithstanding the fact that it has prevailed in Chile and other countries of South America.

Berberi is unknown in Peru, at least on the coast and in the mountainous section. It is probable that it exists in the forest section, as it exists in the adjoining provinces of the

Republic of Brazil. With the Japanese immigration, which has been occurring on a small scale recently in Peru, this disease, which was formerly known by name only, became practically known in our Lima hospitals, and the cases observed in Japanese immigrants have shown that the disease is either not contagious or that the coast of Peru does not present a propitious medium for its propagation, because, notwithstanding no precautions of any kind having been taken, it has never on any occasion spread to the nurses or other patients.

Leprosy is also a disease entirely unknown in the country, notwithstanding its prevalence in Colombia and Ecuador. In the department of Piura, which adjoins Ecuador, and in that of Loreto, adjoining Brazil, occasionally Ecuadorian or Brazilian lepers are seen, who come there seeking a good climate for their disease. In Lima some Chinese lepers have also been seen. As the disease does not exist among the Peruvians and as it is easy for it to develop by the immigration of foreign lepers, in view of the contagious character of leprosy, recognized by most writers on the subject, the Government of the Republic recently issued a resolution prohibiting the entry into the national territory of lepers and ordering the isolation of those in the department of Loreto, which, as has been said, are imported cases, in a leper hospital, which has been ordered built.

Years ago there occurred in various sections of Peru epidemics of dysentery. At the present time this disease is neither endemic nor epidemic in any section of Peruvian territory. On some occasions cases of sporadic dysentery may be observed in our hospitals, but in most cases the so-called dysenteries are nothing but ulcerous colitis or membranous ulcers, which easily respond to the proper dietary and medicinal regimen without ever assuming a contagious character.

*Anchylostoma doudenalis* exists in Peru in the so-called trans-Andine or forest section and is almost always acquired by the drinking of bad unfiltered water or by eating uncooked vegetables, which, having been irrigated with such water, may, like it, become the vehicle of introduction of the eggs of this parasite into the digestive canal. Its persistence and reproduction in the human intestine produce pathological effects known among us under the name of "mountain anemia" and by that of *anchylostomiasis* or *anchylostomacia* in other countries. It consists, essentially, in a profound anemia, with aortic symptoms, cedema, fatigue, palpitations, serous discharges, diarrhea, and consuptive phenomena, which lead to a fatal termination if a rational treatment be not begun in time. In our hospitals thymol has been found to give very good results as a parasiticide in the special case of *anchylostomiasis*. Its prophylaxis consists specially in drinking only filtered water (Pasteur-Chamberland filters) or boiled water and in eating cooked vegetables in places where the parasite is frequently found.

Rabies does not exist in Peru. "Carbón humano," which was relative frequent in past times, has diminished considerably. Tetanus is present, but rare.

## II.

### (B) SUMMARY OF THE SANITARY AND QUARANTINE LAWS ENACTED AFTER THE FIRST CONVENTION.

### (C) ALL SPECIAL SANITARY WORKS IN COURSE OF CONSTRUCTION OR WHOSE CONSTRUCTION IS PROPOSED.

Even though the scientific programme, published by the internal sanitary bureau for the reports of the delegates at this second conference, prescribes that there be indicated only the sanitary and quarantine laws enacted after the first one, which took place in December, 1902, Peru not having had a representative thereat and being desirous of giving as full an idea as possible of the sanitary organization of my country, some of whose institutions and laws are of a date prior thereto, I will deviate somewhat in this point from the said programme, begging the conference to pardon me for this as also for treating in the report together the subjects (b) and (c), which I am forced to do because in Peru sanitary work both with regard to legislation and the actual work of sanitation is at present in course of execution, making it difficult to separate the laws, regulations, or resolutions of sanitation from the works and installations of the same character which supplement them.

1. *Sanitary organization*.—The sanitary service may be considered as divided into two classes—general and local.

The former, consisting in the issue of marine and land sanitary regulations, measures to enforce the observance of the same and of the existing laws, the study and execution of the reforms and works necessary to improve the sanitary conditions of the country, the prophylaxis of exotic diseases and the struggle against the endemic and epidemic diseases existing in the country, the organization of the demographic medical statistics and the classification of diseases for the purposes of the registration of mortality in the national territory, etc., are under the charge of the bureau of health, which is one of the three branches of the ministry of fomento.

The latter, that is to say the local service, is under the charge of the municipalities.

The bureau of health, created by the law of November 6, 1903, which commenced to operate in February, 1904, consists of two divisions—that of hygiene and that of demography. The chief of the bureau is Dr. Julian Arce, a man well known in the country by reason of his works on sanitary subjects. The director of health is under the direct jurisdiction of the minister of fomento and, through his intermediary, of the President of the Republic.

The division of hygiene and that of demography each have a technical chief and the necessary employees for the service; the undersigned is the chief of the division of hygiene; Dr. Rómulo Elizaguirre is the chief of the division of demography. In addition, a special division is in course of formation for the direction and execution of all the potable waterworks in the country, which division is in charge of Dr. Abel S. Olaechea, a physician belonging to the bureau of health.

As a consulting board of the bureau, we have the supreme board of health, the president of which is the minister of fomento, and whose members are the professors of the faculty of medicine, members of the National Academy of Medicine, the director of the Public Charity Association, the director of the navy, the chief of the consular division, a State engineer, the president of the chamber of commerce and the mayor of Lima.

As may be seen, the bureau of health, advised when necessary by the supreme board of health, forms the central office, under whose jurisdiction come all the general hygienic and demographic services of the country. Its recent establishment and the special conditions present in the country by reason of the existence of bubonic plague, have not as yet permitted of their developing their activity to the full extent of the sphere of action assigned them by the law, but it is the intention of the Government of the Republic and the personnel of the bureau to broaden the radius of its powers, by creating special divisions for the different branches under its jurisdiction, in order to specialize its personnel in each of such branches and thus secure the greatest efficiency. The first step with this end in view has already been taken by the creation of the office of physician to the division of hygiene, charged with the study of questions pertaining to potable water exclusively. With the same end in view, the bureau of health, by virtue of a special law and regulations, sends annually to Europe or to the United States, at the option of the persons interested, two young physicians, and supports them for two years in the study of a special subject, and maintains in Europe a sanitary agent to keep it informed of any matters which may be of interest. With the same purpose in view, it requested and procured through the kindness of the American Government permission to send to Panama and form a part of the sanitary commission of the canal a Peruvian physician and an engineer, to learn from their American colleagues the methods and procedure employed in the work of civilization and humanity which the Government of that great country is executing on the Isthmus.

The bureau of health has charge of and devotes special attention to the study of all questions pertaining to potable waterworks and the drainage of the towns of Peru. This branch of public hygiene, one of the most important, calls for a specially qualified personnel, which it does not as yet have, but which it intends to acquire shortly, engaging in Europe or in the United States sanitary engineers whose services are to be used until the national engineers are qualified. Notwithstanding this lack of personnel, plans for and works of this character are being made, with the assistance of foreign engineers and even with some few natives who have studied this branch in other countries. Thus at the present time plans are in course of preparation for the potable water service, and drainage of Iquitos, Moquegua, Cuzco, Puno, etc.

The division of hygiene has charge both of the marine and land sanitary service. For the former it has:

- A. The sanitary stations of Callao, Paita, and Ilo.
- B. The sanitary services of the other ports.
- C. The sanitary and municipal physicians.
- D. The sanitary police.

For the land service of sanitation, it has:

- A. The departmental and provincial boards of health.
- B. The municipal and sanitary physicians.
- C. The lazarettos.
- D. The service of vaccination and serotherapy.
- E. The sanitary police.

Shortly it will also have, as has been said, a force of sanitary engineers.

#### MARINE SERVICE.

A. *The sanitary stations of Paita, Callao, and Ilo*, that is to say, of one of the southernmost ports of the Peruvian coast, of one of the northernmost and of the principal and central port, were created by a law of November 20, but did not begin to be installed until the bureau of health had been established, when the funds necessary therefor were appropriated in the

budget of the Republic. These stations, the purpose of which is to serve as a filter against the importation into the country of exotic pestilential diseases by water, are not as yet fully equipped, in the sense that they do not as yet comprise all the services or divisions of which they should consist.

(a) *The sanitary station of Callao.*—It comprises:

1. *Service of sanitary inspection of vessels on arrival.*—Before being entered, vessels arriving at Callao, as in any port of the Peruvian coast, are subjected to a sanitary inspection, which, in Callao, is made by the provincial physician. The latter, after examination of the bills of health and other sanitary documents, and observing the passengers and members of the crew, as to the state of their health, visits each of the compartments of the vessel to examine its state of hygiene and to determine what, if any, precautionary measures should be adopted and their character.

If the vessel comes from a clean port and has no sick on board or no suspicious cargo, the only measure adopted is that of vaccinating the passengers or members of the crew who have not recently been vaccinated. When the vessel carries immigrants, they are also examined for leprosy, for the reason that the entry of lepers into the territory of the Republic was forbidden by a supreme resolution of March 17 of the present year.

2. *Service of disinfection of vessels and their cargo.*—If the vessel comes from a port which is infected or suspected of being infected with yellow fever, bubonic plague, cholera, or small-pox, or has on board persons sick or suspected as being sick of one of these diseases, or has a cargo from a place in which one of these diseases exists in an epidemic form, which is established by the sanitary inspection and the examination of the ship's papers, such vessel is subjected to precautionary measures which vary according to the cases, but which, in so far as the vessel herself and her cargo are concerned, consist in the disinfection of the compartments of the vessel which do not inspire confidence.

For this work the sanitary stations of Callao has two "Clayton" apparatus, type B, which each produce 23 cubic meters of gas per minute, mounted on special vessels, one of them steam, and managed by the necessary technical force. These are used for the disinfection of the holds of the vessel and of the merchandise therein, as well as the storerooms of the vessel, when it is desired to destroy the rats on board, the quarters of the crew, and in general all compartments of the vessel which can be closed to avoid the escape of the gas.

The disinfection by Clayton gas (a mixture of air, sulphurous anhydrid, and small amounts of sulphuric anhydrid) is effected by filling the compartments to be disinfected with gas, at the same time that the air therein is extracted, and then closing them, leaving the merchandise in contact with the gas for five or six hours. The total duration of this operation varies naturally with the size of the vessel, but in the largest which come to Callao, it never exceeds eight or nine hours, being reduced to six or seven for those of average tonnage. This disinfection takes place simultaneously with the other sanitary measures on the vessel, so that the duration thereof is the maximum delay which the sanitary precautions cause a vessel in Callao before she is permitted to unload.

For the disinfection of the other departments of the vessels, such as the cabins, staterooms, saloons, etc., when necessary, formaldehyde apparatus under pressure are used; the sanitary station of Callao has four of these apparatus of the largest size, manufactured by the firm of Kny-Scheerer Company, of New York. The disinfection of the baggage, clothing, of the crew, etc., is effected in the steam box of the vessel, or on shore if the suspicious baggage has been landed, formaldehyde or sulphurous anhydrid being used for goods which could not stand disinfection by steam under pressure.

In cases of vessels manifestly infected, the floors, walls, ceilings, furniture, etc., are also washed with disinfecting solutions (chloride of lime, bichloride of mercury, lysol, creolin, carbolic acid, etc.) applied by means of pumps under pressure.

All these operations are under the direction of a sanitary physician and executed by the technical force which the service requires. The force in charge of this service when I left Callao was the following:

Physician in chief, Dr. Fabio M. Reynoso.

One assistant.

A machinist to run the steam launch and one of the Clayton apparatus mounted thereon.

One assistant for the same.

One helmsman for the vessel.

One fireman.

One watchman.

Two sailors.

Two laborers.

One machinist to run the other apparatus.

One assistant.

One watchman.

The cost of the disinfections is charged to the companies owning the vessels, but this price is a low one, as the value of the material used only is charged. The disinfection of the large

passenger and freight steamers which touch regularly at Peruvian ports—the Pacific Steam Navigation Company, Compañía Sud-Americana de Vapores, Kosmos Line, Lamport & Holt, Merchant Line, etc., entails an expense of 35 to 100 silver soles, or \$17 to \$50 each. Vessels of small tonnage get the service free.

The disinfection of the vessels and of their cargo is made, according to the cases, either on their arrival, to prevent the importation of exotic diseases, or on their departure, when it is a question of a Peruvian port being infected, to prevent other Peruvian or foreign ports at which the vessel touches from becoming infected in their turn. At the time of my departure from Callao vessels were being disinfected on their departure from the port, which adjoins Lima, where there were some cases of bubonic plague, and in that of Paita, where there were also some, if dangerous cargo had been received.

3. *Service of disinfection of baggage.*—This service, at the sanitary station of Callao, is effected on land, in provisional apparatus, consisting of a steamer of German manufacture and appliances for the generation of gaseous formaldehyde. Together with the material for the building of the sanitary station at Callao, six more boilers have been ordered from Europe, of large size, two of which will be assigned to this port, in order to expedite the disinfection which now takes place with one boiler only.

The baggage is disinfected with steam or formaldehyde, according to its character, when this is necessary; but all baggage is examined by the sanitary officer in charge of this service before being permitted to be placed on board in Callao in order to prevent its carrying pestiferous germs to other parts of the country or abroad.

The force engaged in this service at the sanitary station of Callao is composed of:

One physician in chief, Dr. Justo L. Castro Gutierrez.

One assistant, a medical student.

One machinist for the boiler.

One employee for the formaldehyde apparatus.

One watchman.

Two laborers.

This force will be increased on the arrival and installation of the new boilers. The service is free. Its efficiency, both as to the disinfection by steam, as by formaldehyde, has been experimentally proved on several occasions.

4. *Service of treatment of contagious diseases.*—Among the buildings ordered of the firm of Humphreys, of London, England, for the sanitary station of Callao, are included two pavilions of twelve beds each for the treatment of two different diseases simultaneously, and one pavilion with two beds for patients under observation. These buildings of iron and wood will come ready to be put up and equipped immediately. They should reach Callao in the month of December or January next, and the equipment will have all the appliances necessary for this service.

At the present time there is in provisional use for this purpose a floating lazaretto; that is to say, a national vessel has been set aside for the purpose, equipped with the most indispensable elements for the purpose. Smallpox patients arriving in Callao on vessels coming from the Chilean coast during the late epidemic in that country have been receiving attendance on the same. There are also on land in the zone which will be occupied by the pavilions of the sanitary station wooden barracks, which were built in the year 1903, when the bubonic plague appeared in Callao, which are now closed but which are ready to be opened again if any vessels carrying persons suffering from this complaint should arrive in Callao.

The floating lazaretto has, in addition to the marine force necessary for the maintenance and care of the vessel, one physician, one pharmaceutical nurse, and one assistant. The barracks or lazaretto on land, being closed as they are, have at the present time no force in attendance, but if they should ever be opened they would come under the technical direction of the city physician of Callao, as prescribed by the sanitary regulations. The attendance of patients suffering from contagious diseases is free.

5. *Service of isolation of and surveillance against contacts.*—The sanitary station of Callao will include among its buildings a pavilion for the quarantine of healthy passengers, composed of 40 separate rooms, for one or two persons (passengers of the first class), one dining room, one sitting room, kitchen, servants' rooms, water-closets, baths, etc., independent of all the other services of the sanitary station, and with a similar equipment, but not as comfortable, for third-class passengers. At the present time there are no conveniences for this service, and the Government is endeavoring, with this end in view, to purchase a pontoon which, after the installation of the service in its own building, will be used for the sanitary observation of immigrants.

There being at the present time no building for the observation of passengers in Callao, recourse is had, according to the cases, either to observation on board the vessel which carries them, until the dangerous period has passed (which is done at the present time with passengers coming from Panama and Guayaquil who arrive in Callao after five or six days from the date of their departure from said ports, who are forbidden to land for one or two days, in order to make up seven days, which is considered as the average period of incubation



of yellow fever), or to a sanitary passport, which permits passengers to land, with the obligation of leaving their address, in order that they may be visited daily by the sanitary doctors until their dangerous period shall have passed (which is done at the present time with passengers coming from ports in which bubonic plague is suspected to exist).

The service of medical surveillance of the passengers, when quarantined on board, is under the charge of the city physician of Callao; on land, the service is under the charge of the sanitary physicians of the cities.

6. *Service of inspection of passengers on departure.*—Although Callao can not be considered as a port infected with bubonic plague, as there is no epidemic there, cases appearing only from time to time, whose source can not be exactly determined, many of which probably originated in Lima, this circumstance, and its short distance from the capital (14 kilometers), with which it maintains a continual traffic and in which, although few in number, cases have not been absent since 1903, cause it to be considered a suspicious port and make it necessary to examine passengers on their departure, as a means of avoiding any of them taking the germs of this disease to other Peruvian or foreign ports. Persons having febrile or suspicious symptoms, from the standpoint of the plague or any other grave epidemic disease, and persons not vaccinated or not recently vaccinated, are not permitted to continue their trip. This precaution, together with the inspection and disinfection of baggage going from Callao, which are done as strictly as possible, constitute a guaranty against the infection of the vessel and is adopted, not only in Callao, but in all other ports which may be considered in any way suspicious.

The service is under the charge of a sanitary physician, who gives the vessel on her departure from Callao a list or roll of the passengers and crew examined by him and whose baggage has been disinfected, in order that the physician of the port of destination of the vessel may know what passengers may be freely allowed to land and which ones should be placed under surveillance before being permitted to do so.

7. *Other services of the sanitary station.*—At the present time, the services appurtenant to those mentioned, such as laboratory, ambulance, mortuary, washing, administration, etc., are effected, provisionally, in loaned buildings. The sanitary station ordered from Europe will comprise a pavilion for the medical force and their assistants, an office, pharmacy, laundry, disinfection, ambulance, laboratory, and mortuary.

8. *The sanitary police.*—This is a body organized in the form of the police force of cities. At the sanitary station of Callao it enforces the observance on land or on board of the vessels of the sanitary measures adopted. For the service of this station twelve inspectors are usually detailed under the command of an officer and under the jurisdiction of the sanitary physicians.

(b) *Sanitary station of Paita.*—With the differences due to the smaller traffic at this port, the sanitary station is organized in the same manner as that of Callao and comprises almost the same services as the latter. In that of Paita the following services are in operation:

That of sanitary inspection of vessels and passengers, vaccination, etc.

That of disinfection of vessels and cargo by means of a "Clayton" apparatus, type B, similar to those of Callao, mounted on a special vessel.

That of disinfection of baggage by "Clayton" gas and by formaldehyde, in special chambers and by means of Kny-Scheerer Company pressure apparatus.

That of attendance on patients having contagious diseases, in a lazaretto recently built on land and which, when I passed through said port, was in use for the plague patients in Paita.

That of inspection of passengers on departure, by reason of there being bubonic plague in said town.

That of sanitary police.

Within a short time there will also be in operation the quarantine isolation of passengers, the construction of the building for which was to have begun at the time I left Lima, on a plan similar to that of Callao; that is to say, having separate rooms for passengers of the first class and wards for those of the second, dining rooms, baths, etc.

That of disinfection by steam ovens. One of the large ovens ordered from Europe, which will arrive shortly, is destined to Paita.

The force in charge of the sanitary station of Paita consists of a sanitary physician, the chief of the station, a titular physician in charge of the attendance of the sick in the lazaretto, a mechanic, a fireman and a watchman for the service of the "Clayton" apparatus, an employee in charge of the formaldehyde apparatus, nurses and attendants in the lazaretto, the number of which varies with the number of patients, laborers for the work of disinfection, and four sanitary police inspectors.

The purpose of the measures adopted with vessels arriving in Paita from the north is, principally, to prevent the importation of yellow fever from Panama or Guayaquil, Paita being the largest northernmost port of the Peruvian coast, and the principal object is to destroy the mosquitoes. The measures adopted on departure from Paita have for their principal purpose the avoidance of the propagation to other ports of the bubonic plague, which exists there at the present time, and consist in the destruction of the rodents.

The prices charged for the disinfection of large vessels are the same as in Callao; that is to say, charge is made only for the cost thereof. The first disinfections made in Paita were effected by the undersigned in person in the month of June, 1904.

(c) *The sanitary station of Ilo*, which is one of the southernmost ports of the Peruvian coast, is destined, principally, to prevent the importation into Peru of any epidemic diseases existing in the countries to the south. It is to have the same services as those of Paita and Callao, but on a smaller scale than the latter, as its commerce is smaller. At the present time, with a force consisting of a sanitary physician, the chief of the station, an assistant specially in charge of vaccination, a mechanician, a fireman, a watchman, and the necessary laborers, the following services are in operation:

The medical inspection of vessels, vaccination, etc.

The disinfection of vessels and of their cargo by means of a "Clayton" apparatus, type B.

The disinfection of baggage by "Clayton" gas or formaldehyde (Kny-Scheerer apparatus).

Soon there will be added:

Disinfection by a steam oven.

Attendance of sick in a lazaretto.

Quarantine isolation of passengers healthy but suspicious. The building for this service must be in course of construction at the present time.

The port of Ilo having a small trade, a majority of the vessels arriving there touch only for the purpose of being disinfected in order to prevent their being subjected to any unnecessary delay, at the port of Mollendo—which is the next port north of Ilo—four or five hours from the latter, vessels are permitted, upon their holds being filled with gas, to continue northward without awaiting the five hours necessary for the contact of the gas with the merchandise, but leaving with their holds closed and sealed, to be opened at Mollendo in the presence of the sanitary physician of that port.

The price for the disinfection is the same as that in Callao and Paita.

B. *Sanitary services in other ports*.—In addition to the sanitary stations of Paita, Callao, and Ilo, there are sanitary maritime services in other ports of the Peruvian coast. Going from north to south we have:

*Eten*.—Here there is a sanitary physician in charge of the maritime service, and the disinfection of the cargo and baggage of vessels is effected in special chambers built on shore and by means of a "Clayton" apparatus, type H, and formaldehyde apparatus built by Kny-Scheerer.

A few kilometers from the port, connected by railroad, is situated the town of the same name, where there is a lazaretto recently built, which may be used in case of necessity for the treatment of contagious-disease patients found on a vessel anchored in the port.

*Pacasmayo*.—There is here a sanitary physician for the maritime service, a lazaretto for contagious cases in charge of a district physician, and the service of disinfection of baggage by formaldehyde.

*Salaverry*.—There is a sanitary physician here for the maritime service, a lazaretto for the attendance of the contagious diseases, service for the disinfection of cargo by means of a "Clayton" apparatus, type H, and of baggage by means of formaldehyde and special chambers for this purpose.

*Huacho*.—There is here a sanitary physician in charge of the maritime service and a chamber and formaldehyde apparatus for the disinfection of baggage.

*Mollendo*.—There is a sanitary physician for the port here and a lazaretto for the treatment of contagious diseases and the service of disinfection of baggage by formaldehyde. At present an observation building for passengers in quarantine is being constructed, and one of the steam ovens ordered from Europe will be installed here.

*Iquitos*.—Even though this is not a maritime port, it must be stated here that this river port, situated on the Peruvian Amazon, has also a sanitary service with a "Clayton" apparatus, type B, for the disinfection of vessels arriving there and their cargo and baggage.

C. *The sanitary and titular physicians*.—In addition to those already mentioned, there are sanitary or titular physicians in the following ports: Casma, Ancon, Cerro Azul, Tambo de Mora, and Pisco, all under the direction of the bureau of health. In such of these ports as means of disinfection are lacking the sanitary inspection of the vessels only is made.

D. *The sanitary police*.—By virtue of the supreme resolution of June 10 of the present year a corps of sanitary police has been organized, under the jurisdiction of the bureau of health, which renders service both in maritime and in land sanitation. It is an armed force, the purpose of which is to assure the execution of the sanitary measures which may be adopted.

The service of land sanitation is much more difficult to organize and much more expensive than the maritime service. It is relatively easy to prevent the seed reaching the land by closing the doors of entry or placing therein more or less narrow filters, but it is very difficult to prevent that seed after having been planted from germinating or to make matters so hostile thereto that even if planted it does not vegetate.

Furthermore, as has already been said, the creation of the bureau of health in Peru is of so recent a date that it has not as yet been possible for it to undertake works on a large scale in this sense, such as are required by the sanitation of the towns of so backward a country, of a country so lacking in elements which may be used for the purpose, and in which nothing or almost nothing had been done heretofore for hygiene. Nevertheless, a beginning has been made, and in the course of the year 1904 and the past months of 1905 a prophylactic work has been undertaken which has produced greater results than could have been expected in the period of organization through which the sanitation of Peru is passing, due to which it has been possible to confine to restricted limits the terrible epidemic of bubonic plague which the bureau of health found diffused throughout the country, causing it to disappear from some sections and reducing it in others to insignificant proportions.

For the service of land sanitation the bureau of health has:

A. *The departmental and provincial boards of health*, which the antiquated health regulations, in force in part, provide for, which will probably be kept in the modern sanitary regulations with which the country may be provided, either under the same name or under a different name, because practice has shown that if proper use be made thereof they can render important services.

The departmental boards of health in the departments and the provincial boards in the provinces have the same powers and duties—to watch over the health of the territorial districts under their jurisdiction, the former being under the direct jurisdiction of the bureau of health and the latter under the jurisdiction of the departmental boards of health. They are composed of the political and municipal authorities of the respective places, the directors of the charitable associations, the district physicians, and two or more prominent persons of the department or province, and it is their duty to enforce the observance of the sanitary measures adopted for the entire Republic, enact those of a local character, propose changes or improvements in the sanitary services, etc. During the campaign undertaken against the bubonic plague the local boards of health have played an important rôle, assuming the direction of the prophylactic measures in each territorial division and the administration of the funds appropriated for the purpose, and, with rare exceptions, they have corresponded to the purposes of their institution.

B. *The district and sanitary physicians*.—There is a district physician in each province, who is intrusted with the gratuitous attendance of the poor classes in the local hospitals, the antivariolic vaccination, the prophylaxis of infectious diseases, the sanitary inspection of railroads, and the technical direction of all the local sanitary measures adopted in normal times. When epidemics appear sanitary physicians are sent to the provinces in which they occur charged with the duty of combating them, with the assistance of the boards of health and in accordance with the instructions of the bureau of health.

C. *The lazarettos*.—During the years 1904 and 1905 some have been built and equipped with all the elements necessary to the extent of the resources of the country. Among others, that of Lima, used at the present time for the treatment of plague patients, has an administrative pavilion, a kitchen, a laundry, a disinfecting plant, a pavilion for autopsies and a laboratory, a pavilion for attendants, one for the transportation of patients, and stable, a pharmacy, one with separate rooms for pay patients (12 beds) and eight for free patients, the capacity of which varies between 16 and 24 beds each, with baths, water-closets, etc.; that of Trujillo, which is not as yet concluded (the pavilion of administration, of disinfection, the mortuary pavilion, and a part of that for the pay patients being still lacking); that of Mollendo, partly built in 1903; that of Paita, that of Salaverry, that of Eten, that of Arequipa (just begun), and some others of less importance.

D. *The service of antivariolic vaccination and serotherapy*.—This has been established for some years, animal vaccine prepared in the country only being used, which gives very good results. The Institute of Vaccine and Serotherapy is established in its own building, which was recently built and comprises stables for vaccinated animals, for animals under observation, and for experimental animals, a section for the vaccination of calves, a section for the gathering of the lymph, a section for the preparation of the glycerin emulsion, a bacteriological laboratory, offices, and rooms for the vaccination of the public. The institute is in charge of a competent technical personnel; and one of its chiefs, Dr. Ramon Ribeiro, is at the present time in Europe, having been sent there by the Government to study the best vaccine institutions of said Continent and the changes which should be made in that of Lima.

For the practice of vaccination, which is obligatory in Peru by the law of January 3, 1896, the Vaccine Institute sends continuously and periodically to the provinces the amounts of fresh animal vaccine emulsion which may be necessary, and the latter is inoculated by the district or sanitary physicians, by vaccinating physicians supported by some municipalities, and by a corps of 40 vaccinators, prepared in the institute, of recent creation, and which, up to the time of my departure from the country, were going through the southern departments, which at that time were the most seriously threatened by smallpox by reason of the presence of an epidemic of this disease in Chile.

Although by its creation the National Vaccine Institute is also one of serotherapy, serum is not yet manufactured in Peru. Upon the return from Europe of the chief of the laboratory of said institute, who, as has already been said, was sent to study the manufacture of vaccine and serum, which will be in January of next year, laboratories for the manufacture of specific serums will probably be established. In the meantime the institute, by a contract entered into with similar institutes of Europe, is always provided with the serums which it can not manufacture to meet the needs of the Republic. Said serums, in accordance with the supreme resolution of January 20, 1905, are furnished by the institute free of charge to poor persons provided with a physician's prescription.

*E. The sanitary police.*—As has already been said, this corps is intrusted with the enforcement of sanitary measures, both in the land and marine services.

The division of demography is charged by the law which created the bureau of health with the special duty of preparing the sanitary demography of the country: but it has also occupied itself with the general demography, using for this purpose the data furnished it by the hundred municipalities of the provinces of the Republic, which, by a law of 1873, must keep registers of civil status and the statistics of their respective jurisdictions.

Notwithstanding this law of 1873, only a portion of the provinces of the Republic have begun statistical work, and in most of the provinces the offices for the registration of the civil status have been very defective in the formation thereof, especially with regard to births and deaths, which defects, thanks to the forms furnished by the division of demography, are being corrected, while the data collected are being made uniform and centralized.

The work of the division of demography not having been begun until the beginning of last year, and almost the entire year having passed in preparatory work or in organization, it was not until 1905 that the data requested of the municipalities of the provinces began to be received, so that at the end of this year it will be possible to have information of the demographic movement of the provinces of Peru, although they will probably not be complete as yet.

At the present time the division of demography, in addition to the statistics concerning births, marriages, and deaths, of infectious diseases, of vaccinations, etc., is preparing the demography of Lima from 1884 to the present time, which will decide many demographic, sanitary, and social points which have been the subject of discussion heretofore, due to the absence of scientifically established figures.

In June of the present year the bureau of health took a census of the population of Callao, which work is not as yet concluded, but which gave 34,436 inhabitants. With the documents of this census, and with those of that taken by the municipality of Lima in 1903, the division of demography will be able to form the sanitary statistics of the inhabitants of Lima and Callao.

The local health services in Peru, as has already been said, are under the charge of the municipalities of the provinces and those of the districts. They direct and execute the potable waterworks, works of drainage, canalization, paving, sewer cleaning, construction of dwellings, markets, public establishments, schools, etc., even though they are all under the vigilance of and must be approved by the Government, and, from a sanitary point of view, by the bureau of health.

Among them, as is natural, is the municipality of Lima, which has done more than any other up to the present time to improve the sanitary conditions of its jurisdiction; and in the course of the years 1904 and 1905 it has established a municipal institute of hygiene, consisting of a division of chemistry, a division of bacteriology, of a library, and a small hygienic museum, in which important chemical and bacteriological work is being conducted, referring to the local services. This institute, although of modern proportions, is equipped with all modern appliances, and here examination is made, free of charge for the poor and at moderate charge for the well-to-do, of sputum; of physiological or pathological products, of secretion or excretion, of anatomical sections, of samples of water, beverages, food products, medicines, etc., in addition to the work the institute does on its own account or by direction of the municipality of Lima or of the bureau of health pertaining to the local health service or that of other localities.

The municipality of Lima has also established during the present year a public disinfecting plant equipped with the principal appliances an institution of this character requires, and which meets the requirements of the town of Lima. It has also built a central market, the lower part of which has already been inaugurated and which, from a hygienic standpoint, leaves nothing to be desired.

By virtue of these and other works of importance, such as the extension of the sewer system to streets which did not have it, the paving of the city with compressed asphalt or stone blocks, etc., the sanitary conditions of Lima have notably improved.

The municipalities of the other provinces of the Republic are doing similar work within the limits of their means and the funds appropriated to this end by the National Government. That of Callao is at present constructing ditches for drainage, which it lacked, and is concluding the potable waterworks.

2. *Sanitary legislation.*—No fundamental sanitary law has as yet been adopted in Peru. Its formation is at the present time in the hands of a commission appointed for the purpose, and the plan thereof, the basis of which was prepared by the bureau of health, will probably be submitted for the approval of the national Congress at the next legislature. The only sanitary law in force in the Republic at the present time is that of January 3, 1896, making vaccination obligatory.

The sanitary regulations issued in 1887, which was the first effort made in the country in the matter of sanitary legislation, were in force until the bureau of health was created; and, although it has not been expressly repealed by any resolution, it is no longer taken as a standard, at least partially, since this institution began to operate, because the principles of public hygiene on which it was based are in harmony with the dominating ideas at the time it was issued, a majority of which are at the present time inadmissible. These regulations provide, among other things, for the quarantine of infected or suspicious vessels, a quarantine which the bureau of health has abolished since it has the means of disinfecting the vessel and her cargo as soon as she arrives at the Peruvian coast.

This absence of regulations and legislation of a sanitary character is supplied for the present, until the proposed laws and regulations are enacted, by general resolutions issued by the National Government or by transitory provisions issued for special cases by the bureau of health, within the scope of the law creating it. Among the resolutions issued in recent years relating to sanitary matters, the following may be mentioned:

The supreme resolution of October 2, 1903, which appropriates funds for the study of serotherapy and vaccine against Peruvian "verruca."

The law of November 6, 1903, creating the bureau of public health and defining its duties.

The supreme resolution of November 20, 1903, directing that there be sent to Europe, at the cost of the State, the chief of the laboratory of the Institute of Vaccine and Serotherapy, Dr. Ramon F. Ribeiro, to study there the manufacture of serums and vaccines.

The law of November 20, 1903, creating the three sanitary stations of Paita, Callao, and Ilo.

The supreme resolution of March 8, 1904, imposing upon the steamship companies engaged in trade with Peruvian ports the obligation of having disinfecting apparatus on board.

The supreme resolution of April 4, 1904, providing for the disinfection of the baggage of passengers embarking at Callao and their medical inspection, in order to prevent that the germs of bubonic plague be taken from this port or from Lima to other ports of the Republic or of other countries. (Even though this resolution was issued at a time when the constant existence of the plague in Callao made it indispensable and the sanitary conditions of this port have changed since, it continues in force.)

The supreme resolution of April 4, 1904, ordering that similar precautions be taken as to passengers leaving Lima for the interior of the country by railroad, also as a means of preventing the spread of the plague. (It continues in force.)

The supreme resolution of April 15, 1904, appointing a board for the management of the campaign against the bubonic plague in the province of Lima. The director of health is the president of this board, which has directed the work of sanitation in Lima during recent times.

The supreme resolution of May 27, 1904, which directs the formation of the general census of the Republic and prescribes that the bureau of health shall formulate the plan and estimate of the expenses of the work.

The supreme resolution of July 1, 1904, directing the ministry of foreign affairs to request the Government of the United States to permit the incorporation of a Peruvian physician in the sanitary corps which may be sent to Panama to undertake the sanitation of the Isthmus, supplemented by that of the 8th of the same month and year, to the effect that the petition for incorporation be for one physician and one engineer.

The supreme resolution of July 2, 1904, providing that the municipal councils forward demographic statistics to the bureau of health at regular intervals.

The supreme resolution of July 2, 1904, commissioning the chief of the division of hygiene, Dr. D. E. Lavereria, to study the report on the installation of the sanitary station of Paita.

The supreme resolution of the same date, creating a sanitary agent of Peru in Europe, charged with the duty of forwarding such reports and acquiring such elements as may be required by the bureau of health.

The supreme resolution of the same date, creating a commission intrusted with the study and recommendation of a plan for the construction of dwellings for renting purposes.

The supreme decree of September 16, 1904, issuing the railroad sanitary regulations.

The supreme resolution of December 9, 1904, ordering the disinfection of vessels coming from the south at the sanitary station of Ilo.

The supreme resolution of December 22, 1904, providing that Peru be officially represented at the Medical Pan-American Congress of Panama, and appointing as the delegate of Peru, Dr. Ugo Biffi.

The supreme resolution of December 23, 1904, providing regulations governing the sending every year to Europe of young physicians who specially distinguished themselves in their school career to perfect their knowledge.

The supreme resolution of December 30, 1904, providing that Peru take part in the constitution of the International Sanitary Bureau of Washington and contribute the proper sum to its support.

The supreme resolution of January 20, 1905, directing that the Institute of Vaccine and Serotherapy furnish poor persons requesting it by a medical prescription, specific serums (antidiphtheritic, antitetanic, antistreptococcic, etc.).

That of the same date, providing for the establishment of a service of disinfection of vessels in the port of Iquitos.

That of March 1, 1905, creating the office of physician under the bureau of health for the study of questions pertaining to potable water.

That of March 10, 1905, ordering the taking of the census of the province of Callao.

That of March 17, 1905, creating a corps of vaccinators to go through the provinces and districts of the Republic, to assist the district and sanitary physicians and the municipal vaccinators in the work of vaccination.

That of the same date, prohibiting the entry into the national territory of lepers and ordering the creation of a leper hospital in the department of Loreto for the isolation of the lepers in that department adjoining other countries in which leprosy is present.

That of March 24, 1905, approving the plans for the drainage of Callao and ordering the preparation of plans for the drying of the subsoil of said port.

That of March 31, 1905, appointing a commission to prepare the draft of a sanitary law for submission for the approval of Congress.

That of April 7, 1905, directing that the consuls of the Republic abroad inform the bureau of health, by cable or by mail, according to the cases, of the appearance in their consular jurisdiction of grave contagious diseases, transmissible by commercial traffic.

That of May 19, 1905, ordering the construction of potable waterworks in El Cuzco.

That of the same date approving the plan of the firm of Humphreys, of London, for the buildings of the sanitary station of Callao, and ordering their purchase.

That of June 10, 1905, organizing the sanitary police.

That of July 21, 1905, ordering the study of water supply, and drainage of the port of Iquitos.

That of August 7, 1905, establishing the precautions to which passengers coming from Panama or Guayaquil are to be subjected, during the existence of yellow fever in said ports in an epidemic form.

That of August 11, 1905, directing the study and execution on the coast of Peru of the works necessary for the destruction of the *Stegomyia* species of mosquitoes, beginning with Callao and Lima.

That of September 1, 1905, prescribing the conditions under which fruits capable of carrying mosquitoes is to be brought from Panama or Guayaquil to Peru, while the sanitary conditions in those ports last; and many others which it would take too long to enumerate.

The report which I am called upon to make to the conference in accordance with the programme published by the Sanitary Bureau of the American Republics, being concluded, on behalf of the country, it only remains for me to say that Peru, making all possible efforts on her part to improve the hygienic conditions of her ports, having established sanitary services and stations along her extensive coast line, and adopting measures which will guarantee, as far as possible, not only her own ports but those of neighboring countries, and publishing systematically the appearance of cases of contagious diseases, in order that such defensive measures as may be deemed proper may be adopted, observes in the matter of international hygiene, a policy of frankness and good faith, and considering the delays and loss caused to her own commerce and that of neighboring countries by the sanitary measures in force at the present time in Panama, in Ecuador, in Peru and in Chile, I would be glad to see this conference, among other beneficial measures, take steps for the formation of an international agreement between the countries which have frequent traffic with Peru, in order that the sanitary measures adopted in each of them may be uniform and have some value in the other countries, and in order that the common action of all will result in what the isolated work of each of them renders difficult of realization, that is to say, the extirpation from the western coast of South America of the diseases transmissible by water communication.

**REPORT FROM THE DELEGATE FROM THE DOMINICAN REPUBLIC,  
MR. EMILIO C. JOUBERT.**

The Dominican Republic contributes to this convention only its good wishes in favor of the cause of public health, which is a noble one worthy of the attention of governments and individuals with high aspirations. It does not contribute any scientific discoveries, nor experiences, nor data toward the progress of sanitary science or its application to the necessities of nations. This is not due to no importance being there given to these matters, as, from their nature, they are of the greatest transcendancy, as they affect the public health, not only of one region, but of humanity in general, but is due to the fact that the country is endowed with exceptionally favorable conditions for the preservation of a satisfactory sanitary condition and has therefore not found any urgent need of devoting special study to these matters.

Considering the sanitary question of the Dominican Republic from the point of view of its legislation, it may be observed that there exist in the country only municipal regulations, laws of a purely local character, which tend to protect public health by placing restrictions and imposing penalties within the jurisdiction of the judicial authorities. The absence of other laws of a broader character and of greater importance is an evidence of the fact that the country has not found any greater protection than that afforded thereby to be necessary. As a matter of fact, although in former times, not very far back, there existed foci of yellow fever near the coast of Santo Domingo, this country has always been free from this epidemic. There has been a case now and then at an interval of ten or twelve years, but never to such an extent as to permit this disease to be considered more to be feared than any other non-epidemic disease. I do not refer to the time when the Spanish army imported the fever and propagated it among its members on account of an absence of sanitary precautions.

We have also had smallpox in an endemic form near our coasts, but our police laws and the measures adopted by the boards of health of the Republic were sufficient to keep our towns free from its ravages. The prophylactic service of vaccination, which was organized from time to time, has greatly contributed, as there was no opposition thereto among the people, to prevent the invasion and propagation of this disease. It is now more than a quarter of a century since a case of smallpox has occurred in the country.

Forty years have elapsed since the last invasion of cholera, which disease, if it was propagated and caused a large number of deaths, was due also to the causes which made yellow fever cases of frequent occurrence at the same time.

As may be seen, the sanitary condition of the country has not called for more than what has been done to keep the country free from the ravaging action of epidemics. The temporary quarantine measures have also contributed efficiently to the result I take pleasure in calling attention to; but however satisfactory the past may have been, it is also necessary to look into the future, in order that our retrospective glances may not predispose us to a criminal indolence.

Upon the termination of the Panama Canal, Santo Domingo will be on the route of the vessels of all nations coming from or going to all ports of the world. Then many vessels will touch at her coasts; commercial traffic will increase, and therewith the danger of contagion and the spread of all infectious diseases. Foresight advises preparation to meet the exigences these new conditions will present.

An easy means at hand to prevent the importation of epidemics was that of closing the ports to vessels coming from infected places; but a country situated in the midst of an active and powerful commercial current, can not have recourse to such primitive measures which are to a certain extent nugatory and therefore unjustifiable, without provoking the anger of nations. Since the Vienna congress up to this convention in Washington which will work on the same basis, every sanitary conference has adopted in principle the ideas which prevailed in England prior to the date of said congress; because these ideas, properly applied, protect the interests of universal commerce while at the same time protecting the lives and interests of natives.

Our Government is convinced of the advisability of preparing itself by the enactment of sanitary laws and measures adequately to meet the necessities which the new order of things will create in the relations of the Republic, and has already appointed a commission of experts to study the sanitary laws of the most advanced countries in this matter and to prepare a body of laws, as well as projects for the organization of the service of inspection and quarantine.

The work of this body will greatly facilitate the labors of said commission, because the questions of sanitary science concerning the preventive measures which it would be advisable to adopt, with an international character, to prevent the importation and propagation of contagious diseases, will here be intelligently discussed.

**REMARKS MADE AT THE CLOSING OF THE CONVENTION BY MR. EMILIO C. JOUBERT, DELEGATE FROM THE DOMINICAN REPUBLIC.**

GENTLEMEN: I have very little to say at this moment when this convention is about to adjourn, not having had much to do during its most important labors, they being, by their character, very different from those within my scope by virtue of the studies I have made and my habitual occupation heretofore.

But I can express, as I do with pleasure, the great satisfaction I have felt in coming into contact with gentlemen who are so notable and eminent by reason of their vast knowledge, gentlemen who have placed their talent and their heart at the service of their country and of humanity.

I can also state here that I expect to feel satisfaction of a like character when the labors of this convention will be received in the Dominican Republic with the favor they deserve and when the sanitary provisions contained in the convention we have just concluded are put in practice.

Santo Domingo, when the Panam Canal is concluded, will be on the route of all nations; their vessels will touch at her ports, and it is necessary that these ports be prepared to receive them and not closed on account of misunderstood sanitary precautions.

With these sentiments and with this hope, I am glad to have had the honor to attend this convention on behalf of the Dominican Republic.

I have concluded.

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**REPORT BY DR. H. D. GEDDINGS, ASSISTANT SURGEON-GENERAL, UNITED STATES PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE, DELEGATE FOR THE UNITED STATES.**

MR. CHAIRMAN AND GENTLEMEN: The provisional scientific programme includes a report upon plague, yellow fever, and malaria. It is with gratification that we are able to report for the United States that the last case of plague occurred in the city of San Francisco nearly eighteen months ago. The number of cases has been published from time to time in the public health reports by the Public Health and Marine-Hospital Service, and the measures which were taken in the eradication of the disease, with the careful inspection of that part of the city of San Francisco infected with the disease, and an account of the observations of all the dead and dying of any race whatever, the supervision of corpses at the various undertaking establishments of the city, and as a special sanitary measure, the destruction of rats and mice, and the careful observation of rats and mice both trapped and found dead in various sections of the city. It is a matter of congratulation that the disease was confined not only to one quarter of the city of San Francisco, but there has been no spread to other sections of the city, and absolutely none to other sections beyond the boundaries of California, which shows the effectiveness of the measures taken, and the possibility of suppressing a disease of this nature without panic and without serious detriment to the commercial interests of the city in which it prevails; and, above all, the signal triumph of modern sanitary science in its conflict with one of the most dreaded diseases of which we have knowledge.

It is unnecessary to state to you gentlemen about yellow fever that yellow fever now prevails in the city of New Orleans, in various portions of the State of Louisiana, and in certain sections of the adjoining State of Mississippi. To date there have been in the city of New Orleans 3,214 cases of the disease, with 409 deaths. In the various parishes of the State of Louisiana outside of New Orleans there have been 2,778 cases, with 232 deaths, and in Mississippi, from the various reports received up to September 27, there have been 332 cases and 13 deaths. How the disease was introduced into New Orleans—for introduced it was—is a matter that is yet under investigation, and the method of its introduction and the time of the first appearance of the disease is as yet subjective, and it would be indelicate and improper on this occasion for me to express a positive opinion; but it is to be distinctly understood that in all of the other places in the United States where yellow fever now prevails it is believed that its prevalence can be traced to certain railroad excursions which carried people from various adjoining States—Mississippi, Alabama, and Florida—into New Orleans after the disease prevailed there but before it had been recognized or announced. The measures taken for the eradication of the disease in New Orleans are those so signally exemplified in the city of Habana, Cuba, by the American commission, whose good work has been so ably continued by gentlemen now on the floor of this convention. The measures taken for the eradication of the disease have been directed simply and solely against the mosquito *Stegomyia fasciata* as the sole recognized means of transmission of the disease. A campaign has been directed against that mosquito. The measures taken have been the fumigation, either by sulphur or by other agents, and the isolation of persons



either sick with the disease or suspected in thoroughly screened hospitals or in a thoroughly screened room in the house where they were taken sick. Measures have also been taken in regard to cisterns and in regard to stagnant water from time to time, and water that it was impossible to drain in certain places has been gotten out of the way by filling up; and the measure has been used of introducing salt into the running water in the gutters of New Orleans, this measure being based upon the fact that the ova of the stegomyia mosquito will not mature in water that contains so much as one-sixth part of sea water.

To say that the experiments have been altogether crowned with success would be to anticipate results which we believe to be inevitable in the next two weeks. They have been crowned with a certain measure of success, gratifying because original. The disease has not spread with the rapidity and to the extent that has been observed in epidemics heretofore prevailing, and it is believed by the Chief of the Service which I have the honor to represent here, and all the officers whom he has delegated to the charge of the epidemic measures in New Orleans, that the results to be obtained within a reasonably short time will be an abundant vindication of the correctness of the mosquito doctrine.

In regard to malaria, as you know, this is a wide and a large country. Malaria is something that is with us perennially, and prevailing under many types, and under many manifestations. It is impossible to say what measures have been taken for the eradication of malaria, but it is perfectly fair to say that the matter is one with which the boards of health of various States of the Union have occupied themselves, and the correctness of the mosquito doctrine of the transmission of malaria has impressed itself upon and has been vindicated in the minds of State health authorities. The matter has excited the keenest interest in every State of the Union almost. A campaign is at present being waged against the anopheles mosquito as a transmitter of malaria, and large State organizations, and in one case a national organization, have busied themselves with a campaign for the total eradication of all mosquitoes, so far as possible. This body, the American Mosquito Extermination Society, held its second meeting at New Orleans about a year ago, and gratifying reports were received from various communities and States interested, showing the spirit of emulation which existed between various communities in the same States and between cities themselves for the suppression of this pest, and in the eradication of this fruitful source of the spread of a disease, which, when everything is said, causes more morbidity, if not more mortality, than yellow fever, whose advent we, as sanitarians, so much dread.

I regret, Mr. President, that at the present time I have been unable to put my remarks in writing, but with your permission the full report will be submitted either before the adjournment of the convention or in time for publication in the transactions.

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#### REPORT OF DR. J. S. FULTON, DELEGATE FOR THE UNITED STATES.

MR. CHAIRMAN AND GENTLEMEN: In accordance with the suggestion made me within a few days, I appear before this convention to give you as briefly and clearly as I can some account of the modes of organization which prevail in the United States in the governmental units under our system, namely, the methods of organization of the States for the purpose of sanitary government. There are something like half a dozen different plans to be found in our Union, not all good and none of them wholly bad. To begin with the most primitive idea of a State sanitary government, one would begin at the most extreme southern State of the Union. There we get the idea of the sanitary government of a State by one man. The State of Texas has no board of health. It has no State sanitary organization on any other than a quarantine basis. This to my mind characterizes the sanitary government of the State of Texas as the most primitive type to be found in our country. The quarantine officer of Texas unites in his own person all the sanitary authority which the State of Texas takes to herself at all, and up to the present time that power has been exercised against but one disease, and that not a disease always present in Texas. The quarantine officer of Texas is charged with the duty of excluding yellow fever. He has similar powers with respect to the bubonic plague; but he has no internal powers, or at least he exercises none, with regard to the diseases which every locality must furnish. In that way the sanitary organization of Texas belongs strictly to the class of emergency agencies, and has practically no routine duties aside from those of the maritime quarantine, and on an emergency. This is the most primitive form of sanitary organization.

The next in that order would probably be the idea of a government for the exclusion only of exotic diseases, but the government not being kept in the hands of one man. The State of Louisiana has a board of health which is essentially a quarantine board; that is, it has no duties except with regard to diseases that are not present in the country. It has no duty in connection with the diseases which are always present among the inhabitants

of Louisiana. It is strictly a quarantine board, maintains a large and expensive equipment, and has this rather primitive idea, not of growing skillful on any routine hygienic work, but simply to keep out diseases not normally found among the population. Several of the States along the Gulf coast belong to this class. Formerly Georgia and Mississippi and Alabama had their boards of health organized somewhat on the same plan. The State of Florida, one is happy to say, has emerged from that condition, and by disposing finally of her quarantine power has become a real board of health; that is, a board of health with modern ideas which looks after the needs of the people under ordinary circumstances and at all times. Georgia also has a board of health designed on modern principles, and in fact is soon to become a large factor in the progress of sanitation in the United States. These two illustrations show the two simplest types of sanitary organization to be found in this country.

Next above them one comes to the idea of a board of health truly representative of the people of the State, and engaged at all times on the problems which they provide. For illustration of that type of board of health one must mention the boards of health of Massachusetts and of the States of Michigan and of Iowa. These boards consist of either five or seven members. The members are appointed by the governor of the State for a definite term. They include a number of physicians, but are not composed exclusively of physicians. They themselves do no executive work. They elect or appoint a secretary, who is their executive officer, and by virtue of his election he becomes merely their executive, and nothing more. This puts the executive officer of the board of health of that type, of these States which are exemplified by Massachusetts, Michigan, and Iowa, in the class of wage-earners rather than in the class of salaried officers, which is an advantage. They are not bound to appoint a citizen of the State, and they disregard political boundaries and are not tied down by constitutional limitations in the matter of salary. The executive officer of boards of this type can be an expert sanitarian. He will have a fair chance for real work in the line of sanitation, and some of the best work that has been done in this country has been done by boards of that type. There are, however, very few boards of this sort.

Next after this comes the class of boards of health in which are the great majority of the boards of health of this country. These are the boards which include a majority of physicians, and which are appointed by the governors of the States for a definite period of service, and which elect a secretary or executive officer, who becomes a member of the board. In other words, in the largest class of boards of health in the United States, the secretary is not an employee of the board but is a member of the board. His functions are usually pretty well circumscribed by law. As this is numerically the largest class among different types of boards of health, it of course includes a good many excellent examples of very good working bodies and perhaps for the same reason, that it is the largest class numerically, it also illustrates better than the others the abuses that are possible under that system. As I say, in this class of boards it is not possible to go outside of the political units of the States to find an expert sanitarian or a trained sanitarian. The executive officer becomes a member of the board of health, and he must have been elected from among the citizens of the State. One of the abuses possible under this class I will mention. The worst one is that the members of the board, from the time of their appointment, can agree to divide the emoluments during their service in such a way that everybody will share alike. In this country none of the boards of health receive salaries; the executive members of the board do not receive salaries, I think, anywhere, in either of these two classes. So that it happens that at least one board of health that I know of manages to divide the emoluments of the offices for a period of six years by agreeing that each of them shall fill the position of the executive for a year and receive all the emoluments for one year, at the end of which year he passes on his executive position to the next member. In that way the board of health that formerly did good work every year now changes its secretary every year and changes its executive officer every year and of course does no good work. That is one of the worst features that can come in under this scheme of ours which includes the largest number of boards of health.

Next after this in point of time we come back, curiously enough, to the very first scheme of all, which has the most reason in its favor, and that is the scheme of one-man sanitary government in a State. Since Texas started and is now about to outgrow that idea, two States in our Union have revived that notion—New York and Pennsylvania. There is no board of health in the State of New York, but it has a very large and quite strong sanitary organization. Its head is a commissioner of health, appointed by the governor of the State, and his term of office is equal to that of the governor who appoints him. This has made the executive position in the board of health of New York rather desirable. It is a political plum, and experience shows so far that the heads of the board of health will change about as often as the chief executive is changed in the State of New York. That is a one-man board, and all the responsibilities for its government of the State are centered in him, with power to remove his subordinates, most of them.

The State of Pennsylvania has within a year concluded to embark on the same plan, having had the experience of some twenty-five or thirty years in the plan of an appointive board of health, having power to elect its own secretary. It is perhaps too early to say that this last plan is certain to be a bad plan. It is conceivable that a one-man sanitary arbiter of the State's destinies might be a strong enough man to put that State on a very high plane indeed; but it does not quite consort with our republican ideas in the United States, and personally I am inclined to doubt whether that was a wise move. I think it is rather a curious circumstance that the two latest States to make changes in their laws should have come back to the one-man idea which Texas up to that time alone illustrated, and I am quite sure that Texas is nearly or quite persuaded now to abandon that idea.

I have given you this as a brief story of the modes of organization in the United States simply for your information. I would conceive it to be rather improper for me to express my personal views about the probabilities of ultimately developing in this country a first-class sanitary organization on any of these plans, although I have such views, which, as I say, I retain at this time.

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#### **ABSTRACT OF THE REPORT PRESENTED BY SEÑOR REQUENA BERMUDEZ, CHARGÉ D'AFFAIRES OF URUGUAY, IN WASHINGTON.**

(Although the Republic of Uruguay did not sign the Convention agreed upon by the conference, it was represented in the sessions thereof by Señor P. Requena Bermudez, First Secretary and Chargé d'Affaires of Uruguay in Washington, who, in the name of his country, submitted to the conference an extensive report, of which the following is an extract.)

The sanitary measures adopted in Uruguay have amended certain laws relating to land and maritime sanitation, some of them being of such importance that we do not doubt will present our country as inspired in the most advanced ideas respecting the manner in which prophylaxis against exotic and infectious diseases, should be applied.

The protection against the importation into our country of contagious and infectious diseases, the provisions contained in sections 33 and 50 of the Maritime Health Regulations, the struggle against tuberculosis, and the sanitary inspection of prostitution have originated new laws and ordinances prescribing prophylactic measures more in accordance with the modern theory in regard to the manner of propagation and the means to suppress infectious and contagious diseases.

All measures adopted by the national council of hygiene are of high importance, but the one which will cause a total revolution in those existing at present, which will afford greater benefits to the public, commerce and our international relations, is that relating to the method in which prophylaxis should be carried out against the importation by sea of exotic diseases of an infectious character, such as bubonic plague, yellow fever, and Asiatic cholera.

The bases of this prophylaxis have been prescribed in the International Sanitary Convention held at Rio Janeiro, June 5, 1904, and in which the Republics of Uruguay, Argentina, Brazil, and Paraguay participated, which bases were duly ratified by the respective Governments. Laws enforcing the provisions of said convention have been passed by these Governments.

By the provisions of the treaty in reference, long quarantines, nonadmission of infected vessels, and the old measures which obstructed commerce, rendered foreign intercourse difficult, and annoyed passengers, have been suppressed, all of which benefits have been obtained with provisions which do not impair the efficiency of the prophylactic measures necessary to preserve the country free from exotic infectious diseases. Our nation may be proud of having taken the initiative of said convention.

In order to carry out the prescriptions of the Rio Janeiro convention, the National Council of Hygiene has ordered the construction of a disinfection plant in one of the landing places. While this plant is being constructed, the station and disinfecting apparatus in the Island of Flores shall continue to be used for the treatment of clothing and baggage.

The passengers shall be free to go to their residences, where they shall be under the observation of medical inspectors for a period equal to that of the incubation of the suspected disease.

Vessels and merchandise shall be disinfected by means of the Clayton system, which vessels and merchandise, after undergoing this rapid operation, remain perfectly free for traffic.

Passengers affected with exotic diseases, and third-class passengers, shall be sent for their attendance or observation to the Island of Flores, which is the only sanitary station that we have.

The National Council of Hygiene has under consideration the manner of transforming into a land sanitary station the present isolation house, in order that passengers who arrive suffering from a contagious or infectious disease may be attended therein.

Certain amendments have been made to sections 33 and 50 of the Maritime Health Regulations. Said amendments deal with the method which must be followed in treating vessels infected with exotic contagious diseases; they specify with more accuracy the classification of infected and suspected vessels, and prescribe the process to be observed in the sanitary treatment of vessels infected with exanthematous typhus, measles, and diphtheria.

In relation to land sanitation, the Council has prescribed new measures in order to establish a more efficient prophylactic treatment in the residences of pauper consumptives. It has also taken into consideration the regulation of the sanitary inspection of prostitution.

Paupers afflicted with tuberculosis, a disease which, on account of its frequency, extent, and serious consequences has become a dreadful universal scourge, have adopted in Montevideo a policy which will help us to accomplish the desired end, which is the suppression or diminution of the spread of tuberculosis among the inhabitants of said city.

Thanks to the humanitarian services rendered by the association against tuberculosis, pauper consumptives are given attendance in the dispensaries of the association, and the physicians attending them report every case immediately. All new or old cases of tuberculosis attended to in said dispensaries are reported. Many other cases attended to in private houses are also reported, as all physicians have taken the policy to report all such cases attended by them.

For this reason the last statistics, especially those for 1904, show a comparatively increased number of reported tuberculosis cases. In fact, many of them are not new, but of previous years, which were not reported until recently.

The sanitary condition of the Republic during 1904 and the past months of the current year, 1905, has been satisfactory. Mild smallpox epidemics have appeared once in a while, but they were easily extinguished by means of vaccination and other ordinary prophylactic measures. Several cases of scarlet fever, diphtheria, and typhoid fever have also been recorded during said period.

As regards yellow fever, bubonic plague, and Asiatic cholera, we would say that they are unknown in our country, being exotic therein.

Malaria is a disease that likewise does not exist in Uruguay, at least under its characteristic forms, and we can not say with certainty whether there are no larvate cases in some country places.

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## REPORT FROM THE DELEGATE OF VENEZUELA, MR. N. VELOZ-GOTICCOA.

DR. WALTER WYMAN,

*President of the Second General International Sanitary Convention*

*of the American Republics:*

As the delegate of the United States of Venezuela to this international convention I have the honor to submit herewith the report called for by the scientific programme on the diseases prevailing in my country and the sanitary and quarantine laws at present in force.

With regard to the first point, I call attention to the exhibit herewith marked "A," containing a report of the director of hygiene and statistics of the western section of the Federal District, entitled "Demographic Sanitary Report," comprising the entire section of said district, and constituting an important comparative study on mortality, nativity, marriage statistics, and the causes of death and their comparisons, and including the work done by the inspectors of city cleaning and municipal works.

The exhibit marked "B" contains the general tables of mortality statistics for the second six months of the year 1904 in the states of the Venezuelan Federation and its Federal District, which mortality is classified according to the Bertillon system by diseases and causes of death, closing with a graphic demonstration of the proportion of total deaths. These data were taken from those published by the general direction of statistics in the report of the department of fomento for the year 1905.

The following is a summary of the sanitary and quarantine laws in force in Venezuela:

### DISEASES CALLING FOR QUARANTINE AND SANITARY PRECAUTIONS.

Asiatic cholera, yellow fever, bubonic plague, smallpox, and typhus are the diseases which call for quarantine and other special sanitary measures.

Vessels coming or suspected as coming from some port infected with one of these diseases, are subjected to a quarantine of observation of three days for persons; but if there is absolute certainty that there has been no case of the disease on the trip, the said quarantine may be reduced to a shorter period, after a scrupulous examination.

The quarantine of observation is enforced in lazarettos, and, in the absence thereof, on lighters (pontones) assigned for the purpose.

Any vessel that has had during the trip any cases of the said diseases on board shall be subjected to compulsory quarantine. This shall be for Asiatic cholera from one to two

days, for yellow fever from three to six days, and for bubonic plague twelve days. The sick shall be confined in a lazaretto, and the healthy persons on board, together with the baggage, merchandise, and other effects, shall remain on the vessel or be transferred to another lazaretto for the time of the quarantine, the vessel being disinfected when the persons on board are landed. The persons on board shall be subjected to the quarantine prescribed by the respective sanitary physician and board, in view of the circumstances of the case.

#### INSPECTION OF VESSEL AND QUARANTINE.

On the arrival of a suspected or infected vessel at one of the ports of Venezuela communication with her shall in no case be permitted, and neither persons, baggage, merchandise, or other effects shall be permitted to land.

Vessels arriving with a clean bill of health, but on which cases of Asiatic cholera, yellow fever, bubonic plague, etc., shall have occurred, shall be subjected to a strict quarantine for such time as may be fixed.

If the vessel shall have had direct communication with ports where an epidemic is present, or if she comes from a port where there was one recently, she shall also be subjected to quarantine for observation.

Every vessel subjected to quarantine for observation shall be made to anchor to leeward, shall be carefully watched, and shall have a physician placed on board. If during the quarantine of observation any case of an infectious disease should occur, strict quarantine shall at once begin. If the vessel subjected to quarantine should be desirous of continuing her trip, her state of health must be stated on her bill when she is cleared. The board of health and the police authorities shall adopt all necessary hygienic precautions to prevent the development of any deleterious source in the locality, destroying every focus of infection, maintaining the greatest cleanliness possible, and sterilizing anything which might affect or vitiate the atmosphere in any manner whatever.

#### DISINFECTION.

This is done before the health officer and includes the disinfection of baggage, merchandise, and of the vessel herself, in a strict and general manner.

Animal substances, such as hides, wool, horsehair, and organic substances, are disinfected more carefully, and when this can not be done, they are cremated.

The disinfection is always done in accordance with the nature of the object, and is stricter with regard to the substances liable to preserve the malignant germ, and less strict with those not so liable to preserve it.

The disinfection is done after the vessel has anchored and unloaded, being fumigated with chlorine, sulphur and jets of steam.

#### LAZARETTOS.

The lazarettos shall be located on the most suitable places leeward of the port, preference being given to uninhabited islands having good drinking water.

#### BILLS OF HEALTH.

Every vessel arriving at any port of Venezuela, is required to have a bill of health, showing her port of departure, her ports of destination, her true sanitary condition, and the cases of any disease she may have had on board during the trip. If she has a suspicious bill of health, she shall be placed under quarantine of observation, and if a foul bill of health under strict quarantine.

#### HEALTH AUTHORITIES.

There are health authorities in every port to watch and provide for the local needs and to take the proper precautions to prevent the importation of epidemic diseases, as also to enforce the provisions of the sanitary regulations, specially concerning quarantine and sanitary measures.

The chief sanitary officer is a physician, appointed for the purpose, who has under his orders all the agents of the health service.

The boards of health shall be composed of the physician appointed for the purpose by the highest civil authority of the place, of the collector of customs representing the public treasury and in his capacity of captain of the port, of two merchants, residents of the place, and of one engineer. The president of this board of health shall be the health officer, and the foreign consuls residing in the port shall also be members of the said board, with consulting voice and vote, to guarantee the interests whose protection is intrusted to them.

The boards of health shall meet when the director of health shall consider it advisable, and will consider everything connected with the administration of the lazarettos and

lighters (pontones) already established or which may hereafter be established, and will have charge of the strict supervision and of everything contributing to the health of the locality.

The civil and military authorities and the officials of the revenue and political branch are compelled to cooperate with the boards of health to this end and to render them efficient and opportune assistance to enforce their decisions.

In this manner I comply with the directions given me to present to this convention, as the delegate of my country, a report on the diseases prevailing therein and on her sanitary and quarantine laws.

#### EXHIBIT A.

*Sanitary and demographic report of Caracas, El Valle, Antímano, La Vega, Macarao, El Recreo, La Guaira, Maiquetía, Macuto, Caraballeda, Naiguatá, Carayaca, Caruao, Los Teques, Miquilén, Carrizal, San Pedro, San Antonio, San Diego, Tácata, Paracotos, Petare, Baruta, El Hatillo, and Chacao, for the year 1904.*

REPORT SUBMITTED TO THE CITIZEN GOVERNOR BY DR. A. HERRERA VEGAS, DIRECTOR OF THE OFFICE.

*Citizen governor of the western section of the Federal District, Caracas:*

It is with the greatest satisfaction that I place in your hands herewith the "Sanitary and demographic report" for the vast territory of your jurisdiction, corresponding to the year 1904. This is the fourth report which I have had occasion to subscribe, because, although the office of hygiene and statistics under my charge has been in existence for two years only, I devoted myself for some time before to studies of this character, and by gathering data and material was able to issue a sanitary report for Caracas and neighboring towns in the years 1901 and 1902.

At the present time the office of hygiene and statistics having been assisted by the civil and military authorities, its labor has been, if not easy, at least fuller, and hence I am enabled to submit to you a particular and comparative study of the movement of the population and sanitary conditions of Caracas, El Valle, Antímano, La Vega, Macarao, and El Recreo, which form the Libertador Department; of La Guaira, Maiquetía, Macuto, Caraballeda, Naiguatá, Carayaca, and Caruao, parishes of the Vargas Department; of Los Teques, Miquilén, Carrizal, San Pedro, San Antonio, San Diego, Tácata, and Paracotos, composing the Department of Guacaipuro; and, finally, of Petare, Baruta, El Hatillo, and Chacao, parts of the Department of Sucre—a total of 25 towns, with a population of 184,500, distributed as follows: Caracas, 85,000 souls; district parishes, 18,500; Department of Vargas, 32,000; Department of Guacaipuro, 30,000, and Sucre, 19,000.

The vast area, the great population, and the many interests to be found in this section of Venezuela, make it necessary to give serious attention to all the details which a study of this report will show, to which I take the liberty of very earnestly calling your attention.

#### SUMMARY.

##### WORK OF THE OFFICE OF HYGIENE IN THE YEAR 1904.

Caracas: Comparative study of its mortality, births, and marriages; movement of the population in 1904; causes of death; age of the deceased; nationality; prevailing diseases during the year; typhoid fever; tuberculosis; diseases of the digestive apparatus; climate of Caracas; parallel between deaths and the seasons of the year; co-efficient of mortality; general and comparative nativity; legitimate and illegitimate children; annual variations in birth rate since 1900; marriage statistics—total number of marriages, ages of the contracting parties, marriages per month, by parishes; comparative statistics; coefficient of marriages; conclusions.

Department of Vargas, Department of Guacaipuro, Department of Sucre: Study of their population.

##### WORK OF THE DIVISION OF HYGIENE IN THE YEAR 1904.

Before entering upon a sanitary and demographic study of the division, permit me to show you a detailed report of the large number of works executed by the office of hygiene and by the departments of street cleaning and municipal public works, for although the latter are not under the jurisdiction of the former their work redound directly to the benefit of general health, for which reason I include them.

Nothing like what is stated in this report has ever before been done in Caracas. Something is being done, but there is much, very much, that still remains to be done in order that the hygiene and consequently the health of our capital may reach the proper development.

I have the best reasons to believe, and all of Caracas does likewise, that this year will be one marked in letters of gold in the annals of the history of Venezuela by reason of its progress, and there is no doubt that the National Government, presided over by so ardent a patriot as General Castro, will extend a helping hand to the work of making the capital of the Republic hygienic, already begun.

To you, as the faithful interpreter of the high sentiments of the former, will pertain the glorious task, assisted by your subordinates, to extirpate the high tribute we now pay, due to the insufficiency of our means of defense against it.

#### WORK DONE BY THE OFFICE OF HYGIENE IN THE YEAR 1904.

##### *Division of street cleaning.*

Daily cleaning of the market, slaughterhouse, squares, avenues, and a large number of streets; constant repair of sewers and street pavements.

Foci of infection denounced.....	378
Inspections made.....	421
Orders to clean.....	215
<b>Total.....</b>	<b>1,014</b>

##### *Division of bromatology.*

Denunciations of food stuffs of bad quality.....	257
Samples of food stuffs received.....	137
Requests for analyses.....	35
Inspections in the market.....	26
Inspections in the slaughterhouse.....	18
Inspections in dairies.....	89
Inspections in vegetable gardens.....	28
Inspections in butcher shops.....	56
Inspections in grocery stores.....	178
<b>Total.....</b>	<b>824</b>

Food stuffs condemned by the office of hygiene and by the market management:

	Pounds.		Pounds.
Fresh fish.....	4,967	Cheese.....	180
Salt fish.....	2,706	Black pudding.....	214
Fresh meat.....	443	Butter.....	139
Salt meat.....	573	Ham.....	173
Beans.....	4,701	Italian pastes.....	190
Chick peas.....	882		
Potatoes.....	4,048	<b>Total.....</b>	<b>19,541</b>
Other vegetables.....	325	Canned goods.....	261

##### *Division of prophylaxis of contagious diseases.*

Informations received.....	32
Inspections.....	32
Requests for disinfection.....	26
Disinfections made in rooms.....	152
<b>Total.....</b>	<b>242</b>

##### *Division of vaccination.*

Vaccine inoculations.....	212
Certificates issued.....	37
<b>Total.....</b>	<b>249</b>

*Division of vital statistics.*

Data requested was furnished to Drs. L. Razetti and Ayala and Bachelors Clemente, Smith, De Armas, and Gonzalez Montano, and to the office of hygiene of Sao Paulo, Brazil.

The report of the western section of the Federal District was published monthly.

From all points of view the principal place corresponds to Caracas, for which reason we will begin with said city.

The year 1904 may be qualified as a most favorable one for our capital, from a sanitary demographic view point, as may clearly be seen from the table marked No. 1.

A comparison of this table with a similar one for 1903 shows the improvement at once, and it is still more evident if the figures for previous years are also examined, as follows:

*Mortality for Caracas.*

Year.	Number of deaths.	Annual coefficient.
1901.....	2,838	33.00
1902.....	3,233	38.03
1903.....	3,199	37.99
1904.....	2,516	29.06

## MORTALITY STATISTICS.

*Deaths, by cause, age, sex, and nationality, in Caracas in 1904.*

[Population of Caracas, 85,000.]

<b>Epidemic diseases:</b>		<b>Diseases of the nervous system—Con.</b>	
Typhoid fever.....	86	Nonpuerperal eclampsia.....	26
Erysipelas.....	2	Infantile convulsions.....	46
Measles.....	1	Other diseases of the brain.....	23
Diphtheria.....	4	Other diseases of the medulla.....	10
Whooping cough.....	4	Tetanus.....	17
Grippe.....	7		
Other epidemic diseases.....	5	Total.....	246
Total.....	109		
<b>General diseases:</b>		<b>Circulatory system:</b>	
Tuberculosis of lungs.....	415	Endocarditis.....	10
Tuberculosis of meninges.....	13	Pericarditis.....	2
Tuberculosis of other organs.....	80	Organic diseases of the heart.....	80
General tuberculosis.....	13	Angina pectoris.....	16
Scrofula.....	11	Valvular diseases.....	84
Pott's disease.....	2	Arterial diseases.....	60
Syphilis.....	8	Aneurisms.....	67
Alcoholism.....	21	Embolism.....	2
Cancer and other tumors.....	56	Other diseases.....	14
Septicemia.....	1	Total.....	335
Anemia, chlorosis.....	21		
Malarial fevers.....	31	<b>Respiratory system:</b>	
Rheumatism.....	1	Diseases of the larynx.....	2
Chronic alcoholism.....	2	Acute bronchitis.....	25
Total.....	675	Chronic bronchitis.....	3
		Pneumonia.....	59
<b>Diseases of the nervous system:</b>		Pleurisy.....	18
Encephalitis.....	16	Congestion of the lungs.....	12
Simple meningitis.....	44	Apoplexy of lungs.....	11
Locomotor ataxia.....	3	Gangrene of lungs.....	1
Softening of the brain.....	13	Asthma.....	3
Cerebral congestion.....	12	Broncho-pneumonia.....	41
Cerebral hemorrhage.....	23	Other diseases.....	22
Epilepsy.....	2	Total.....	194
General paralysis.....	11		



Digestive system:		Puerperal diseases:	
Pharynx and esophagus.....	2	Convulsions.....	1
Ulcer of the stomach.....	9	Other accidents.....	1
Other diseases of the stomach.....	34	Puerperal septicemia.....	18
Diarrhea in infants under 2 years.....	133		
Enteritis.....	159	Total.....	20
Hernia and intestinal obstructions.....	11		
Intestinal parasites.....	17	Diseases of the skin:	
Other diseases of the intestines.....	6	Anthrax.....	8
Dysentery.....	181	Other diseases.....	1
Cirrhosis.....	23		
Jaundice.....	11	Total.....	9
Biliary calculi.....	40		
Peritonitis.....	6	Old age:	
Appendicitis.....	26	Congenital debility.....	89
Other diseases.....	7	Senile debility.....	27
Cholera morbus.....	13		
	16	Total.....	116
Total.....	694		
		Violent deaths:	
Genito-urinary system:		Firearms.....	12
Acute nephritis.....	25	Fractures.....	3
Bright's disease.....	19	Burns and scalds.....	7
Calculi of urinary tract.....	1	Suicides.....	1
Diseases of the bladder.....	6	Poison.....	4
Diseases of the prostate.....	2	Other violent deaths.....	8
Uterine hemorrhage.....	5	Sudden deaths.....	2
Hemorrhage of the annexes.....	5		
Cysts and other tumors of the uterus and ovaries.....	11	Total.....	37
Total.....	74		
		Ill-defined diseases.....	4

## RECAPITULATION.

Nervous system.....	246	Congenital debility.....	89
Circulatory system.....	335	Senile debility.....	27
Respiratory system.....	197	Violent deaths.....	37
Digestive system.....	694	Skin and cellular tissue.....	9
Genito-urinary system.....	74	Ill-defined diseases.....	4
Epidemic diseases.....	109		
General diseases.....	675	Total.....	2,516
Puerperal diseases.....	20		

The following table shows a comparison between the causes of death in 1903 and 1904:

	1903.	1904.	Difference in favor of 1904.
Nervous system.....	283	246	37
Circulatory system.....	446	335	111
Respiratory system.....	153	197	44
Digestive system.....	855	694	161
Genito-urinary system.....	71	74	3
Epidemic diseases.....	172	109	63
General diseases.....	869	675	194
Puerperal diseases.....	15	20	5
Congenital debility.....	52	89	37
Senile debility.....	23	27	4
Violent deaths.....	41	37	4
Skin and cellular tissue.....	14	9	5
Pott's disease.....	68	4	64
Unknown.....	15		10
Total.....	3,077	2,616	461

The table shows the progress of mortality in each month of the year, and there should be noted the decrease thereof from January to December, the low rate being constantly maintained in the past months of this year. This table also shows the movement of deaths in the eight parishes, it being notable that the most healthy is Santa Rosalia and the least healthy San José. The former has a population of 10,000 and the latter 6,000. Next in point of health comes Santa Teresa, with 9,000 inhabitants and 224 deaths; then La Pastora, with 6,000 inhabitants and 241 deaths; and finally Candelaria, San Juan, Altagracia, and Catedral, with a mortality quite large for their population.

The same table permits a study of the mortality compared with that in 1903.

*Mortality, by months, in 1904.*

Parishes.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	1903.
Catedral.....	34	29	25	30	21	31	24	28	20	23	27	23	315	330
Altagracia.....	34	31	34	31	25	20	21	32	23	37	34	38	360	423
La Pastora.....	22	22	21	23	19	24	11	23	17	25	16	18	241	344
San Juan.....	27	24	25	28	39	27	28	31	19	28	25	33	334	386
Candelaria.....	35	19	23	31	29	34	29	18	34	15	23	17	307	424
Santa Rosalia.....	24	22	19	11	18	21	14	18	22	19	13	12	213	276
Santa Teresa.....	12	22	20	15	19	25	20	19	14	34	11	13	224	258
San José.....	50	40	56	31	46	56	43	54	36	30	44	36	522	758
Total.....	238	209	223	200	216	238	190	223	185	211	193	190	2,516	3,191

The preceding table permits even a close analysis and more favorable deductions if a comparison be made of the figures of the diseases which have always caused the greatest ravages in the health of our capital. Let us begin with tuberculosis.

In 1903 this terrible social plague was responsible for a total of 563 victims of all ages, especially between 15 and 40 years of age, of both sexes. In 1904 this figure was reduced to 521—still a very high figure, a figure due in great part to our inertia. As often as I have heretofore endeavored to establish a "Venezuelan league against tuberculosis," my efforts have come to naught, but I am not yet conquered. I still feel that I have strength for the struggle and enthusiasm for the work. It will never be too late if we attain the object we pursue.

Another of the chapters which deserves serious attention is typhoid fever.

Much, very much, has been said and written, but not yet enough, during the first months of 1905 and the last months of 1904 on this disease, which is daily becoming more prevalent and which threatens to become permanently established among us.

As the causes which produce, maintain, and distribute the disease are still in existence—namely, sewers, which are deficient on account of their primitive character, which will fortunately be modified in a very short time, as the governor, who is so zealous in securing the salubrity of Caracas, has destined the sums that Mr. Felipe Cavallini will pay under his contract for the installation of a new system which will constitute a sanitary improvement of the highest order, and in the meantime repairs to the existing sewers will be done with a constancy which is a certain pledge of the good intention to protect the lives of the inhabitants of Caracas: a defective water service in the houses, neglect of hygienic measures in regard thereto—it is evident that it has continued its nefarious work, but fortunately not attaining the character of an epidemic, although it has produced a number of deaths, which forces us to adopt all the precautions that science prescribes and that experience advises.

In 1903 the disease caused 88 deaths and this year 86.

#### DIGESTIVE SYSTEM.

Next in turn come the diseases of the digestive system, the number of deaths from which has been relatively smaller this year, but still representing so high a rate that they are worthy of a serious analysis.

In the year under consideration diseases of this character were responsible for 694 deaths, as against 855 in 1903, showing a balance in favor of 1904 of 161.

I have said it more than enough times to be well understood, but once more will not be superfluous: The water in the first place, not the water of Macarao, but the water of Caracas, which produces dysentery, enteritis, the vehicle of intestinal parasites, is the most immediate cause of the large number of diseases of this kind. I will sustain this opinion until the contrary be proved.

Notwithstanding the continued well-directed efforts of the very competent supervisor of the market of this city, who daily visits the various departments of the building and condemns everything not up to the necessary standard of health, and in spite of the investigations conducted by the office of hygiene, the amount of food stuffs of bad quality sold in this city is so great that they in themselves are sufficient to produce the bad effects daily observed.

I call your attention, Citizen Governor, to the urgent necessity of providing the office of hygiene with a chemical laboratory for the analysis of all substances which in the judgment of the director of the office do not fulfill the required conditions. The immediate advantage of this would be to enable an exact examination of the product and permit of the punishment of an unscrupulous merchant who for the sake of a few cents does not hesitate to poison the entire population of a town. Another remote advantage of this would be that other dealers, on seeing one of their colleagues disqualified to engage in his industry, would think a long time before giving the public an adulterated or decomposed product.

Caracas in thankfulness would applaud you heartily.

I could say very much on a matter of so great interest and so instructive, but, in the first place, I have already spoken of the subject in earlier reports and in the daily press; and, in the second, the necessarily great length of this work does not permit me to continue.

Table No. 4 shows us a transcendental social problem; that is, the age at death. From 0 to 10 years of age 729 persons dies in Caracas, a little under one-third of the total number of deaths—2,516.

Many are called to live and few selected to continue living. Unfortunately, facts of this character are not our exclusive patrimony. The same thing occurs throughout Europe, America, and, finally, throughout the entire world; but in other nations they are not satisfied to call attention to the evil, but they remedy it, forming societies for the protection of infants against infantile convulsions, etc.

Here defective nourishment, convulsions, and sometimes epidemic diseases decimate the infantile population. I take the liberty of recommending the establishment of hygienic packages against infantile convulsions as one of the easiest works to execute, not only on account of the small cost thereof, but the ease with which they can be sent to their destination. Please issue your orders, as I possess all the data necessary to proceed in the matter successfully.

From 20 to 50 years—that is, during the age of sexual vigor, at the time of the procreation of both sexes—1,259 persons died, most of them victims to tuberculosis, as it is well known that this is the age when its ravages are greatest. This shows how important it is that the fight against this disease be begun as soon as possible.

Between the ages of 50 and 100 the deaths numbered 528, a figure which is not very encouraging regarding the duration of life among us.

TABLE NO. 4.—Ages.

0 to 1 year.....	413	51 to 60 years.....	185
1 to 10 years.....	316	61 to 70 years.....	169
11 to 20 years.....	241	71 to 80 years.....	102
21 to 30 years.....	447	81 and over.....	72
31 to 40 years.....	349		
41 to 50 years.....	222	Total.....	2,516

With regard to conjugal condition and nationality the statistics for 1904 do not show very notable figures.

Single.....	1,940
Married.....	386
Widowed.....	190
Total.....	2,516

The nationality shows only the small number of foreigners living among us:

Venezuelans.....	2,346	Other nations.....	20
Spaniards.....	107	Unknown.....	4
Italians.....	20		
French.....	10	Total.....	2,516
Germans.....	9		

## BIRTH RATE.

This is a matter of the highest importance in a country. It is a grave problem for a nation, especially for one like Venezuela, which has suffered since remote times so great a death rate.

The figures corresponding to the nativity of Caracas for the years 1903 and 1904 are almost identical—2,382 and 2,387—representing a rate of 28, which is certainly very pleasing.

Now, then, if our mortality were not so high the population would rapidly increase, but the contrary is the case, to the extent that the deficit is almost constant. In 1903 it was 817, and in 1904 there was also a deficit, but much lower, hardly reaching 129. Difference in favor of this year, 688.

It would be exceedingly tiresome to repeat the arguments which may be considered as an expression of the truth to explain the deficit of population, not, as has already been said, on account of a scarcity of births, but on account of an excess of deaths.

I have always attributed to the large number of illegitimate children the high rate of infant mortality, and with better reason than ever, I repeat it now.

I take the liberty to submit herewith, Citizen Governor, a table showing the number of births in the eight parishes composing our capital, and at the end a statement of the legitimate and illegitimate children in the years 1903 and 1904.

The number of males and females was practically the same—1,207 and 1,183. This is a factor of considerable importance from a social standpoint of view, if we reflect at the end of the year many more males have died than females, and that, therefore, it is necessary that more of the former be born than of the latter, to reestablish the balance which has so direct an influence on the constitution of the live forces of a country for its defense and vitality.

TABLE No. 5.—*Nativity in Caracas in 1904, by parishes and by months.*

Parishes.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Catedral.....	29	28	26	43	39	41	37	21	47	35	28	43	397
Altigracia.....	27	24	34	26	30	25	25	21	41	36	30	33	352
La Pastora.....	21	16	19	30	16	29	18	22	19	20	23	35	268
San Juan.....	27	21	23	29	36	23	39	38	21	43	34	34	368
Candelaria.....	23	17	39	35	32	28	11	31	33	10	20	25	304
Santa Teresa.....	19	14	13	24	12	23	10	30	13	19	16	26	219
Santa Rosalia.....	16	15	14	17	11	19	21	15	14	23	15	28	208
San Jose.....	15	11	21	27	26	26	18	28	22	20	18	39	271
Total.....	177	146	189	231	202	214	179	206	190	206	184	263	2,387
Legitimate males.....						626	Illegitimate males.....					581	
Legitimate females.....						603	Illegitimate females.....					577	
Total.....						1,229	Total.....					1,188	

## MARRIAGES.

The number of marriages celebrated in the city of Caracas in 1904 was 405. Considering this figure to be exact, as it is taken from the civil register, and estimating the population of the capital at 85,000 inhabitants, we get a marriage rate of 4.70 per thousand inhabitants, which is in itself quite satisfactory, especially if compared with 1903, when the rate was 3.60.

The financial situation of our country having improved somewhat in the past year, a large number of persons having the capacity to contract what was until recently an indissoluble tie, found means to satisfy their legitimate desires, and thus it is that the number of marriages increased from one year to the next from 300 to 405. There is no doubt that in the current year the figure will increase to what it was during the good times of Caracas, in the shadow of the peace secured on the field of battle by the always victorious sword of our highest magistrate, and consolidated by the industry which has since been observed in the field of labor.

If the present sovereign National Congress would deign to pass a law which would permit the most humble citizen to contract marriage without the series of obstacles and requisites which leads them away from the salutary practice, forcing them to a certain extent to live observing the laws of nature only, it would perform one of the most advantageous works, which in a few years would be evident by the increase of population.

Table No. 6 shows the number of marriages by parishes and by months in Caracas, and table No. 7 the previous status of the contracting parties, their degrees of education, and their nationality.

Of the parishes composing Caracas, the first place is occupied by La Pastora on account of its high marriage rate, in view of its population, which is much smaller than that of any other parish. Eighty-two marriages were celebrated. Then follows Altagracia, with 68, and in a descending scale we reach that of San Jose, where only 28 were celebrated.

From the preceding statement of the contracting parties we deduce that 382 single men and widowers contracted marriage with 390 single women and 15 widows, with a total of 20 children.

From the table showing the nationality, we see that the Spaniards lead in the number of those who marry our women, 44 having contracted marriage; then come the Italians, the French, English, and other nations.

TABLE No. 6.—*Marriages celebrated in Caracas in 1904.*

Parishes.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Catedral.....	4	3	5	3	5	1	2	3	3	5	2	6	42
Altagracia.....	5	9	8	5	4	1	4	5	6	5	6	10	68
La Pastora.....	3	3	.....	6	1	7	9	4	6	13	15	15	82
San Juan.....	5	6	4	6	1	3	5	8	5	6	4	8	61
Candelaria.....	3	4	1	3	9	4	1	7	4	3	3	11	52
Santa Rosalia.....	5	1	6	4	5	3	3	1	1	3	4	3	39
Santa Teresa.....	5	5	1	4	2	4	2	2	.....	6	1	2	33
San Jose.....	5	1	3	.....	2	1	5	2	.....	.....	4	5	28
Total.....	34	32	28	31	29	24	31	32	25	40	39	60	405

TABLE No. 7.—*Data relating to the contracting parties.*

The contracting man:		The contracting woman:	
Number of marriages.....	405	Unmarried women.....	390
Unmarried.....	283	Widows.....	15
Widowers.....	23	Know how to read and write.....	377
Know how to read and write.....	382	Are related.....	4
Are related.....	4	Have children.....	90
Have children.....	91	Nationality:	
Nationality:		Venezuelans.....	378
Venezuelans.....	342	Spaniards.....	16
Spaniards.....	44	Italians.....	3
Italians.....	8	French.....	1
English.....	2	Other nations.....	7
French.....	2		
Others.....	7		

STILLBIRTHS.

By morti-nativity is indicated the relation existing between the total number of stillbirths and that of births and deaths occurring in a determinate period.

In Caracas this number was 109 in 1904, as against 142 in 1903, the former being classified as 64 males and 45 females, a rate which is almost universal throughout the world, and in this instance corroborates what Bertillon, an authority in the matter, says, to the effect that the male morti-nativity always exceeds the female.

This is a matter which deserves much attention, but the data I possess up to the present do not permit me to ascertain the legitimacy or illegitimacy, the nationality of the parents, and often even the sex. The civil register does not show this clearly.

I propose, depending in advance on your recognized kindness, to take steps to have this data transmitted to this office with fuller and more exact details.

Having concluded this lengthy statement regarding Caracas, we now have to consider the district parishes, some of which are suburbs of the capital and places of recreation for their residents.

Their partial tables do not show anything worthy of note, excepting their salubrity and the almost total absence of contagious and epidemic diseases.

The population increased in all of them and 75 marriages were celebrated.

## DEPARTMENT OF VARGAS.

In order that each section of territory called a department may figure in this report with its own features, I have deemed it advisable to make a sufficiently detailed study of the population of each. Therefore, there may be seen below a statement of the movement of the population and the causes of death in La Guaira, Maiquetia, Caraballeda, Naiguata, Carayaca, and Caruao.

From a study of these tables we deduce that in La Guaira there predominated in the year 1904 tuberculosis, with 47 deaths, malarial fevers, 16, and diseases of the gastro-intestinal system, with 45 deaths.

In Maiquetia, tuberculosis in the first place, 53, diseases of the digestive system, in a higher proportion even than in La Guaira, 62, for a lower mortality.

In Macuto, diseases of children, convulsions, eclampsia, intestinal parasites, and one or two cases of malarial and typhoid fever, the latter having undoubtedly been imported.

In Caraballeda dysentery caused some deaths, 11 out of 36 being due thereto. Tuberculosis and malarial fevers, together with convulsions, caused the rest.

There is nothing worthy of note in Naiguata, excepting several deaths from ophidian poisoning.

Carayaca, with a population of 5,000 inhabitants, incorporated to the Department of Vargas, has statistics for 6 months only. Its deaths numbered 61. Due to malaria, 11, and 9 to infantile convulsions.

Finally, Caruao, with 30 deaths, 13 due to whooping cough, which figure is quite alarming enough to seek a corrective measure if it should be repeated.

The sanitary-demographic movement of the Department of Vargas was the following:

## MORTALITY STATISTICS.

*Deaths by cause, age, sex, and nationality in the Department of Vargas in 1904.*

[Population of the Department of Vargas, 32,000.]

Epidemic diseases:		Circulatory system:	
Typhoid fever.....	13	Organic diseases of the heart.....	31
Erysipelas.....	1	Valvular diseases.....	20
Diphtheria.....	1	Arterial diseases.....	2
Whooping cough.....	16	Aneurisms.....	18
Grippe.....	2		
Scarlet fever.....	1	Total.....	71
Other epidemic diseases.....	2		
		Respiratory system:	
Total.....	36	Chronic bronchitis.....	5
		Pneumonia.....	33
General diseases:		Pleurisy.....	2
Tuberculosis of the lungs.....	122	Hemorrhage.....	2
Pott's disease.....	3	Asthma.....	1
Syphilis.....	5		
Alcoholism.....	2	Total.....	43
Cancer and other tumors.....	10	Digestive system:	
Malarial fevers.....	42	Enteritis.....	69
Rheumatism.....	1	Intestinal parasites.....	11
Chronic poisonings.....	2	Dysentery.....	60
		Cirrhosis.....	8
Total.....	187	Jaundice.....	1
		Abscesses of the liver.....	4
Diseases of the nervous system and organs of sense:		Peritonitis.....	1
Simple meningitis.....	13	Appendicitis.....	1
Cerebral congestion.....	11	Cholera morbus.....	2
Cerebral hemorrhage.....	5		
Epilepsy.....	1	Total.....	157
General paralysis.....	5	Genito-urinary system:	
Convulsions, nonpuerperal.....	16	Acute nephritis.....	4
Infantile convulsions.....	40	Bright's disease.....	3
Other diseases of the medulla.....	3	Diseases of the bladder.....	2
Tetanus.....	8		
		Total.....	9
Total.....	102		

Puerperal diseases:		Violent deaths:	
Puerperal septicemia.....	4	By firearms.....	1
Skin and cellular tissue:		Burns and scalds.....	2
Gangrene.....	5	Suicides.....	3
		Other violent deaths.....	5
Old age:		Sudden deaths.....	4
Congenital debility.....	6	Total.....	15
Senile debility.....	3		
Total.....	9	Ill-defined diseases.....	50
		Unknown causes.....	2
		Total.....	52

## RECAPITULATION.

Nervous system.....	102	Congenital debility.....	6
Circulatory system.....	71	Senile debility.....	3
Respiratory system.....	43	Violent deaths.....	15
Digestive system.....	157	Skin and cellular tissue.....	5
Genito-urinary system.....	9	Ill-defined diseases.....	50
Epidemic diseases.....	36	Unknown causes.....	2
General diseases.....	187	Grand total.....	691
Puerperal diseases.....	5		

*Ages.*

From 0 to 1 year.....	144	From 40 to 59 years.....	136
From 1 to 4 years.....	88	60 years and upward.....	117
From 5 to 19 years.....	75	Total.....	691
From 20 to 39 years.....	131		

*Nationality.*

Venezuelans.....	622	Germans.....	2
Spaniards.....	52	Other nations.....	9
Italians.....	3	Total.....	691
French.....	3		

*Civil status of the deceased.*

Unmarried.....	532
Married.....	99
Widowed.....	60
Total.....	691

*Births.*

Legitimate males.....	213
Legitimate females.....	210
Illegitimate males.....	236
Illegitimate females.....	190
Total.....	849

Deaths.....	691
Marriages.....	81

The Department of Guacaipuro, composed of Los Teques, Miquilén, Carrizal, San Pedro, San Antonio, San Diego, Tácata, and Paracotos, constitutes what we call "Los Altos" (The Heights), and, having a fine climate and fertile plantations, they form a magnificent part of the country.

Los Teques, a pleasant spot for recreation on account of its admirable topography and healthy climate, with a population of 4,000 inhabitants, had, in the second semester of 1904 (having been annexed in May to the Federal district), a mortality of 63, which, multiplied by 2 to give us that for the year, gives us a rate per thousand of 15.74, which is equal to or better than that of many European countries.

Dysentery and anemia, which diseases are endemic and responsible for many deaths in that section of Venezuela, as will be seen in the course of this report, produced the largest number of deaths, the diseases of the respiratory organs, tuberculosis of the lungs, bronchitis, etc., coming next in importance.

Miquilén, a large district of the town of Los Teques, also with 4,000 inhabitants, had 60 deaths. Ten, or one-sixth, were due to tuberculosis. This is explained by the fact that this place is selected by persons suffering from complaints of this character to recover their health and die there. There is a large number of ill-defined diseases (mostly dropsy) and where the cause is unknown. I attribute anemia as the cause of both, which disease, as already stated, is endemic there. This supposition is far from being a capricious one; it is based on a report in my hands signed by my esteemed colleague, Dr. Perdomo Hurtado, who is engaged in his profession there.

In Carrizal, San Pedro, San Antonio, and San Diego tuberculosis and anemia were responsible for many deaths, and in Táchata and Paracotos dysentery, malarial fevers, and anemia by anchylostomiasis.

## MORTALITY STATISTICS.

*Deaths by cause, age, sex, and nationality, in the Department of Guayaquiro in the second semester of 1904.*

[Population of the Department of Guayaquiro, 8,000.]

Epidemic diseases:		Respiratory system—Continued.	
Typhoid fever.....	1	Congestion of the lungs.....	1
Diphtheria.....	1	Broncho-pneumonia.....	5
Whooping cough.....	3		
Total.....	5	Total.....	15
General diseases:		Digestive system:	
Tuberculosis of the lungs.....	31	Enteritis.....	10
Syphilis.....	1	Hernia and intestinal obstructions.....	1
Cancer and other tumors.....	5	Intestinal parasites.....	18
Anemia and chlorosis.....	31	Dysentery.....	26
Malarial fevers.....	19	Cirrhosis.....	6
Rheumatism.....	1	Abscesses of the liver.....	2
Total.....	98	Peritonitis.....	3
Diseases of the nervous system and organs of the senses:		Total.....	66
Cerebral congestion.....	5	Genito-urinary system:	
Cerebral hemorrhage.....	1	Acute nephritis.....	2
Epilepsy.....	1	Puerperal diseases:	
General paralysis.....	2	Other accidents.....	1
Nonpuerperal convulsions.....	16	Skin and cellular tissue:	
Infantile convulsions.....	18	Gangrene.....	1
Tetanus.....	3	Old age:	
Total.....	46	Congenital debility.....	18
Circulatory system:		Senile debility.....	4
Pericarditis.....	3	Total.....	22
Organic diseases of the heart.....	3	Violent deaths:	
Valvular diseases.....	1	By firearms.....	1
Arterial diseases.....	4	Burns and scalds.....	2
Aneurisms.....	3	Suicides.....	1
Total.....	14	Poisoning.....	3
Respiratory system:		Other violent deaths.....	3
Pneumonia.....	7	Total.....	10
Pleurisy.....	2	Ill-defined diseases.....	45
		Unknown causes.....	16
		Total.....	61



## RECAPITULATION.

Nervous system.....	46	Congenital debility.....	18
Circulatory system.....	14	Senile debility.....	4
Respiratory system.....	15	Violent deaths.....	10
Digestive system.....	66	Skin and cellular tissue.....	1
Genito-urinary system.....	2	Ill-defined diseases.....	45
Epidemic diseases.....	5	Unknown causes.....	16
General diseases.....	98		
Puerperal diseases.....	1	Total.....	341

*Civil status.*

Unmarried.....	283
Married.....	31
Widowed.....	27
Total.....	341

*Ages of the deceased.*

From 0 to 11 years.....	65	From 51 to 60 years.....	27
From 1 to 10 years.....	73	From 61 to 70 years.....	15
From 11 to 20 years.....	26	From 71 to 80 years.....	9
From 21 to 30 years.....	47	81 years and over.....	6
From 31 to 40 years.....	34		
From 41 to 50 years.....	39	Total.....	341

*Nationality.*

Venezuelans.....	339
Spaniards.....	2
Total.....	341

*Births.*

Legitimate males.....	105	Illegitimate females.....	176
Legitimate females.....	104		
Illegitimate males.....	195	Total.....	580
Marriages.....			14

## DEPARTMENT OF SUCRE.

The Department of Sucre having been incorporated to gether with Guacaipuro last year to the western section of the federal district, it began to figure in statistics in July of this year.

Its component parts, Petare, Baruta, Hatillo, and Chacao, form a total of about 20,000 inhabitants, distributed in innumerable villages and hamlets.

Tuberculosis, dysentery, infantile convulsions, and malaria constitute the salient causes of death in this department.

Malaria here, as in Guacaipuro, is endemic, for which reason it would be a measure of great judgment and benefit to extend thereto the scientific measures I request for the Department of Guacaipuro.

Even at the risk, Citizen Governor, of making this report longer than it should be, I am going to take the liberty of informing you of my anxiety that you make a personal investigation of that most important matter, anemia by anchylostomy, a disease which attacks the most useful, healthiest, and most laborious portion of the populators of the so-called "Los Altos." I believe that if your enlightened Government would appoint a commission composed of Bachelor Rangel, as intelligent as he is modest, of Dr. Perdomo Hurtado, a practicing physician in Los Teques, and consequently acquainted with the country and the disease, and of the undersigned, who would contribute no other scientific capital but his love of medicine, and especially of hygiene, which commission will study the disease, its causes, and the manner of avoiding it, the little money which this would cost could not be invested to better purpose, in view of the great benefit which would be felt in the near future.

Table No. 10 will give a clearer idea of what I have said and will show the movement of population, with all its details, in the year 1904.

## MORTALITY STATISTICS.

Deaths by cause, age, sex, and nationality in the Department of Sucre in the year, 1904.

[Population of the Department of Sucre, 20,000.]

Epidemic diseases:		Respiratory system:	
Diphtheria.....	4	Acute bronchitis.....	5
Whooping cough.....	6	Pneumonia.....	5
Grippe.....	1		
		Total.....	10
Total.....	11		
General diseases:		Digestive system:	
Tuberculosis of the lungs.....	29	Enteritis.....	22
Syphilis.....	2	Dysentery.....	19
Cancer and other tumors.....	2	Cirrhosis.....	6
Anemia and chlorosis.....	15	Peritonitis.....	1
Malarial fevers.....	14	Appendicitis.....	3
		Cholera morbus.....	2
Total.....	62	Total.....	53
Diseases of the nervous system and of the organs of the senses:		Genito-urinary system:	
Meningitis.....	7	Acute nephritis.....	2
Cerebral hemorrhage.....	3	Bright's disease.....	3
General paralysis.....	1	Diseases of the bladder.....	1
Nonpuerperal convulsions.....	14		
Infantile convulsions.....	20	Total.....	6
Tetanus.....	1	Puerperal diseases:	
Total.....	46	Convulsions.....	4
		Other accidents.....	6
		Total.....	10
Circulatory system:		Skin and cellular tissue:	
Endocarditis.....	5	Gangrene.....	1
Organic diseases of the heart.....	9	Old age:	
Arterial diseases.....	3	Congenital debility.....	6
Aneurisms.....	5	Violent deaths:	
Embolism.....	2	By firearms.....	3
Total.....	24	Ill-defined diseases.....	18

## RECAPITULATION.

Nervous system.....	46	Puerperal diseases.....	11
Circulatory system.....	24	Congenital debility.....	6
Respiratory system.....	10	Violent deaths.....	3
Digestive system.....	53	Skin and cellular tissue.....	1
Genito-urinary system.....	6	Ill-defined diseases.....	17
Epidemic diseases.....	11		
General diseases.....	62	Grand total.....	250

## Ages.

From 0 to 11 months.....	69	From 51 to 60 years.....	14
From 1 to 10 years.....	32	From 61 to 70 years.....	13
From 11 to 20 years.....	30	From 71 to 80 years.....	2
From 21 to 30 years.....	40	81 years and over.....	10
From 31 to 40 years.....	27		
From 41 to 50 years.....	13	Total.....	250

## Nationality.

Venezuelans.....	246
Spaniards.....	4
Total.....	250

*Civil status of deceased.*

Unmarried.....	206
Married.....	28
Widowed.....	16
Total.....	250
Marriages.....	50

*Births.*

Legitimate males.....	60	Illegitimate females.....	94
Legitimate females.....	67	Total.....	320
Illegitimate males.....	99		

Citizen Governor, all that has been stated in minute detail, in which if anything be lacking it should be attributed not to neglect, but to my intellectual failings, covers everything which has occurred from a sanitary and demographic standpoint in the vast territory intrusted by the citizen provisional President of the Republic to your patriotism and partisan decision. The needs are numerous. I recognize them. The time during which the country has been enjoying peace is short. The good will to remedy them is sufficient for their realization. May God grant us tranquillity and the miracle of seeing Caracas first, and then the other towns, enjoying conditions which can not be bettered in a short time, in so far as health is concerned.

I would consider myself fortunate if this report meets with your approval.

A. HERRERA VEGAS,  
*Director of Hygiene and Statistics.*

## EXHIBIT "B."

## NATIONAL MORTALITY.

## STATISTICS OF DISEASES.

Below may be seen the general statistical tables of the mortality in the second semester of 1904 in the States of the Republic and in the Federal district, classified by diseases and causes of death.

The classification of M. Bertillon has been adopted by the statistical office of Venezuela, and these tables are a recapitulation of the work of classification for the said six months.

Only two States did not send their reports—Guarico and Táchira; but surely we will have the data for these two entities in the new year. On account of the absence of these two States and on account of a large number of diseases not being classified, the general computation of mortality here is not equal to the mortality shown by the demographic table.

The total number of classified deaths reached 23,603, of which 39 per cent were caused by the four following diseases:

Malarial fevers (all manifestations).....	4, 132
Tuberculosis.....	2, 116
Dysentery.....	1, 630
Tetanus.....	1, 445

Then follow in order of magnitude:

Infantile convulsions (eclampsia, etc.), 463; pneumonia, 416; organic diseases of the heart, 432; anemia, chlorosis, 416; whooping cough, 379; diarrhea and enteritis in children 2 years of age and over, 338; nonpuerperal convulsions, 318; diarrhea and enteritis in children under 2 years of age, 299; intestinal parasites, 293, etc.

The four principal diseases produced, of the total number of deaths, the following proportions, in round numbers:

	Per cent.
Malarial fevers.....	18
Tuberculosis.....	8
Dysentery.....	6
Tetanus.....	6

## NATIONAL MORBILITY.

## STATISTICS OF DEATHS.

General statement of the deaths which occurred in the Republic during the second six months of the year 1904, classified by diseases and causes of death.

Nomenclature of diseases and causes of death.	General total.	Nomenclature of diseases and causes of death.	General total.
<i>I. Diseases in general.</i>		<i>II. Diseases of the nervous system and of the organs of the senses.</i>	
1. Typhoid fever.....	564	60. Encephalitis.....	22
2. Exanthematic typhus.....	79	61. Meningitis.....	148
3. Relapsing fever.....	644	61b. Epidemic cerebrospinal meningitis.....	44
4. Intermittent fever and malarial cachexia.....	2,762	62. Progressive locomotor ataxia.....	6
4b. Malarial cachexia.....	83	63. Other diseases of the spinal cord.....	9
5. Smallpox.....	125	64. Congestion and hemorrhage of the brain.....	259
6. Measles.....	73	65. Softening of the brain.....	21
7. Scarlet fever.....	20	66. Paralysis without any indicated cause.....	72
8. Whooping cough.....	379	67. General paralysis.....	124
9. Diphtheria and croup.....	108	68. Other forms of mental diseases.....	11
10. Diphtheria.....	22	69. Epilepsy.....	66
11. Influenza.....	77	70. Convulsions (nonpuerperal).....	318
12.....	.....	71. Convulsions of children (eclampsia).....	463
13. Cholera nostras.....	14	72. Tetanus.....	1,445
14. Dysentery.....	1,631	73. Chorea.....	.....
14b. Epidemic dysentery.....	116	74. Other diseases of the nervous system.....	68
15. Bubonic plague.....	16	75. Diseases of the eyes and annexes.....	3
16. Yellow fever.....	48	76. Diseases of the ear.....	1
17. Leprosy.....	31	<i>III. Diseases of the circulatory system.</i>	
18. Erysipelas.....	66	77. Pericarditis.....	43
19. Other epidemic diseases.....	30	78. Acute endocarditis.....	21
20. Purulent infection and septicemia.....	8	79. Organic diseases of the heart.....	432
21. Glanders and farcy.....	43	80. Angina pectoris.....	157
22. Malignant pustule.....	4	81. Diseases of the arteries, atheroma.....	82
23. Rabies.....	4	81a. Aneurism, etc.....	141
24. Actinomycosis, trichinosis, etc.....	.....	82. Embolism and thrombosis.....	7
25. Pellagra.....	.....	83. Diseases of the veins (varicose veins, hemorrhoids, phlebitis, etc.).....	7
26. Tuberculosis of the larynx.....	86	84. Diseases of the lymphatic system (lymphangitis, etc.).....	17
27. Tuberculosis of the lungs.....	1,726	85. Hemorrhage.....	102
28. Tuberculosis of the meninges.....	41	85a. Valvular diseases.....	92
29. Abdominal tuberculosis.....	92	86. Other diseases of the circulatory system.....	28
30. Pott's disease.....	11	<i>IV. Diseases of the respiratory system.</i>	
31. Cold abscess and abscess by congestion.....	20	87. Diseases of the nasal fossæ.....	11
32. White swelling.....	14	88. Diseases of the larynx.....	22
33. Tuberculosis of other organs.....	102	89. Diseases of the thyroid body.....	2
34. General tuberculosis.....	69	90. Acute bronchitis.....	219
35. Scrofula.....	57	91. Chronic bronchitis.....	97
36. Syphilis.....	103	92. Bronchopneumonia.....	71
37. Gonorrhœa in adults.....	6	93. Pneumonia.....	436
38. Gonococcal diseases of children.....	6	94. Pleurisy.....	185
<i>Cancer and other malignant tumors.</i>		95. Congestion and apoplexy of the lungs.....	157
39. Of the bucal cavity.....	11	96. Gangrene of the lungs.....	97
40. Of the stomach, of the liver.....	72	97. Asthma.....	66
41. Of the peritoneum, intestines, and rectum.....	21	99. Other diseases of the respiratory system (excepting consumption).....	.....
42. Of the genital organs of women.....	26	<i>V. Diseases of the digestive system.</i>	
43. Of the breast.....	10	100. Diseases of the mouth.....	8
44. Of the skin.....	7	101. Diseases of the larynx.....	3
45. Of other or unspecified organs.....	58	102. Diseases of the esophagus.....	18
46. Other tumors (excepting female genital organs).....	4	103. Ulcer of the stomach.....	36
47. Acute articular rheumatism.....	102	104. Other diseases of the stomach (excepting cancer).....	45
48. Chronic rheumatism and gout.....	.....	105. Diarrhœa and enteritis (in children under 2 years of age).....	299
49. Scurvy.....	40	105b. Chronic enteritis.....	200
50. Diabetes.....	46		
51. Exophthalmic goiter.....	10		
52. Addison's disease.....	1		
53. Leukemia.....	2		
54. Anemia, chlorosis.....	416		
55. Other general diseases.....	.....		
56. Acute and chronic alcoholism.....	68		
57. Lead poisoning.....	86		
58. Other chronic poisonings.....	2		
59. Other poisonings.....	2		

Nomenclature of diseases and causes of death.	General total.	Nomenclature of diseases and causes of death.	General total.
<i>V. Diseases of the digestive system—Continued.</i>		<i>XI. Diseases of the locomotor system—Continued.</i>	
106. Diarrhea and enteritis (in children 2 years of age and over).....	338	148. Amputation.....	4
107. Intestinal parasites.....	293	149. Other diseases of the organs of locomotion.....	22
108. Hernia, intestinal obstructions.....	40	<i>X. Malformations.</i>	
109. Other intestinal diseases.....	67	150. Congenital malformations (not including still births).....	2
110. Jaundice.....	24	<i>XI. Early infancy.</i>	
111. Hydatid tumors of the liver.....	36	151. Congenital debility, icterus and sclerema.....	113
112. Cirrhosis of the liver.....	94	152. Other diseases peculiar to early infancy.....	222
113. Biliary calculi.....	33	153. Lack of care.....	63
113a. Abscesses of the liver.....	89	<i>XII. Old age.</i>	
114. Other diseases of the liver.....	114	154. Senile debility.....	101
115. Diseases of the spleen.....	56	<i>XIII. Diseases due to external causes.</i>	
116. Peritonitis (nonpuerperal).....	54	<i>A. Suicide.</i>	
117. Other diseases of the digestive system (excepting cancer and tuberculosis).....	39	155. Suicide by poison.....	4
118. Appendicitis and phlegmon of the iliac fossa.....	10	156. Suicide by asphyxia.....	1
118a. Infantile cholera.....	37	157. Suicide by hanging or strangulation.....	2
<i>VI. Diseases of the genitourinary system.</i>		158. Suicide by drowning.....	2
119. Acute nephritis.....	47	159. Suicide by firearms.....	15
120. Bright's disease.....	17	160. Suicide by sharp instruments.....	9
121. Other diseases of the kidneys and annexes.....	.....	161. Suicide by precipitation from an elevation.....	3
122. Calculi of the urinary tract.....	38	162. Suicide by crushing.....	.....
123. Diseases of the bladder.....	16	163. Other suicides.....	.....
124. Other diseases of the urethra, urinary abscesses.....	33	<i>B. Homicide.</i>	
125. Diseases of the prostate gland.....	27	163a. Homicide by a sharp instrument.....	22
126. Nonvenereal diseases of the male genital organs.....	6	163b. Homicide by firearms.....	37
127. Metritis.....	26	163c. Homicide by fracture.....	4
128. Uterine hemorrhage, nonpuerperal.....	1	163d. Homicide by poisoning.....	5
129. Uterine tumors, noncancerous.....	11	163e. Homicide by asphyxia.....	1
130. Other uterine diseases.....	13	163f. Homicide by drowning.....	2
131. Cysts and other tumors of the ovary.....	15	163g. Homicide by precipitation from an elevation.....	1
132. Other diseases of the female genital organs.....	10	<i>C. Other external causes.</i>	
133. Nonpuerperal diseases of the breast (excepting cancer).....	10	164. Fractures.....	14
<i>VII. The puerperal state.</i>		165. Dislocations.....	1
134. Accidents of pregnancy.....	.....	166. Other accidental traumatisms.....	46
135. Puerperal hemorrhage.....	51	167. Burns by fire.....	27
136. Other accidents of labor.....	68	168. Burns by corrosive substances.....	1
137. Puerperal septicemia.....	84	169. Sunstroke.....	8
138. Puerperal albuminuria and convulsions.....	25	170.....	.....
139. Phlegmasia alba dolens, puerperal.....	20	171. Electric shock.....	2
140. Other puerperal accidents.....	35	172. Accidental drowning.....	27
<i>Sudden death.</i>		173. Inanition.....	19
141. Puerperal diseases of the breast or mammary gland.....	.....	174. Absorption of deleterious gases.....	2
<i>VIII. Diseases of the skin and cellular tissue.</i>		175. Other acute poisonings.....	19
142. Gangrene.....	49	176. Other external violence.....	34
143. Anthrax or furuncle.....	1	176a. Bites of poisonous animals.....	43
144. Phlegmon, acute abscess.....	1	<i>XIV. Ill-defined diseases.</i>	
145. Other diseases of the skin and annexes.....	16	177. Dropsy.....	1,285
<i>XI. Diseases of the locomotor system.</i>		178. Sudden death.....	131
146. Nontuberculous diseases of the bones.....	14	179. Causes of death not specified or ill-defined.....	2,676
147. Arthritis and other diseases of the joints (except tuberculosis and rheumatism).....	7	Total.....	23,603

Total of deaths occurring during the second half of the year 1904, classified by diseases and causes of death:

	Per cent.
Tetanus.....	6
Dysentery.....	6
Tuberculosis in general.....	8
Malaria under several forms.....	18
Several diseases and causes of death.....	62

**REMARKS ON THE GEOGRAPHIC DISTRIBUTION OF THE YELLOW-FEVER MOSQUITO, AND SOME OTHER POINTS CONNECTED WITH THIS INSECT. BY DR. L. O. HOWARD, PH. D., CHIEF OF THE BUREAU OF ENTOMOLOGY OF THE U. S. DEPARTMENT OF AGRICULTURE AND CONSULTING ENTOMOLOGIST OF THE UNITED STATES PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE.**

Doctor Howard expressed his pleasure at the honor conferred upon him by the congress in affording him the privileges of the floor and in inviting him to say something on the subject of his recent work connected with *Stegomyia fasciata*. He stated that he had noticed in the newspapers that the president, Surgeon-General Wyman, had distributed to members of the congress the recent revision of the paper entitled "Concerning the Geographic Distribution of the Yellow-Fever Mosquito," originally published in November, 1903, but now revised to September 10, 1905.

The speaker expressed the hope that members of the congress coming from Central American and South American countries would do him the great service to read with some care the generalizations made on pages 7 and 8 of the paper in question, and that they would apply the temperature law there formulated to regions in their own countries in which *Stegomyia* exists and into which they fear it may be introduced.

Corroborating evidence, especially from the Southern Hemisphere, would be of great importance. He also begged that representatives from Central American and South American countries would do him the great favor of securing, if possible, the sending of species of mosquitoes from these countries to the United States National Museum. Persons in those countries working especially upon mosquitoes would gladly be assisted by Doctor Howard's corps of assistants in the determination of species, and the speaker would gladly exchange named specimens for unnamed specimens.

When Doctors Reed, Carroll, and Lazear first went to Cuba all of them came to the Department of Agriculture and made some preliminary studies of the mosquitoes in the collections of which the speaker had charge. They studied with especial care the anatomical peculiarities of mosquitoes, of importance in determining species, and were therefore thoroughly posted when they proceeded to Cuba and began their epoch-making experiments.

Doctor Howard early realized, after the satisfactory proof gained of the yellow-fever relation of *Stegomyia*, that the geographic distribution of this species is of enormous importance as a basis of sound quarantine measures, and he therefore began at once with the limited means at his command to investigate this important subject.

The preliminary results were published in the first edition of the paper just referred to in November, 1903. In 1904, however, after having made his generalizations and satisfied himself that for all practical purposes *Stegomyia fasciata* is a tropical and Lower Austral species, he made an effort to determine the line of northern distribution of the species in the United States. He started an assistant in Texas in June, who followed up the supposed northern line of distribution to Tennessee, where his place was taken by another assistant in August, who carried the investigation on to the Atlantic coast. The results of this work have been of great importance, as indicated in the second edition of the paper in question. Surgeon-General Wyman has been good enough to say that the facts ascertained in this investigation have been of great service to the Public Health and Marine-Hospital Service during the yellow-fever outbreak of the present year.

It so happened that, while it was important to issue this paper at the earliest possible moment, two important lines of investigation bearing on this point were in progress in Central America and in the West Indies. Neither of the investigators in these regions had returned to Washington at the date the paper was written and neither of them had sent in full reports. Within the past few days both men have returned to Washington and have submitted verbal reports, and the speaker is therefore able at this time, fortunately, to give, very briefly, some of the additional facts ascertained by these investigators.

Mr. Frederick Knab started at Veracruz in June, went to Cordova, Mexico, south to the Tehuantepec Railroad and crossed the isthmus from Santa Lucretia to Salina Cruz, stopping at Rincon Antonio and at Tehuantepec. He afterwards visited points in Guatemala,

Costa Rica, and Salvador. The points at which he found *Stegomyia fasciata*, and which are not recorded in the paper distributed at this meeting, were as follows:

Rincon Antonio (Oaxaca), Mexico.  
 Tehuantepec (Oaxaca), Mexico.  
 Salina Cruz (Oaxaca), Mexico.  
 Acapulco, Mexico.  
 Champerico, Guatemala.  
 San Jose, Guatemala.  
 San Salvador, Salvador.

Sonsonate, Salvador.  
 Corinto, Nicaragua.  
 Punta Arenas, Costa Rica.  
 Esparta, Costa Rica.  
 San José, Costa Rica.  
 Port Limon, Costa Rica.

The other investigator, Mr. A. Busck, started at Trinidad and proceeded northward through the Antilles to Santo Domingo, thence returning to Washington. The points at which Mr. Busck found *Stegomyia fasciata*, and which are not recorded in this paper, are as follows:

Trinidad: Cedros (extreme southwest corner), Pitch Lake, Port of Spain, Monserat, Arima (center of island).  
 Tobago Island.  
 Grenada.  
 St. Vincent.  
 Barbados.  
 St. Lucia.

Martinique, Port of France, but not Pelee.  
 Dominica.  
 Guadeloupe, Basse Terre.  
 St. Thomas.  
 Porto Rico: Ponce and Mayaguez.  
 Santo Domingo: St. Cristobal (2,000 feet elevation), Sanchez, Port of Plata.

Some interesting points have been brought out by the observations of both of these workers. For example, Mr. Knab found that at San José, Costa Rica, a city which has an elevation of perhaps 3,000 feet, the yellow-fever mosquito is not abundant, and he is informed that there is no history of yellow fever at that place; in fact, convalescents from the coast are brought to San José by railroad. It occurs to the speaker that we have here possibly a case comparable with the extralimital regions in the United States to which the yellow-fever mosquito is carried during the summer time on railroads or by steamboats, and where it breeds for one or more generations before the close of the season. These are not permanent breeding regions, but regions where the yellow-fever mosquito may be found some years—perhaps every year—late in the summer.

Mr. Busck found that the yellow-fever mosquito is strangely scarce in Santo Domingo City. It is common in St. Cristobal, 2,000 feet elevation, twenty miles inland. This curious fact seems inexplicable. It is the history of the distribution of this mosquito in other parts of the world that the coast-lying cities are most seriously affected; mosquitoes are most numerous there, and the disease is of course most prevalent. Mr. Busck was informed that there has never been an epidemic of yellow fever in Santo Domingo City. Neither he nor I have consulted the records to ascertain the accuracy of this report.

The highest point of the Tehuantepec Railroad is Rincon Antonio. The railroad surgeon at that point, Doctor Athey, was making a strong antimosquito fight, but was not certain that *Stegomyia* existed at that point. Mr. Knab found it abundantly in the workmen's houses, and discovered that much labor was being wasted in the kerosene operations, since ditches and large pools which were not breeding mosquitos of any kind were being treated, whereas small accidental receptacles and small breeding places like the footprints of cattle in wet land, were being overlooked. He also found that one large water barrel in which there were hundreds of larvæ, had been overlooked.

So much concerning distribution. Many observations were made in tropical regions by both of these observers which are all more or less interesting. Mr. Knab caught *Stegomyia* on the steamer a day out of Kingston, Jamaica. On a former trip Mr. Busck caught *Stegomyia* on a Ward Line steamer in New York Harbor after returning from Cuba.

In regard to breeding places, both of these observers were interested in the fact that *Stegomyia* breeds always in clear water, and seldom or never in foul water, and always in artificial receptacles, except in one case where Mr. Knab found, at Cordova, Mexico, this species breeding in a transient street puddle. The almost universal clear-water breeding noted by these observers is of especial interest in comparison with the fact noted by Carroll, Dupree, and other observers that the growth of *Stegomyia* larvæ is greatly hastened in the laboratory by placing a small amount of human excrement in the water. The house of the American counsul at San Salvador was especially infested with *Stegomyia*. In a church at Grenada Mr. Busck found *Stegomyia* breeding abundantly in the holy-water font, and also in several other churches in different West Indian islands. The adult mosquitoes were abundant in these churches.

I would say that I took the trouble, when Mr. Busck told me this, to telephone to Rev. Dr. Stafford, here in Washington, and ask him a few questions to find out what was put in the holy water in the fonts, and he told me that they were in the habit of putting salt

in the ordinary fonts. Now they are using salt as a mosquito killer in New Orleans in the ditches and gutters, during the last year, and therefore it seems to me if the priests would put a little more salt in the fonts, not a mere pinch but enough to have an appreciable effect, that much good would be accomplished; because not only was the *Stegomyia* found breeding in all the holy-water fonts but Mr. Busck found in all the churches the *Stegomyia* flying about and biting the people.

In Trinidad he found that beer bottles were used as a border ornament for flower beds. The necks of the bottles were stuck into the ground and in the slightly concave bottoms (turned upward) water had accumulated and *Stegomyia* was breeding. In the broken bottles forming the chevaldefrise on the stone wall around the jail he found that water had accumulated and *Stegomyia* was breeding.

Mr. Knab, at Acapulco, found the mosquitoes especially abundant in the patio of the hotel where there were beautiful flowers protected from ants by water in shallow trenches. In this water *Stegomyia* was breeding abundantly.

Many mental notes were made by both gentlemen which bear upon the fact that *Stegomyia fasciata* has become practically a domesticated species, or at all events a domestic species. The hiding habits of the adult, its general air of familiarity with man, its habit of approaching from behind instead of from in front, its habit of concealment in garments, working into the pockets and under the coat lapels and collars, and of crawling up under the clothes to bite the legs rather than the exposed ankles, are all indications of familiarity with the human species for very many generations. It is suggested by Mr. Knab also that the loss of sound by this species may have been the result of the lay of the survival of the fittest. It is interesting to note that Goeldi, of Brazil, has advanced the theory that this species bites during the warm part of the day more frequently than at any other time, because it is attracted by the odor of perspiration, and Mr. Knab, from his observations this summer, is inclined to think that *Stegomyia* does bite more frequently during the middle of the day. Mr. Busck, from his observations in the West Indies, is inclined to think that the time of most vigorous biting is late in the afternoon.

There is much still to be learned about this insect, as much as it has been studied in many different countries. Conflicting reports of its habits in different localities indicate either a considerable variation in habit or the possible publication of erroneous data. Argramonte says that in Cuba *Stegomyia* can rarely be induced to bite until four days old. Mr. Busck, who represented the Bureau of Entomology of the United States Department of Agriculture at the St. Louis Exposition, and who made the observations on the extralimital breeding of this species in the autumnal months at St. Louis, states that specimens bred in the morning would bite in the evening. Dupree states that in Louisiana the species bites without coaxing in twenty-four hours.

Another interesting point is the contention of Doctor Souchon, president of the State board of health of Louisiana, of the improbability of *Stegomyia* on infected fruit vessels coming from Central American ports to New Orleans becoming infected before arrival at quarantine stations. This is based upon the statement, probably derived from Cuban sources, that females must be impregnated before they will bite, and that five to seven days elapse before a second biting. The observations of Mr. Busck, just quoted, show that impregnation is not necessary before biting, and that reared females would bite a second time after the lapse of forty-eight hours. Doctor Dupree, of Baton Rouge, found that females isolated in the pupal state and reared apart from the males "bite frequently and promptly." Is it possible that reliance upon the apparently erroneous conclusions above stated may be responsible for the New Orleans outbreak of the present year?

The question of the distance to which infected *Stegomyia* will fly as affecting the distances at which vessels should be anchored from infected ports is another important point which deserves more extensive investigation. Surg. A. H. H. Russell, of the United States Navy, has made some interesting but as yet inconclusive observations on this point which have not yet been published. As bearing upon this point, Mr. Busck states that at L'Abrea, Trinidad, there is a long pier built by the asphalt company, near the end of which the superintendent erected his house in order to be free from mosquito molestation. The experiment was successful, and he lived in peace until later another official built, for similar purposes, his house in the middle of the pier. This apparently afforded just the right interval for the *Stegomyia* to spread from the shore to the house in the middle of the pier, and from that house to the one on the end of the pier, and both houses became infected. The entire length of the pier was about 400 feet.

These are a few of the many important points still demanding attention of the entomologists and medical men.

It is perhaps hardly necessary to add, since so much evidence has already been published in regard to the fact that *Stegomyia fasciata* is a house mosquito, that it is never found in the bush. And yet it may be of some importance to emphasize the point here, since both Mr. Busck and Mr. Knab are skilled entomologists and skilled students of mosquitoes. The nonrecognition of *Stegomyia* in the bush by any one else, therefore, should not be received with the same credence as a statement of this kind coming from these men.



**REMARKS OF DR. H. L. E. JOHNSON, OF WASHINGTON, D. C.,  
MEMBER OF THE BOARD OF TRUSTEES OF THE AMERICAN  
MEDICAL ASSOCIATION.**

Mr. President, members of the Convention, and guests, the title of this paper is, "Will ætologic naming of diseases influence public opinion?" The principal object of sanitary and medical science and study at the present time is the prevention and limitation of disease.

Pathologic, biologic, and chemic laboratory investigation have made valuable advances in determining the cause and origin transmission, scientific recognition, modification, and arrest of many of the morbid processes affecting mankind and the lower animals.

Much good has been accomplished, more good will follow as a result of future labors, but before a universal acceptance and a successful practical application of the facts demonstrated in the laboratory is possible, it is apparent that the lay public must be instructed and convinced.

The lay public is generally skeptical about new medical facts and discoveries, and until they appreciate the value and importance of sanitary, curative, and preventative measures they will ridicule our teachings and obstruct our methods. Legislators keep pace with the lay public and press, consequently sufficient appropriations for maintaining proper health conditions are seldom made, either by a State or nation. Generally speaking, belief on the part of the public in our theories of cause and prevention of disease is essential in our crusades for health, and to this end health matters should be made a part of even a common-school education and should be supplemented by systematic lectures in terms appreciable by all. The baths gave Rome her health and vigor. The relation of fly infection as a factor in enteric fever and tuberculosis is established, also the rôle played by the mosquito in malaria and yellow fever, but the lay public and press, notwithstanding the unanimity of medical opinion on these points, has not entirely indorsed our views or given us necessary support in our efforts to overcome these preventable diseases.

Cause and effect in each class should be clearly demonstrated to the public, and those diseases which depend for their dissemination upon an intermediary host, as, for example, malaria and yellow fever, should be given a name associated with or indicating their ætiology. viz: Malarial fever should be called anopheles fever, infection or poisoning. Yellow fever, *Stegomyia* fever, infection or poisoning. Thus named, their origin would be indicated and the necessity for the extermination of the insects which cause the respective diseases forcibly suggested.

The medical profession and the public are mutually dependent for the promotion of sanitation and elimination of disease, and cooperation in these matters depends largely on a liberal education of the public, along the established health lines.

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**REPORT ON THE YELLOW FEVER IN CUBA, BY DR. JUAN  
GUITERAS.**

The maintenance in Cuba of the prophylactic measures invented by Dr. C. J. Finlay and instituted by the American Government of intervention against the yellow fever has resulted in: First, the continued freedom from yellow fever throughout our territory; and, second, the conclusive demonstration that the bite of an infected mosquito is the only natural way of transmission of yellow fever.

In presenting this résumé of what has been done in Cuba during the last three years, I shall advance argument in favor of the second of these two propositions.

This has been done, because in some of our sister republics there is still some hesitancy in admitting and following up to all its logical conclusions the doctrine of the mosquito transmission of yellow fever. The people of these countries have not been educated to a complete understanding of this doctrine, and hence the continued prevalence of the disease in some of them, and its invasion of others.

I repeat what I stated at the last meeting of this conference—namely, that it is not possible to carry out successfully the prophylactic measures against yellow fever without the cooperation of the people. A community in which the announcement of the presence of a case of yellow fever produces ungovernable excitement is not going to permit its health authorities to make such an announcement or to surround the patient with the proper safeguards. Such announcement is sure to be followed by serious interruption of business, commercial restrictions, and violent quarantines. A curious vicious circle is, in fact, established, which may be concisely expressed as follows: Great excitement and disturbance follows upon the announcement of a case of yellow fever, because everybody fears—often with reason—that there must be other cases concealed; and, on the other hand, cases are concealed for fear of bringing about damaging excitement.

The feeling of security that prevails in Habana is based on the acceptance of the mosquito doctrine by the people, and the conviction that the health authorities will act promptly and openly in the presence of any suspicious case.

In Las Animas Hospital, the yellow-fever hospital of Habana, we find perpetually present and in active operation all the causes that might, according to the older views, give rise to the spontaneous origin or to the propagation of yellow fever. It is now over four years that the theorists of the old school have been in vain watching for these causes, still supposed to be lurking in the soil, to renovate their activity and again renew the horrors of the old endemic of the Caribbean Sea.

The last days of the isterode endemic in Cuba have been related in a paper read before the Sociedad de Estudios Clinicos of Habana by Dr J. Le Roy in April of 1902, under the title of "Statistics of Yellow Fever and Disappearance of the Disease from Habana as Demonstrated by the Data of the said Statistics."

The agony of the great endemic extended over a period of seven months, namely, from the 16th of February to the 28th of September of 1901, the date of the last autoctonous case in Habana.

It is well to recall that at the time of starting the antimosquito campaign, in February of 1901, there had been since 1898 an inflow of 42,000 immigrants. There was, therefore, no lack of raw material for the infection to work upon.

We shall not repeat the details of the new method employed to combat yellow fever. The method has been accepted, at least in theory, as the only procedure for the eradication of the disease. Suffice it to say that it consists in protecting every case of yellow fever from the bite of mosquitoes and in destroying all the mosquitoes that may have bitten patients with yellow fever—that is to say, all the insects found in the vicinity of the patient. This was done with our autoctonous cases, and the vigilance of our maritime quarantine and of our immigration bureau enabled us to act in the same manner with all imported cases.

The effect of these measures may be followed in the statistics for the year 1901:

In January we had 27 cases of yellow fever.

In February we had 10 cases. The campaign was started in this month, at the time when, as was usually the case, the morbidity from yellow fever was reaching its minimum. The success obtained in Habana, as well as other theoretical considerations, lead us to believe that this is the best time to initiate the campaign in the endemic foci.

In March we had 2 cases and 1 imported.

In April we had 2 cases.

In May we had 5 cases and 1 imported, thus showing that the customary annual epidemic was beginning to assert itself.

In June we had 1 case and 1 imported.

In July we had 6 cases and 6 were imported from a neighboring town.

In August we had 7 cases and 4 were imported.

In September we had 9 cases. Two of these were taken sick on the 28th, and they were the last to originate in the city of Habana.

We present this statistical résumé because the last cases of the dying endemic have a very special interest in connection with the experimental cases inoculated at Las Animas Hospital. These were, generally speaking, the most severe that have been obtained by the application of laboratory mosquitoes, and they possess special interest as evidence of the transmission of the infection of the mosquito, because in two of them the post-mortem lesions characteristic of yellow fever were demonstrated.

Some authors, however, who have attempted to argue against the acceptance of this mode of transmission of the disease have rejected the evidence of all the experimental cases. The mild cases have been rejected because their symptoms were not sufficiently developed, and of the severe cases it has been said that they did not contract the disease through the mosquito inoculation, but through ordinary exposure to the unknown cause.

Thus Professor Zanarelli and some of our Brazilian conferees have maintained that the experimental cases at Las Animas Hospital are of no value because they occurred in a yellow-fever hospital and in a city where there was prevailing at the time an epidemic of the disease. Our conferees are mistaken. We have seen, in fact, from the statistics above quoted, that there was no epidemic at the time, but only the last manifestations of the passing of the great endemic in the shape of a few sporadic cases.

Nothing is easier than the demonstration that Las Animas Hospital was not infected at the time of these experiments. The inoculated cases in question were taken sick on the 11th, 12th, 14th, 17th, 18th, and 20th of August. Let us now look at the movement of other yellow-fever cases in the said hospital during those days and during the preceding months of 1901, as represented in the following table:

Table of cases of yellow fever treated in Las Animas Hospital during the year 1901 up to the 1st of September, classified according to their source.

Month.	Cases from Habana.	Imported cases.	Experimental cases.
January.....	3	2	0
February.....	1	1	1
March.....	1	1	0
April.....	1	0	0
May.....	1	1	0
June.....	0	0	0
July.....	0	0	0
August.....	0	1	6

It will be seen that the cases treated in hospital had gradually fallen off, and ceased altogether during June and July, which is the very period in which an infected building ought to have begun to produce its crop of amarillic infections. And it can not be said that this immunity was due to the absence of susceptible individuals in the hospital, because we had there, since the 22d of February, 1901, besides the ordinary run of cases of other fevers, most of whom were nonimmunes—we had, I say, a number of young immigrants, recently arrived, who had been brought from the immigration station at Triscornia for our inoculation experiments. During the month of August there were 12 of these young Spaniards in the hospital buildings. The nonimmune population of the hospital appears in the following table:

Table of nonimmunes residing in Las Animas Hospital during the month of August, 1901

Cases of typhoid fever.....	3
Cases of orchitis.....	1
Cases of uncinariasis.....	4
Cases of febricula.....	2
Total of nonimmune patients.....	10
Nurses and attendants.....	5
Young immigrants.....	12
Grand total of nonimmunes.....	27

Of this nonimmune population, consisting of 27 individuals, only 6 were attacked by the fever, and they were precisely the 6 who were experimentally bitten by mosquitoes infected on a grave case of yellow fever.

We have still to study the one case that appears in the column of imported cases for the month of August in our first table. Let us see whether this patient might have given origin to the small epidemic of six cases during August at Las Animas Hospital. He was admitted on the 6th of August from the steamer *Monterey* from Mexico. According to our knowledge of the epidemiology of yellow fever this imported case could not have produced the small epidemic in question. The patient was admitted on the 6th of August, and the epidemic began only five days later, on the 11th. The cycle of development of the yellow-fever parasite requires at least ten days in the mosquito and two in man, a total of twelve days. Let it not be said that this period of epidemiologic incubation is observed only in the experimental inoculations, since we know that some time before the conclusive demonstrations of the United States Army Commission Doctor Carter had already called attention to the fact that a period of twelve days or more must elapse between the introduction of a case of yellow fever and the development of secondary cases.

It is evident, therefore, that the infection at Las Animas Hospital was contained in the wide-mouthed jar covered with gauze in which infected mosquitoes were kept. The application of these insects to nonimmunes was discontinued, and the small epidemic at Las Animas Hospital ceased. It became necessary a few weeks later to produce a case of yellow fever in order to show the fallacy of a certain vaccine, and a mosquito was taken out of the jar and applied to a susceptible individual, and he had yellow fever.

One more case was required later on by Doctor Carroll to carry out certain experiments with filtered serum, and another case was produced by the same procedure. The local epidemic at Las Animas Hospital was, therefore, made or unmade by opening or closing the jar containing infected mosquitoes.

Since that time we have had only imported cases at Las Animas, to wit:

September to December, 1901.....	2
In 1902.....	7
In 1903.....	10
In 1904.....	2
January, 1905.....	3
Total.....	24

There can be no doubt that the system of prophylaxis employed in the above-mentioned hospital has been successful, because during the time that these 24 cases have been treated there we have had in the wards numerous other patients suffering from other diseases, and who were mostly nonimmunes, and yet, without any other isolation than the separation by wire screens, the disease has never spread.

According to the old theories that hospital should be a pestilent focus of amarillic infection. No disinfection in the ordinary sense of the word is ever done there against yellow fever, and quite frequently nonimmune relatives remain in the same room with yellow-fever patients throughout the attack. The wards and patients are frequently visited by American and European physicians who are nonimmunes. A number of conferees, members of the American Public Health Association, during the meeting in Habana last January, visited the three cases we then had in the hospital, imported from Colon. In the laboratory connected with that institution the blood and the excreta—never disinfected—from cases of yellow fever are examined. The assistant who manipulates these things and who goes to the bedside to get them is a nonimmune. The autopsies are made in the same laboratory building with the help of the same attendant. The last two necropsies were done in the presence of seven members of the Public Health Association, who were nonimmunes.

In that same laboratory I still use upon the wide-mouthed jars for breeding mosquitoes the same gauze sleeves that were employed during the epidemic of 1900 over the mouths of the jars containing infected mosquitoes. Through these sleeves the sweaty hands and arms of many a case of yellow fever have passed. I have never had them washed, but keep them in their dirty condition as perfect specimens of fomites.

May we not then assert, without fear of contradiction, that every opportunity, other than the infected mosquito, is there furnished, in the old home of yellow fever, for the propagation of the disease?

I need not repeat here the details of the preventive system established in Habana. They will be found in the transactions of our last conference.

As far as possible the same system of defenses has been established in the other parts of the Republic, and wherever there has been any threatening break in the defenses, all the resources of the superior board of health and of our maritime quarantine are concentrated upon the weak point.

An instance of this was seen recently in Santiago, where, for the first time since 1901, the yellow fever succeeded in penetrating our defenses and producing two cases of the disease.

The first case was that of S. A. Fuller, a native of the United States, who was taken sick on October 18 of last year at Punta de Sal, in Santiago Bay. Mr. Fuller had been on the island twenty-four days when he was taken sick. We were therefore forced to the conclusion that he had been infected either at Santiago or at Punta de Sal, the only places that he had visited during the five days preceding his attack.

I was ordered by my Government to investigate this very grave case, and I came to the conclusion that the focus of infection must have been at Punta de Sal, because the visits of Mr. Fuller to Santiago were too near or too far from the date of his illness to come within the limits of the period of incubation of yellow fever. Fortunately I found that the situation of Punta de Sal was very favorable for the isolation of the sick and the observation of all those who might have been exposed to the infection. The place lies about 3 miles distant from Santiago by water. It was therefore easy to detain there the nonimmune population and to keep it from starting elsewhere new foci of infection. The individuals thus detained could be defended against further infection by the rapid destruction of all the mosquitoes in the men's quarters. All the buildings were fumigated at once, and we succeeded in limiting the propagation of the disease to one secondary case. The patient himself was removed to the isolation hospital on one of the islands in the bay and was screened as soon as the diagnosis was made. In the hospital the patient was surrounded by non-immunes.

We do not know how the infection was introduced. Of course there can be but one of two possibilities, namely, either a case of yellow fever had been introduced undiagnosed into Punta de Sal, or an infected mosquito had been landed from a vessel coming from an infected port. In the first instance we must suppose an extremely mild case that escaped observation. The objection to this theory is that such a patient, not being recognized, must have been treated without any precautions and should therefore have infected a

considerable number of mosquitoes. The result of this should have been the simultaneous appearance of several cases at the same time with Fuller. I am therefore inclined to accept the second theory—that is, the importation of one infected mosquito from a ship; if not one, certainly not many, for they all perished without producing more than one case, that of Fuller.<sup>a</sup>

The diagnosis was made on the third day of the attack. It became necessary, therefore, to destroy the insects that had bitten Mr. Fuller during these three days that constitute the period of danger. Fortunately we had still eight or nine days in which to carry this out before the infected insects could begin to transmit their infection. This time was put to such good advantage that only one secondary case occurred, that of Mr. Salter, who was taken on the 1st of November. With this the little outbreak became extinguished. When Fuller and Slater were discharged from the isolation hospital at Key Duan, all mosquitoes were destroyed in that building.

There was still one other serious threat of invasion of yellow fever, in which instance, as in the one just related, the successful measures instituted bore evidence to the truth of the principles upon which our system of defense is founded. In July, 1903, a passenger on the steamer *Vigilancia*, from Mexico, succeeded by means of a false certificate of immunity in breaking through our quarantine inspection at Habana. This man took lodging at No. 29 Inquisidor street, where he passed the first forty-eight hours of his attack in a house where there were a large number of nonimmune boarders. He asked them to be sent to a hospital, and on admission to the Mercedes Hospital the nature of the complaint was at once recognized and the patient was immediately transferred to Las Animas.

The prophylactic measures in this case consisted in the destruction by the burning of pyrethrum powder of all the mosquitoes in the block around the house on Inquisidor street and in the Mercedes Hospital. A list was made of all nonimmunes residing at the time in these localities. The temperature of all these were taken twice daily to detect the first appearance of a secondary manifestation. Thanks to the prompt action taken, there was no spread of the disease.

In concluding, gentlemen of the conference, I wish to ask you once more to contemplate for a moment the picture represented in the earlier part of this paper; the passing of a great epidemic disease. What a source of satisfaction to have witnessed the last hours of the dread malady; to have seen the wonderful result of the work of Reed, Lazear, Carroll, and Agramonte. This is the first time in the history of medicine that such things have been witnessed as are now passing before us—within a short decade the agony and the extinction forever of a widespread and deeply rooted plague.

If our satisfaction on contemplating these performances be great, how much greater must be that of the man who, by a mental effort that stands unexcelled in the history of human thought, made all these things and this great benefaction possible.

## SUGGESTIONS BY DR. A. H. DOTY, HEALTH OFFICER OF THE PORT OF NEW YORK.

[Letter of transmittal.]

“STATE OF NEW YORK,  
“HEALTH OFFICER'S DEPARTMENT,  
“Quarantine, L. I., Oct. 9, 1905.

“DEAR DOCTOR WYMAN: At present I am unable to say just when I can reach Washington, for which I am very sorry. Vessels are coming here daily from yellow fever and cholera infected districts, and for various reasons I desire to be present when they arrive. However, I may be able to reach Washington before the convention is over. In the meantime I inclose some suggestions relative to quarantine inspection, etc., which I should like to have you present to the convention for me if you find it consistent to do so. I have made the paper as brief as possible and hope that it will meet with your approval.

“Truly yours,

(Signed) “A. H. Doty.”

(1) That methods of inspection commonly employed at quarantine stations throughout the world are inadequate to detect the presence of mild, ambulant, or unrecognized cases of infectious disease, which so far as the public health is concerned constitute one of the most dangerous factors with which we have to deal.

<sup>a</sup> I have since seen evidence of the existence of one single infected mosquito on board a vessel. The crew of this vessel were taken sick one after the other with intervals of three or four days, which is the time that the mosquito requires to digest its meal of blood and make ready for the next one. More than one mosquito should produce simultaneous cases or at closer intervals.

(2) That too much dependence is placed upon the expiration of the period of incubation of yellow fever in considering the release of persons arriving at quarantine from districts infected with this disease.

(3) That a want of the proper appreciation of the necessity for detecting mild or ambulant cases and the frequency with which they are responsible for outbreaks of disease, the origin of which is unknown, have contributed largely to the support of the theory that cargoes of vessels frequently transmit infection, which is not true.

(4) That the dissemination of yellow fever and bubonic plague as well as other infectious diseases is not uncommonly due to the practice on the part of some public health officials of concealing and not reporting the first or early cases which are brought under their observation. This policy is not only frequently responsible for unnecessary loss of life, but is not in accord with modern sanitation, which requires that the public shall be promptly notified of outbreaks of infectious disease, particularly the more formidable types. In this way public confidence and cooperation are secured, which is of great aid in controlling the said outbreaks.

I present the above as the result of my experience as a public health official, and I believe, as I have already stated, that the methods of quarantine inspection now commonly employed are not as a rule thorough enough to detect the presence of mild, ambulant, or unrecognized cases—a most important consideration. The fact that a vessel reaches a quarantine station after having been five days in transit from a yellow-fever-infected port, and that those on board are able to appear before the medical inspector and state that they are well and present an appearance which tends to corroborate this, is by no means conclusive evidence that some one of the number is not suffering from the disease. This may also apply to the examination of those arriving from bubonic-plague-infected ports. While I am willing to believe that five days is in the great majority of cases the maximum period of incubation in yellow fever, I am satisfied that in many cases the disease may pass unrecognized during the stage of invasion, or even later, or throughout the disease if it be a mild case. Furthermore, if a person does not present evidence of the disease until after the sixth or seventh day from the time of his departure from a yellow-fever-infected port, it does not by any means indicate that he has been infected by mosquitoes on shipboard, inasmuch as he may have been suffering from the disease for two or three days before it was recognized. Unfortunately many mild or ambulant cases of bubonic plague are admitted into port; this is largely due to the fact that only severe and typical cases are as a rule watched for, and the mild ones escape detection. Over two-thirds of the bubonic-plague cases which have reached the New York quarantine station have been of the mild type and would have passed the ordinary visual examination. They were detected only after an examination of the superficial glands of the body was made and the temperature taken of those under observation.

Of the six cases of yellow fever which have reached this station on incoming vessels during the present year, three of them were able to present themselves for inspection on their arrival and would have passed a visual examination. Their condition was detected mainly by the use of the thermometer. Furthermore the vessels upon which these cases arrived had been six days in transit. I may add that after the removal to the hospital of the persons to whom I have just referred they frankly admitted that they had a chill or had been sick two or three days before arrival. There is no doubt that failure to detect mild or unrecognized cases is responsible for many outbreaks of infectious disease the origin of which is attributed to other sources. Mild cases of bubonic plague which have passed quarantine unrecognized may transmit infection at some seaport. These have contributed largely to the theory that rats are usually responsible for outbreaks of this disease. While there is no doubt that this variety of vermin does transmit bubonic plague, I believe that the frequency with which this occurs is overestimated and that sooner or later we will find it to be so. Furthermore, sufficient attention is not given to the appearance of irregular cases on shipboard, particularly in vessels coming from infected ports. It is stated on excellent authority that the first case of cholera which recently appeared at Hamburg was admitted to the hospital as a case of pneumonia and that the true character of the disease was not ascertained until some time afterwards. Complications may also occur which will mislead or mask the presence of infectious disease. Such cases have repeatedly come under my observation.

I believe that the thermometer if carefully and scientifically used is one of the most valuable means of detecting the presence of mild or otherwise unrecognized cases of disease.

It would seem to me that it is very important for the convention to take such action as will tend to bring about on the part of the different nations an agreement to promptly report outbreaks of infectious disease. This would constitute one of the most effective means of preventing the transmission of infectious disease and would substantially aid in the preservation of the public health.

**REMARKS OF PRESIDENT ROOSEVELT TO THE MEMBERS OF THE SECOND INTERNATIONAL SANITARY CONVENTION (AT THE EXECUTIVE OFFICE), WASHINGTON, D. C., OCTOBER 12, 1905.**

DR. WYMAN, AND GENTLEMEN AND LADIES OF THE CONVENTION: I should like to greet you and say with what peculiar pleasure I welcome you, because both of the profession you represent, and of the fact that you come from our sister Republics of America.

I believe that we on this hemisphere are going to show to all the world, are going to teach all the world by an object lesson that separate States, separate nations, can dwell together in absolute harmony, and can unite in a common effort, as you are uniting here, for the betterment of the conditions affecting them all.

The outside world is only beginning to understand the astonishing progress made, not only socially and industrially, but in science, literature, and art, by the Central and South American Republics. In medical matters, in industrial, scientific, social, artistic matters, each of our countries has something to learn from the others, and I welcome you as colleagues and as teachers.

Of course, I could not overstate the all-importance of the medical profession in modern life, and as it is now becoming, in modern international life. In the old days a plague that happened in one country was regarded as only concerning that country, until it spread over into some other helpless to defend itself against it. Now we recognize that the stamping out of disease, the warfare against unhygienic conditions, must be done by the organized effort of the medical profession of all the countries joined together.