





ANNUAL  
REPORTS  
COMMISSIONER  
OF  
HEALTH  
OF  
PUERTO RICO

1918-19  
1922-23

DR. COSTA MANDRI



REPORT OF THE  
**COMMISSIONER OF HEALTH  
OF PORTO RICO**

1922 - 1923

---

From the Report of the Governor of Porto Rico, 1923, pages 265 to 287, inclusive

---

BUREAU OF INSULAR AFFAIRS  
WAR DEPARTMENT



WASHINGTON  
GOVERNMENT PRINTING OFFICE  
1925



REPORT OF THE  
**COMMISSIONER OF HEALTH  
OF PORTO RICO**

1923

---

From the Report of the Governor of Porto Rico, 1923, pages 265 to 287, inclusive

---

BUREAU OF INSULAR AFFAIRS  
*WAR DEPARTMENT*



WASHINGTON  
GOVERNMENT PRINTING OFFICE  
1925



REPORT OF THE  
COMMISSIONER OF HEALTH  
OF PORTO RICO

1923

BUREAU OF PUBLIC AFFAIRS  
SAN JUAN, P. R.

APPENDIX VII

Report of the Commissioner of Health

OFFICE OF THE COMMISSIONER,  
San Juan, P. R., September 18, 1923.

SIR: I have the honor to submit herewith the annual report of this department for the fiscal year 1922-23.

Upon taking charge of this office after having been duly qualified on May 12 of the present year I devoted preferent attention at once to the reorganization of the different divisions and institutions of the department.

The material included in this report covers a period of one fiscal year, and in light of the fact that my term of activities has been so brief, comprising a period of one month and 19 days up to June 30, I am unable to enter into the details of a lengthy discussion, bringing to your attention only those data which deserve to be considered and which are based on the work performed.

Ordinarily, health work in Porto Rico has fallen more or less under the following headings:

1. Executive and administrative work.
2. Transmissible diseases and vital statistics.
3. Food and drug inspection.
4. General sanitation.

Besides this organization, which no doubt has done its share in improving the living conditions of the people, nevertheless a new orientation is of absolute necessity in order to deal with the fundamental problems that should be taken up by a modern department of public health.

Following the general principle that the work should be in harmony with the environment, the department has succeeded in obtaining sufficient funds from the legislature to establish the following new bureaus for the coming year and which at the present time are being organized:

1. Bureau of social welfare.
2. Bureau of tuberculosis.
3. Bureau of venereal diseases.
4. Bureau of plague prevention.
5. Bureau of general inspection.

At the same time the work in uncinariasis and malaria, which follow tuberculosis in importance of prevalence and mortality, will be carried on intensively. Unquestionably uncinariasis urgently demands a campaign of rural sanitation, and, in cooperation with the Rockefeller Foundation, available personnel is being trained.

A new survey in regard to malaria and mosquito control is being contemplated by the Rockefeller Foundation, in cooperation with the department of health.

The work in ophthalmia neonatorum had been entirely abandoned and its restitution is being considered. The distribution of free obstetrical outfits which will help in diminishing the high prevalence of infantile tetanus is to be continued.

Although plague-prevention measures have been taken up, especially since the last outbreak of two years ago, nevertheless these have been isolated and under the control of other divisions. The new bureau with full-time personnel and under the direction of one expert physician is being established. The new bureau of general inspection which forms part of our new program will consolidate all the different branches of the department engaged in inspection work.

The most serious problem confronted by me from the start, that of illegal construction on unurbanized and swampy sections of land in different cities and towns of the island, has demanded a quick and energetic action on the part of the health authorities and the menace to public health is so imminent that I have been compelled to make use of drastic measures and resources of authority granted the commissioner of health by the fundamental law of sanitation. At the present time and after a few days of an active campaign of inspection and vigilance day, night, and holidays the problem is under absolute control. This



negligence on the part of the department of health has contributed immensely to the creation of public charges, which is costing the people of Porto Rico large sums of money.

Adding to the new program of reorganization of the department of health the plan of construction which comprises the insane asylum, the leprosarium, the extension of the antituberculous sanatorium, the school for the blind, and the four district hospitals, and which will be carried to a successful termination, as sufficient funds have been appropriated by the legislature, there is no doubt that the immediate future will witness a remarkable era of progress.

Respectfully,

Dr. PEDRO N. ORTIZ,  
Commissioner of Health of Porto Rico.

The GOVERNOR OF PORTO RICO,  
San Juan, P. R.

#### DIVISION OF TRANSMISSIBLE DISEASES

The table on transmissible diseases which records all the material available in regard to morbidity and mortality and which appears at the end of this report has been carefully studied with the result that, more or less, the same general problems referred to in my letter of transmittal need special consideration. Notification of cases by the practicing physicians, as usual, is very deficient and no doubt regulation on this subject demands a thorough revision by the insular board of health in order to bring to a minimum the data required on the information card. To my mind only three points are essential in each instance, namely, name of patient, address, and diagnosis. The local sanitary authority could complete the information sheet as soon as the above-mentioned data reach the office in each town. At the present time we are endeavoring to have the doctors send in specimens collected to the biological laboratory through the local health officer.

With the exception of tuberculosis, uncinariasis, malaria, typhoid fever, influenza, infantile tetanus, and leprosy, all the other diseases recorded in both the sections of morbidity and mortality do not need a detailed comment, as their fluctuation is identical to those of previous years.

#### TUBERCULOSIS

The following table shows a comparative study of the deaths for the last decade, with a general percentage in relation to general mortality:

Year	Number of deaths	General percentage	Year	Number of deaths	General percentage
1914	1,587	7.28	1919	2,674	6.68
1915	1,924	8.13	1920	2,545	8.40
1916	2,274	8.55	1921	2,653	9.02
1917	2,579	7.38	1922	2,667	8.83
1918	2,505	7.26	1923	2,697	9.45

At a glance it can be easily discovered that tuberculosis, as usual, is the most dangerous menace that the health department has to face in the future. Figures for the last year, both as to total and to relative prevalence, are the highest for the last decade. It is the intention of the health authorities to give the utmost attention to this serious problem.

The mortality from tuberculosis in Porto Rico, as elsewhere, shows that the crowded centers share proportionately in relation to their industrial and commercial importance, namely: San Juan, 301; Ponce, 296; Mayaguez, 144; Caguas, 107. In regard to morbidity, Caguas ranks third and Mayaguez fourth.

#### ANTITUBERCULOSIS SANATORIUM OF PORTO RICO

The following table shows the number of patients admitted and discharged during the fiscal year 1922-23:

A	
Inmates on June 30, 1922	103
Admitted	235
Total	338
Discharged upon request	107
Arrested	21
Died	50
Inmates on June 30, 1923	160

The patients admitted are classified, in accordance with the National Tuberculosis Association, as follows:

	B
Incipient stage	53
Moderately advanced stage	98
Far advanced stage	84
Total	235

Classification of patients according to profession, civil condition, town, and sex.

(Omitted.)

#### ANTITUBERCULOSIS SANATORIUM—ANALYSIS OF TABLES

The following explanations about Table A (omitted) are offered: On July 1, 1922, there were 103 patients. During the year 235 were admitted, of which 107 were discharged upon personal request, 21 were cured, 50 died, and 160 remained in the institution at the end of the fiscal year.

Out of a total of 107 patients discharged upon personal request, the majority left considerably improved as shown by careful examinations carried out by the physicians of the institution. It is gratifying to state that 21 patients were classified as arrested. No doubt incipient tuberculosis is curable under good discipline and management if the patient is willing to cooperate.

One hundred and sixty patients remained in the institution under the care of highly intelligent personnel having access to an X-ray department for an accurate diagnosis. Very soon the sanatorium will be fully supplied with all the necessary surgical and accessory instruments which will lead into the treatment of any condition, even including the performance of artificial pneumothorax; moreover a complete laboratory in harmony with the demands of the institution is being established adjoining the X-ray department.

Table B (omitted) shows the admission of 53 patients classified as incipients, 98 as moderately advanced, and 84 as very advanced. As can be seen, the moderately advanced patients have the highest percentage.

Table C (omitted) refers to the occupation of the patients, the highest percentage pertaining to those generally known as domestic. (Domestic means household duties.)

Next to domestic, students rank the highest, 32 children having been admitted from 12 to 15 years of age and in some cases up to 20. Then the cigar makers, store clerks, industrial occupations, etc., follow, respectively.

Table D (omitted) shows the classification according to the civil state of the patients admitted, i. e., 144 were single, 77 married, and 14 widowed.

In Table E (omitted) San Juan holds the first place, and Arecibo, Ponce, and Bayamon follow.

Table F (omitted) is self-explanatory.

#### ADMINISTRATION ACTIVITIES

*X rays.*—This institution possesses a modern X-ray apparatus which will help in clearing up all doubts about some diagnoses, estimating the opacities and even the alterations in the texture of the lungs. The clinical work of the physicians of this institution has been supplemented by the work which this apparatus is capable of performing.

Sufficient funds have been appropriated for the construction of the doctors' and nurses' quarters and for the erection of a two-story building which will accommodate 120 patients. The cottages occupied by the personnel at present will be devoted to patients as soon as the new constructions are completed. A preventorium for 100 children is also under consideration.

#### ANTITUBERCULOSIS SANATORIUM OF PONCE

The following data shows the general movement of patients in this institution during the fiscal year ended June 30, 1923:

Inmates during the year 1922-23	86
Discharged upon personal request	30
Arrested	5
Died	25
Inmates on June 30, 1923	26



Patients are classified according to their sex and different ages as follows:

Sex:	
Males.....	49
Females.....	33
Children.....	4
Total.....	86
Age:	
From 10 to 20 years.....	37
From 21 to 30 years.....	21
From 31 to 40 years.....	22
From 41 to 50 years.....	5
From 51 to 60 years.....	1
Total.....	86

#### UNCINARIASIS

The plan which has been finally adopted rests on the principles established by the combined efforts of the Rockefeller Foundation and the department of health. The isolated uncinariasis stations functioning in all the towns of the island have been suppressed to give way to the district work which binds us to leave as a result a permanent body of reinspection officers to advise, instruct, and compel the people to keep their home surroundings clean and free of fecal pollution. No doubt this phase of the work is the basis on which the whole success of the campaign rests. As a result, patients discharged as cured will not be subject to reinfection, as was the case in previous years. To this end the department of health is training sufficient personnel to keep up permanently this phase of rural sanitation.

#### ANNUAL REPORT SUBMITTED BY THE MEDICAL INSPECTOR OF THE ROCKEFELLER FOUNDATION

1. *Latrine construction.*—The campaign started in the west end of the island and has been progressing, systematically, eastward. The latrine campaign was finished in Hatillo and Lares by October 1, 1922, and in Isabela in April, 1923, Arecibo in May, and the work in Moca and Las Marias is now well under way. Two groups of inspectors with an average of five in each and a chief have been doing this work, and at the end of the year one group was in Moca and the other in Las Marias. Their work is quite thorough; every house taken in census, and at the end of the campaign in a community the only houses found without latrines are those abandoned or in a few instances those with one or two people old or seriously ill.

A total of 11,310 latrines were approved during the year affecting a population of approximately 66,258 people. The type of latrine that is being built is much better than previously and instead of finding the majority made of palm leaves or cane straw, the percentage made of wood or metal is rapidly reaching the majority. Far more important than the mere fact that a latrine exists is the fact that evidence indicates that the majority of latrines are being used by most of the people. In the regions where latrines have been installed it is indeed rare to find a case of mazamorra and evidence of soil pollution about the homes is scanty. A total of 27,687 latrines have thus far been built in the three years, affecting a population of 167,541, or one-sixth, approximately, of the rural population of the island.

2. *Treatment campaign.*—As previously, a treatment campaign is being carried on in cooperation with the International Health Board of the Rockefeller Foundation, the director of which is supplied by the board. Beginning January, 1923, the department of health paid 40 per cent of the expenses of the campaign. Through an arrangement with the commissioner of health, the director has also been directing the anemia work of the department, his plans being subject to the approval of the commissioner. The department of health has a unit of nine inspectors in Utuado and one of eight in San Sebastian, carrying on work similar to the unit in Hatillo. The treatment campaigns are being carried out according to the so-called intensive method, whereby every person in a community is taken in census, examined, and if positive, given treatment unless medically unfit. The routine of census taking, examination, and treatment has been systematized and to the positive patients, two treatments of oil of chenopodium are given in a maximum dose of 35 minims for an adult, then one of thymol before a reexamination is made.

To those that are still positive one treatment each of chenopodium and thymol is given and another reexamination. More than five treatments are seldom given. Thus by actually carrying the medicine to the home, and having the patient take it under observation of an inspector, and treating every one medically able to take the medicine, the mass infection is rapidly disappearing. With an average of 15 inspectors the municipality of Camuy was completed, Hatillo (town), as well, and approximately 10,600 of the 13,200 people of the Hatillo rural zone have been treated or are under treatment. A total of 56,992 treatments were given and 12,069 persons cured. The number who refused is very small so that the only real reason for a person not receiving the medicine is the presence of other disease, which contra indicates the anthelmintic. At the same time an educational campaign is carried on by lectures in each district, and house to house talks with demonstrations by the inspectors are given on the pathogenesis and prevention of hookworm disease.

The infection rate is very high in San Sebastian and Utuado and for that reason the first examination is omitted and all persons treated immediately after the census. A total of 44,515 treatments were given at Utuado and 11,155 persons cured, leaving approximately 3,000 people of the total of 31,510 rural population still to be treated. The dispensary at Utuado has continued and a total of 2,251 treatments were given and 504 cures obtained.

In San Sebastian a total of 34,290 treatments were given and 6,062 persons cured, leaving 11,200 people of the 20,400 rural population still to be treated. In both these municipalities the work is very difficult because of the homes being scattered far and wide in the hills and the fact that the means of communication are very poor. It is believed that the results justify the effort, however, for it is the only way one can be sure that all people that are able take the medicine. The number remaining to reinspect the population is thus very small.

3. *Reinspection service.*—The latrine work is an essential feature of the anemia campaign and the reinspection and upkeep of latrines is a very important part of that work. There are at present three full-time inspectors in Lares, Arecibo, and Camuy-Hatillo devoted to reinspection, with part-time inspectors in Quebradillas and Isabela, but this number is not sufficient to keep all the latrines in good condition. In Hatillo, eight months after the latrine campaign began, 40 per cent were found not to be in perfect condition, though only a very few houses had no latrines. In Camuy, over a year after the latrine campaign was completed, 66 per cent of the latrines were found in poor condition. One-third of the municipality has been reinspected. In Quebradillas, 21 months after the campaign, one-third of the houses had no latrines, one-third were in poor condition, and only one-third had acceptable latrines. With 10 months' work, 50 per cent approximately have been reinspected. In Lares, two years after completion of the original latrines, practically all are found in poor condition, and many have been abandoned. One-fourth of this area has been inspected in nine months. A similar condition prevails in Utuado and San Sebastian, where reinspection is urgently needed.

The type of latrines installed is continually being improved so that it will last longer, but new houses are continually being erected, the population changes from year to year, old latrines are wearing out or being abandoned, and unless all are kept in good condition, the effect of the latrine and treatment campaigns will be lost in a few years. Experience has shown that the latrines in any given area should be inspected at least every year.

4. *Summary.*—During the year 1922-23, 11,310 new latrines were built. Campaigns were completed in Isabela, Hatillo, Arecibo, and Lares, and were in progress in Moca and Las Marias. Approximately one-sixth of the rural population of the island has now been sanitized. A total of 140,957 treatments were given during the year to a population of 47,000, of whom 31,285 have been cured. Six thousand two hundred sixty-five houses were reinspected during the year. About 56 per cent of the latrines were found in need of repairs and at the end of the year 1,900 had been repaired.



## Latrine construction

Place	Time operated	Latrines constructed	Population affected
Hatillo	July 1-Sept. 30	1,310	7,000
Lares	do	1,231	8,800
San Sebastian	July 1-July 31	187	1,049
Arecibo	Sept. 1-May 31	3,121	19,000
Isabela	Sept. 1-Mar. 31	3,320	19,809
Moca	Sept. 1-June 30	2,004	10,000
Aguadilla	Nov. 1-Feb. 28	137	600
Total		11,310	66,258
Latrines previously constructed in Hatillo, Lares, San Sebastian, Utuado, Camuy, and Quebradillas		16,377	101,283
Total to date		27,687	167,541

## Treatment campaign

Place	Census	Treated	Not treated	Total treatments	Cured	Not cured	Under treatment
Utuado	14,768	14,088	680	44,515	11,945	273	1,870
Utuado (dispensary)	1,110	1,069		3,069	504	550	15
San Sebastian	9,172	8,488	333	34,290	6,063	528	2,248
Quebradillas	1,919	797	129	2,091	695	102	24
Camuy (rural zone)	6,855	5,443	117	21,193	5,866	1,600	
Camuy (town)	1,256	650	81	2,098	483	167	
Hatillo (town)	851	422	44	1,420	309	113	
Hatillo (rural zone)	11,090	8,640	363	32,281	5,420	1,296	2,338
Total	47,021	39,597	1,747	140,957	31,285	4,629	6,495

Those patients under "Not treated" are, in the majority, people who were too old or otherwise physically unable to take the medicine. In San Sebastian and Utuado the number classed as "Cured" includes those who received five treatments and may still be positives but were then practically cured. In Camuy, Hatillo, and Quebradillas those counted as "Cured" were negative to microscopic examination, and under "Not cured" are included those who were still positive but who received many treatments and were practically cured.

**Malaria.**—The malaria problem in Porto Rico is in its infancy, notwithstanding the fact that this disease ranks third in mortality records. This is due to the fact that more attention has been given to the matter of mosquito control, generally in nonmalarious districts, and the known malarial zones on the north and southern sections of the island comprise immense extensions of land which require enormous expenditures of money for controlling the incidence of mosquito prevalence.

Although the Rockefeller Foundation has completed a study of the influence that the mosquito campaign has upon the feasibility of controlling the prevalence of malaria by combatting the breeding of mosquitoes in the irrigation ditches of the cane fields, nevertheless a new survey on mosquito and malaria control is being contemplated by said institution in cooperation with the department of health.

**Influenza.**—Notwithstanding the fact that the epidemics that have occurred in the island in the course of the last fiscal year have been of a very mild character, nevertheless, 690 fatalities have been reported from various towns. It is believed that an acute exacerbation of a pulmonary tuberculosis under the stress of an attack of influenza may prove fatal in a few days and in light of this assertion we presume that the figures for influenza are high in regard to mortality.

**Infantile tetanus.**—The number of deaths from infantile tetanus for the last five years is as follows:

1919	600
1920	552
1921	460
1922	526
1923	506

It is expected that with the creation of a new bureau of social welfare the number will decrease considerably.

It is interesting to mention, in the order of their importance, the five transmissible diseases in this country which have caused more deaths:

Tuberculosis	2,697
Uncinariasis	1,017
Malaria	992
Influenza	490
Infantile tetanus	506

A complete report on leprosy follows:

## LEPROSY

Since chaulmoogra oil has come into use as a specific for leprosy new interest has been aroused in the treatment of this malady all over the world. Porto Rico has contributed its share in the progressive evolution of this wonderful remedy. Since June, 1921, we have been using the chaulmoogra oil and its ethyl esters among our lepers and the results have been so encouraging that we hope to parole in the near future some patients who at the present time are giving repeated negative examinations.

Up to the time I took charge of the department of health I was in charge of all the patients isolated at the insular leprosarium. My interest and study of this repulsive disease led me, after many trials and thorough consideration, to do away with the standard intramuscular treatment adopted in Hawaii, to be replaced by the intravenous method which renders the administration of the remedy practically painless, doing away with the danger of deep abscess formation as is the case with the old method, which hinders some patients from receiving the full benefit of an uninterrupted medication. My last year's report on the treatment of leprosy and my lectures on the subject given before the Porto Rico Medical Association, have done much toward stimulating the combined interest of the profession and the public in an effort to solve both a scientific and a social problem.

No doubt physicians have been induced to make an earlier and more accurate diagnoses of the disease and public interest has been aroused to such an extent that our legislature has appropriated a large sum of money for the construction of a new modern leper hospital. A parcel of 40 acres of land has been secured on the road between Rio Piedras and Trujillo Alto, near San Juan, so that the construction of the leprosarium will be commenced early in October.

The transfer of the lepers from their present barren island of Cabras, at the entrance of the San Juan Harbor, swept on all sides by the moist winds from the Atlantic, saturated with sodium chloride, irritating their open lesions, with nothing to do all day but think of their miserable existence, to the modern leper hospital situated in the mainland, on fertile soil and with all possible farm work, full of attraction and amusement, diverting their mind from their own misery, will in itself do much toward an improvement of their general moral and physical condition.

Steps are being taken to prepare the derivatives of chaulmoogra oil in our own laboratories. Twenty-five specimens of the tree have been received at the United States experimental station at Mayaguez, where experiments are being carried out to determine their adaptability to the environment and attempts are being made to grow them from cuttings in order to secure a greater supply in a short time.

In 1914 we had 24 known lepers in Porto Rico. In 1920 the number was increased to 33. At the present time we have 38 inmates at the leper colony, 3 at the quarantine hospital under special observation, and 3 at their homes authorized by law.

Leprosy does not seem to be increasing in Porto Rico, but the better laboratory facilities and the disposal of the doctors and their greater knowledge of the disease make possible the diagnosis of many cases, which up to the present time were being treated for syphilis and other skin diseases. Only one new admittance has been registered this year with a single death, which fact leaves the total unchanged.

The classification of patients by sex and race is as follows:

Sex:	
Males	27
Females	17
Total	44
Race:	
White	22
Colored	22
Total	44



The work done during the present year has been marked by a great advance. As in November, 1922, the intravenous administration of the ethyl esters was adopted generally. This new method, besides rendering the action of the drug more effective and rapid, has the advantage, as stated before, of being painless and does away with the abscess formation so common with the intramuscular method. Starting with 25 centigrams as the initial dose, the amount is doubled every week until a maximum of 3 c. c. is reached. Overdoses beyond the fixed standard cause severe febrile reactions with muscular and articular pains, diarrhea, and loss of appetite.

Dr. Abel de Juan, assistant of the bureau of transmissible diseases, is in charge of the patients at the present time, and he deserves credit for the interest which he has taken in carrying on the work of his predecessor.

#### PLAGUE-PREVENTION ACTIVITIES

A new bureau of plague prevention independent of the biological laboratory is being contemplated for the coming year, as it has been found that the way in which the work is being carried out at the present time is unsatisfactory. Personnel in charge of rat examination and rat trapping is under the direction of other divisions which are unable to give them the attention that preventive measures in bubonic plague demand. Plans are under study for the construction of a plague-prevention laboratory and offices.

During the year 80,970 rats were examined, giving negative results in each case.

The total number of rats examined may be classified as follows:

Decum.....	22,228
Alex.....	9,715
Ratus.....	1,899
Mice.....	47,110
Mang.....	18
Total.....	80,970

#### GENERAL AND INFANTILE MORTALITY

General mortality has had a decrease of 1,565 in relation to that of the preceding year. Consequently the rate per thousand has fallen from 22.57 to 21.11. The decrease of 1.46 per thousand, after a thorough review of the mortality by groups of ages, corresponds almost wholly to the groups under 25 years of age. During the year 1922-23 the groups of ages 0-1, 1-2, 2-5, 5-10, 10-15, 15-20, and 20-25 have had a lower mortality rate than that of the preceding year.

There have been increases in the age groups above 25 years and the very few decreases noted have been exceedingly slight. In regard to children, the age group under 1 year has recorded the largest decrease, with a difference of 734 deaths less than the previous year. It is a fact also that the total of births registered had a decrease of 1,685, but on studying the rate per thousand of infantile mortality we come to the conclusion that there is still a decrease from 152 down to 143 per thousand.

The following comparative table will give a better idea of the decreases up to age group 5-10:

Age	Deaths		Decrease
	1921-22	1922-23	
Under 1 year.....	7,952	7,218	734
1 to 2 years.....	3,557	3,134	423
2 to 5 years.....	2,773	2,491	282
5 to 10 years.....	1,372	1,236	136

The age groups above 10 years show an excess of eight deaths over the same groups during the preceding year. The important decrease rests in the age groups below 10 years. (See three tables of causes of infantile mortality, 0-1, 1-2, 2-5 years, at the end of this report.)

Ricketts, misused term among us, comprising a variety of gastrointestinal diseases which produce a condition of cachexia and marasmus in the child, shows an increase of 106; diarrhea and enteritis show a decrease of 51; deaths due to

congenital debility and to other deaths common to the new born give a decrease of 191. These figures are not high enough to account for the decrease referred to.

An astonishing decrease has been noted in measles, which has fallen from 340 down to 39; pneumonia from 607 to 367. Both acute bronchitis and whooping cough have had a decrease of 220 and 243, respectively. Whooping cough and measles and, to a certain extent, acute bronchitis are common diseases in infancy. No doubt these decreases have had their share in the reduction of infantile mortality.

In order to give an explanation in regard to the decrease in general mortality and in infantile mortality we must bring into consideration the reasons which led to an increase in both mortalities in Porto Rico during the last decade. From the year 1913-14, in which we had a mortality of 18.44 per thousand, the mortality rate has kept on increasing up to the year 1918-19, which reached its climax, with an initial decrease in the year 1919-20, with the result that the mortality of 21.11 per thousand is the lowest recorded since the year 1915-16. It is evident that special circumstances in Porto Rico since 1912-13 paved the way for an increase in general mortality. First the sugar crisis, which had a strong influence on general conditions in the island, then the World War with its natural sequences in regard to food, and later the pandemic of influenza with its high death toll, leaving also so many other persons predisposed to other diseases, and more recently the economic instability created by the natural events of the post-war period.

It can be stated that the fiscal year 1922-23 has brought about some readjustment of economic conditions. Nevertheless some other reasons have contributed to the decrease in infantile mortality. In the first place we may mention the work carried on in Porto Rico by the children's bureau of the department of labor, which by itself and through the schools and other charity associations aroused and stimulated the interest of the Porto Ricans toward the children with a view to diminish the prevalence of infantile mortality. At the same time the Red Cross established free prenatal and infantile clinics and a service of visiting nurses both in San Juan and in other sections of the island, for which campaign the department of health furnished a number of visiting nurses which were detailed on special duty to the philanthropic work of this institution.

#### QUARANTINE HOSPITAL

Forty-seven patients were treated during the year. Of this number 33 were cured, 11 improved greatly, and 1 was sent to the leprosarium on Cabras Island. Only 2 died.

The cases treated are classified as follows:

Typhoid fever.....	20	Leprosy.....	1
Diphtheria.....	16	Leprosy (under observation).....	1
Tuberculosis.....	1	Measles.....	1
Chicken pox.....	2	Influenza.....	1
Erysipelas.....	1	Antirabic treatment.....	1
Inguinal tumors.....	1		
Streptococcal infection.....	1	Total.....	47

#### PHARMACY

The number of prescriptions filled for the different institutions of the department during the fiscal year 1922-23 was as follows: Antituberculosis sanatorium, 2,950; insane asylum, 4,883; boys' charity school, 795; girls' charity school, 561; leper colony, 461; quarantine hospital, 826; total, 10,476.

The number of preparations, such as tinctures, ointments, elixirs, sirups, etc., reached 406; capsules of tricalcine, for adults, 38,000; for children, 12,950; capsules of luminal, 5,450; capsules of bismuth, 2,335; papers of santonina and calomel, 17,500; capsules of thymol, 20,850; of chenopodium, 10 minims, 175,800; of 5 minims, 96,000; Blaud pills, 150,000; quinine capsules and papers, 135,000; quinine pills, 130,000; Epsom salts, 53,450 pounds; virus vaccines, 100,000 points; typho-bacterin, 10,500 doses.

The total cost of all the drugs consumed by the institutions during the year was \$5,783.97 and by the bureau of children's welfare, \$117.37.

#### BIOLOGICAL LABORATORY

The routine work for the fiscal year 1922-23 has increased greatly. The total in figures has increased from 7,500 examinations the previous year to 10,000 this year.



**Malaria.**—The number of examinations made for malarial parasites has diminished, 783 samples having been examined with an average of 8.02 per cent positive. Said diminution is due to the fact that Salinas and Barceloneta, two malarial districts, are being studied locally and have consequently stopped sending their specimens.

**Complement fixation test.**—A high number of complement fixation tests have been made throughout the year. The outfits for collecting the blood specimens and the performance of the test itself undoubtedly are too expensive, but when we consider the importance and the value rendered to public health work the expense is negligible. As a fact, the benefit thus reported far surpasses any other consideration on the matter. Three thousand one hundred and twenty specimens of blood and 45 of spinal fluid were examined with an average of 34.64 per cent positive. It is curious to point out that of 118 urethral exudates 33.71 per cent were positive for gonococci, giving the latter a percentage of positive similar to that of syphilis. This proves that both diseases should be equally and intensively attended to. A new bureau of venereal diseases is being organized in San Juan in order to study the possibility of spreading this work to other localities. Out of 580 specimens tested for Widal reaction 41.03 per cent have been positive, which no doubt is a high percentage.

**Nasopharyngeal exudates.**—Three hundred and thirty-nine nasopharyngeal exudates for diphtheria were examined reaching a percentage of 24.77 positive, which is rather high; but it must be taken into consideration that a large number of the cases were registered during the last months of the fiscal year due to the dry season.

**Intestinal parasites.**—Nine hundred and fifty-six specimens of feces were examined for intestinal parasites, of which 51.57 per cent were found to contain parasites of some sort, especially uncinariae.

**Sputum.**—One thousand eight hundred and four sputa were examined for tuberculosis with 51.71 per cent positive. This is a high percentage, but it must be mentioned that all specimens from the insular sanatorium are examined in this laboratory. The sputa are autoclaved before they are examined, obtaining with this process more efficient and satisfactory results. All danger of contagion is avoided and the bacilli can be easily discovered in the visual field on account of a higher concentration.

**Water.**—Eighty-two samples of water were examined, including several examinations of the San Juan water supply.

**Special investigations.**—Repeated examinations of the nasal and nodular exudates of the lepers at Cabras Island have been made and recorded. The work is being carried on periodically so as to determine the action of the derivatives of Chalmougra oil in the course of the disease.

**Typhoid bacilli in water.**—The presence of typhoid bacilli has been investigated in several samples of water, obtaining negative results in each instance. For this work, Endo's media, litmus agar, and brilliant green have been used. As an experimental test the eosin methylene blue agar with satisfactory results has been also performed so as to eliminate the presence of bacillus aerogenus.

**Complement fixation test.**—We found the complement fixation test for glanders almost useless in mules and asses because the blood of the mule has an excess of complement which binds down the amboceptor, giving a positive result practically in all cases. So when glanders is to be tested in mules the coagglutination test or the Mallein test should be preferred. A special study of this was made at this laboratory, assisted by the public health veterinarian, the experiments being carried out in mules and horses owned by the municipal government, and the conclusion has been reached that complement fixation is satisfactory in horses but not in mules and asses.

The Sach Gorgi precipitin reaction for syphilis has been carried out simultaneously with the classical Wasserman reaction. The result has been unsatisfactory from the standpoint of accuracy and the reaction has been dropped.

**Pathological sections.**—A small number of pathological sections have been officially registered at the laboratory. Personal investigations are carried out with fairly good results, so as to simplify the technique of making and staining sections by the freezing methods. The results obtained by a recopilation and applications of different rapid methods combined will be published in due time.

## BIOLOGICAL LABORATORY

Table showing the total number and kind of analyses made in the biological laboratory during the fiscal year ended June 30, 1923

(Omitted.)

## CHEMICAL LABORATORY

The chemical laboratory is doing, as in previous years, the work which belongs to an institution of its nature. Analyses have been made for all the branches of the government, and a great interest has been displayed this year on the inspection and analysis of milk.

The total number of analyses made during the year may be classified by their results as follows:

	Samples
Excellent.....	576
Good.....	549
Fair.....	756
Inferior.....	203
Suspicious.....	25
Adulterated.....	569
Poor.....	225
Positive.....	7
Negative.....	28
Rejected.....	2
Nonclassified.....	173
Total.....	3,113

Out of the total number of samples examined, 2,567 were of cow milk. They were classified as follows:

Excellent.....	575
Good.....	356
Fair.....	740
Inferior.....	193
Suspicious.....	25
Adulterated.....	1,538
Nonclassified.....	139
Rejected.....	1
Total.....	2,567

Table, by towns, showing the number of samples of cows milk analyzed, number adulterated, and percentage of adulteration

(Omitted.)

Foods and other products destroyed during the year 1922-23 on account of being improper for public consumption

Rice, meats, candies, fish, etc.....	pounds.....	534,935
Oats, sugar, etc.....	packages.....	281
Oilives.....	flasks.....	7
Cocoa, condensed milk, evaporated milk, butter, etc.....	cans.....	50,661
Mineral water, beer, grape juice.....	bottles.....	6,897
Cow milk, ice cream, etc.....	liters.....	7,271
Coconuts, eggs, oranges, etc.....	units.....	394
Bread.....	loaves.....	14,051
Crackers, yeast, raisins, etc.....	boxes.....	22,915

Statement showing the cases of adulteration of milk proved by the chemical laboratory and the cases filed in the courts

(Omitted.)

Source of all the samples of foods, drugs, and other products examined during the fiscal year 1922-23 in the chemical laboratory

(Omitted.)

<sup>1</sup> The percentage of adulteration is 20.96.



DIVISION OF SANITARY ENGINEERING

Two thousand five hundred and ninety-five plans for new constructions and 113 for enlargements and repairs have been approved during this year. See following statement:

Plans examined and approved

Towns	Con- struc- tions	En- large- ments and repairs	Total	Towns	Con- struc- tions	En- large- ments and repairs	Total
Aguadilla.....	26	---	26	Ponce.....	48	---	48
Aibonito.....	24	1	25	Quebradillas.....	24	1	25
Arecibo.....	71	5	76	Río Piedras.....	243	4	247
Barranquitas.....	25	25	50	San German.....	29	---	29
Bayamon.....	144	4	148	San Juan.....	754	44	798
Caguas.....	189	12	201	Vega Baja.....	27	2	29
Carolina.....	89	---	89	Total.....	2,051	96	2,147
Cataño.....	58	4	62	Other towns.....	544	17	561
Coamo.....	34	---	34	Total.....	2,595	113	2,708
Comerio.....	38	3	41	Urbanizations.....	---	---	56
Fajardo.....	31	3	34	Other plans.....	---	---	307
Gurabo.....	26	8	34	Grand total.....	---	---	3,071
Loiza.....	44	---	44				
Manati.....	33	2	35				
Mayaguez.....	52	3	55				
Naguabo.....	42	---	42				

Towns in which the number of plans approved did not amount to 25 do not figure in the above list.

PLUMBING

The following statement shows the number of plans examined and the number of installations made in the island during the fiscal year 1922-23:

Month	Plans		Total number of plans exam- ined	Fixtures approved				Total
	Ap- proved	Re- jected		Lava- tory and kitchen	Water- closets	Bath- tubs	Other fix- tures	
July.....	161	16	177	183	60	236	305	784
August.....	168	14	182	171	68	205	235	679
September.....	139	14	153	153	56	205	253	667
October.....	164	19	183	159	64	216	265	704
November.....	127	11	138	147	54	152	179	532
December.....	119	13	132	140	50	217	305	712
January.....	134	14	148	160	57	214	224	655
February.....	130	9	139	134	45	170	192	541
March.....	132	15	147	148	61	189	192	590
April.....	118	7	125	153	47	212	215	627
May.....	136	6	142	157	43	161	220	581
June.....	140	5	145	164	32	191	199	586
Total.....	1,668	143	1,811	1,869	637	2,368	2,784	7,658

The examining board for plumbers held examinations in San Juan. Seventeen candidates took examinations—eight for master plumber and nine for journeyman plumber. Only three candidates were granted certificates as journeyman plumber.

DIVISION OF SANITARY ENGINEERING

WATERWORKS AND SEWERAGE

The following systems have been approved for construction this year: Sewerage systems for Maricao, San Sebastian, Santa Isabel, Vega Baja, Rio Grande, Camuy, Bayamon, Arecibo (workmen's suburb), Cidra, Santurce (extension), Cataño, Ponce, Gurabo, and Ciales. One separate system for drainage in San-

turce. Waterworks for Manati, Carolina, San Juan (extension), Hatillo, Camuy, San Lorenzo, Bayamon, Cataño, Aguas Buenas, Ceiba, Vega Baja, Juncos (extension), Loiza, Maunabo (extension), and Rio Grande.

This bureau has demanded the installation of intermittent sand filters for the clarification of sewage disposal and the installation as well of plans for the disinfection of same. These demands are of great importance, as most of the sewers discharge into the rivers, from which a large part of our rural population draws water for both drinking and domestic purposes. The dangers which threaten these people are obvious. The lack of legislation for the protection of rivers, in many instances the negligence of the municipal authorities, and the small volume of water of our streams demand the installation of purification plants in all waterworks.

This department has purchased a portable chlorine plant which will help protect the life of many communities against epidemics whose chief means of propagation is water. The convenience and usefulness of this plant will be better appreciated if it is considered that sewage disposal can also be disinfected in places where epidemics have made their way.

This division has faced many difficulties in trying to make a detailed study of all water works and sewers in the island which could be obviated with the cooperation of the municipal authorities. The department is contemplating the idea of placing a competent engineer in charge of their inspection.

DRAINAGE OF THE SUGAR CENTRALS

With the purpose of discovering the causes which had led to the appearance of some dead fish in the Loiza River, the department undertook a close investigation on the matter, and the conclusion was reached that said condition was brought about by the discharge of molasses into the river by the sugar mills. The recurrence of facts like this demand regulations on the molasses disposal and the drainage of the sugar centrals which are located on the rivers from which people get their water for domestic and agricultural purposes. This is one of the problems confronting the department of health.

RAT-PROOFING OF BUILDINGS

The rat-proofing of buildings is a very wise measure adopted by the department against diseases which are propagated by rats. It is intended to protect the city of San Juan and such other ports which carry on commerce, with abroad especially. The work was discontinued this year due to lack of available funds; but undoubtedly will be renewed in the near future at the expense of property holders and under the direction of the department of health.

Before closing this report I wish to state that all our efforts have brought about a higher degree of sanitation which reveals itself in the improvement of the home and its surroundings. In this respect we are indebted to the insular board of health for the preparation of specific regulations on sanitary engineering.

GENERAL SANITARY INSPECTION

The sanitary activities in Porto Rico are carried out with considerable rapidity, although not as rapid as they should be. This is due mainly to the embarrassing conditions of many poor municipalities which in spite of their good will have not been able to attend to the recommendations of this department. However, with the means available, they have accomplished a great deal.

Fortunately, the contracting of loans by many municipalities is helping solve many problems of an economic nature and the outlook regarding public health is more promising.

As seen from the report of the sanitary engineer, plans for the construction of many waterworks and sewers have been approved during the year, and the department feels confident that in the near future most of the towns of the island will have these two important services.

The department has under consideration the creation of a division of general inspection to reorganize the sanitary inspection service in order that its program may be carried out to the best advantage of the people of Porto Rico.



FOOD AND DRUG INSPECTORS

With the purpose of extending the field of action of this bureau and making its work more effective, special services have been organized under special inspectors. This organization has permitted the appointment of an inspector to examine the records of the steamship companies of San Juan, rendering assistance to the Federal food and drug laboratory in the inspection of all imported foodstuffs and drugs before placing them on the market. Likewise, all drug stores, warehouses, markets, hotels, dairies, bakeries, meat markets, fruits, fish, and other articles of daily use are attended to.

In every senatorial district a food and drug inspector has been placed to assist the local sanitary inspector along this line of work.

A summary of the work done will be seen in the report rendered by the director of the chemical laboratory.

VETERINARY INSPECTORS, NORTHERN DISTRICT

Statement showing the number of blood specimens examined, and the results of the complement-fixation test made for the diagnosis of glanders

Town	Positive	Negative	Total
Barceloneta	1	2	3
Cayey		2	2
Corozal		2	2
San Juan	17	20	37
Total	18	26	44

The animals which underwent the complement-fixation test and rendered positive results were submitted to the intrapalpebral test, and those whose results were positive in both tests were killed.

The complement-fixation test should be replaced by the intrapalpebral test, as the former renders poor results, especially when applied on mules and asses.

Several towns were visited during the year and the following diseases were discovered:

1. Bacterial anthrax	positive	3
2. Symptomatic anthrax	do	3
3. Glanders	do	2

All these cases were treated and measures were recommended to prevent their propagation. The animals suffering from glanders were killed.

Several cases of hog cholera were reported by the towns of Arecibo, Yabucoa, and Cataño, which were immediately attended to. Special attention was given to the examination of imported animals. A list of the cattle imported from the United States during the year is given below:

Cows (Jersey, Holstein, Guernsey, etc.)	221
Oxen	19
Race horses	23
Mules	20

The bovine cattle were tuberculin tested, while the mules and horses had the Maleine test performed. Several horses belonging to the insular police were examined. Fifteen Holstein and Redpolled cows bought by this department which were suffering from Texas fever were also treated; but in spite of all efforts made, eight of them died.

A campaign was launched in some towns of the island with the cooperation of the department of agriculture and labor to demonstrate the effectiveness of the antianthrax vaccine.

SOUTHERN DISTRICT

Seventeen specimens taken from horses suspicious of glanders were sent to the laboratory for examination, of which nine gave positive results. Seven cases of anthrax reported were vaccinated. The total number treated was 4,500, and 750 cases of hog cholera were examined in various towns of the district.

INSPECTION OF THE SLAUGHTERHOUSE

The following animals were sacrificed during the year:

Bovine cattle	6,287
Hogs	2,181
Sheep	1,387

Only 114 of these animals were found unfit for eating because of various diseases.

MARKETS

The following food articles were destroyed:

Eggs	7,097
Meat	658
Pork	476
Fish	963
Hens	221

CHARITABLE INSTITUTIONS

INSANE ASYLUM

The statistics which follow indicate the number of entries during the year. Thirteen per cent of the patients were cured and 3 per cent died. If the entries of the year are added to the remnants of 1921-22, the percentage of patients cured will be 8.08 and that of deaths 5.05. Both figures outnumber last year's. The result was very satisfactory. It should be observed that one-third of the total number of deaths was due to tuberculosis.

If the statistics of previous years are examined it will be found that the number of chronic cases is constantly increasing, while the number of entries consequently is decreasing. This fact seems to indicate that the plan of keeping a separate building with two departments for chronic cases of both sexes, as is being done in the United States, is a wise one. Under this plan it is not only easy and inexpensive to care for the patients, but those who can possibly be cured are free from contact with others of different sex, which is always harmful.

Table showing the number of patients admitted to the insane asylum during the fiscal years 1921-22 and 1922-23, the number discharged, the number of deaths, etc.

[Abridged]

	Year ending June 30—					
	1922			1923		
	Males	Females	Total	Males	Females	Total
Patients admitted to asylum	95	71	166	64	58	122
Discharged			66	59		125
Number of inmates June 30	244	268	512	242	267	509
Ages:						
10 to 20				15	6	21
21 to 30				68	47	115
31 to 40				71	81	152
41 to 50				46	74	130
51 to 60				30	45	75
61 to 70				12	10	22
71 to 80					4	4
White				178	182	360
Colored				64	85	149
Civil condition:						
Single				158	136	294
Married				69	89	158
Widowed					34	40
Divorced				6	7	13
Unknown				9	1	10
Deaths				19	13	32



*Diagnoses of the psychoses in relation with the ages of the patients in the insane asylum during the fiscal year 1922-23*

(Omitted.)

*Diagnoses of the mental diseases of the patients in the insane asylum classified by sexes and discharges occurring during the fiscal year 1922-23*

(Omitted.)

*Causes of the deaths that occurred in the insane asylum during fiscal year 1922-23*

(Omitted.)

BOYS' AND GIRLS' CHARITY SCHOOLS

The following table shows the number of inmates of both charitable institutions during the year ended June 30, 1923:

	Boys	Girls	Total
Inmates on June 30, 1922.....	396	298	694
Admitted during this year.....	53	32	85
Total.....	449	330	779
Discharged during the year.....	49	32	81
Inmates on June 30, 1923.....	400	298	698

The children now in the said schools are classified according to their different ages, as follows:

Ages	Boys	Girls	Total	Ages	Boys	Girls	Total
7 years.....	1	4	5	14 years.....	63	25	88
8 years.....	5	22	27	15 years.....	42	20	62
9 years.....	14	34	48	16 years.....	25	15	40
10 years.....	34	36	70	17 years.....	20	11	31
11 years.....	53	27	80	18 years.....	11	8	19
12 years.....	71	56	127				
13 years.....	61	40	101	Total.....	400	298	698

These schools follow the organization and course of studies prescribed by the department of education for the public schools. In the boys' charity school academic instruction is given up to the eighth grade, inclusive, besides manual arts. A special two-year commercial course is offered in the girls' charity school. This course is intended to prepare the inmates to fill positions in the executive departments of the Government and other private and public offices as well.

In the industrial department, vocational work is given very close consideration. The girls' charity school is equipped with shops for the teaching of drawn work, embroidery, sewing, straw work, lacework, drawing, painting, and cooking, which has been introduced to complete the girls' education; while plumbing, masonry, carpentry, tailoring are taught in the boys' charity school.

During the year 1,427 pairs of shoes were made and 1,062 pairs repaired in the shops of the boys' school, and other manufactured articles were sold for the amount of \$598.65. The articles manufactured in the tailoring division produced an income of \$122.22, and the sum of \$1,635.50 was deposited in the insular treasury by the girls' charity school as a result of the work done by the inmates during the previous year. The results of the work during the year were very gratifying.

Sixty-six pupils attended the music classes. Special attention has been paid this year to physical culture. Games and gymnasium exercises have been conducted for the physical development of the children. The boys are organized after a military plan and every afternoon they receive instruction in military tactics. Owing to this their health has greatly improved. The cases of illness have been very few, most of them of a mild nature and no deaths have occurred.

The following table shows the average enrollment in each grade and the number of children promoted:

Grade	Enrollment		Promoted		Not promoted	
	Boys	Girls	Boys	Girls	Boys	Girls
First.....	34	24	26	18	8	6
Second.....	50	25	50	22	3	3
Third.....	51	23	48	20	3	3
Fourth.....	98	36	60	38	38	36
Fifth.....	67	49	37	35	30	14
Sixth.....	41	49	31	35	10	14
Seventh.....	28	34	13	28	15	6
Eighth.....	14	24	13	15	1	9
Total.....	383	264	278	173	105	91

Of the 11 girls taking the commercial course, 8 were graduated and the other 3 improved upon their knowledge of shorthand and typewriting.

BLIND ASYLUM

The following statement shows the movement of patients during the fiscal year just ended:

	Curable	Incurable	Total
Number of patients on June 30, 1922.....	68	38	106
Admitted during the year 1922-23.....	101	17	118
Total.....	169	55	224
Discharged.....	117	17	134
Remaining on June 30, 1923.....	52	38	90

The patients discharged are classified as follows:

Cured.....	89
Upon request (not cured).....	41
Died.....	4
Total.....	134

Sixty patients were operated upon during the year and 236 cases of inter-current diseases were recorded.

*Diagnoses of patients admitted to the Blind Asylum, curable and incurable during the fiscal year 1922-23*

(Omitted.)

(Omitted.)

(Omitted.)

Operations performed

Intercurrent diseases in the asylum

NOTE.—The daily average attendance was 95 patients, which ranks the highest since the establishment of the asylum.

THE SCHOOL FOR THE BLIND

The number of pupils enrolled in the school; which is a part of the institution, under the direction of Miss Loaiza Cordero, a teacher who has had special training, was 33—18 males and 15 females. Their ages ranged from 4 to 24 years. These pupils came from 18 different towns; 12 were totally blind and the others partially sighted.

At the end of the year 1 pupil was promoted to the fifth grade, 6 to the third, 4 to the second; 20 remained in the first grade, and 2 in the second.

The knitting, crocheting, and basketry done this year exceeds a hundred pieces. This work has been kept for exhibition and sale on the inauguration of our first building which will be erected by the Junior Red Cross in the course of the coming year.



VITAL STATISTICS

The following is a summary of the statistics of the fiscal year 1922-23 as compared to those of the fiscal year 1921-22:

<b>BIRTHS</b>		Urban in 1920.....	282,745
1921-22.....	52,033	Rural in 1910.....	893,370
1922-23.....	50,348	Rural in 1920.....	1,015,027
		Estimated urban population 1923.....	300,175
		Estimated rural population 1923.....	1,051,525
Diminution.....	1,685		
<b>DEATHS</b>		<b>GENERAL MORTALITY PER THOUSAND</b>	
1921-22.....	30,098	Death rate in 1923.....	21.11
1922-23.....	28,533	Urban zone rate.....	31.48
		Rural zone rate.....	18.05
Diminution.....	1,565		
<b>POPULATION</b>		<b>INFANT MORTALITY <sup>1</sup></b>	
Urban in 1910.....	224,642	1921-22 from 0 to 5 years.....	14,281
		1922-23 from 0 to 5 years.....	12,845

<sup>1</sup> This mortality is classified as follows:

Age	1921-22	1922-23	Diminution
To 1 year.....	7,915	7,218	697
1 to 2 years.....	3,557	3,134	423
2 to 5 years.....	2,773	2,491	282

DEATH RATE, PER CENT PER THOUSAND

To 5 years.....	25.51	1 to 2 years.....	6.22
To 1 year.....	14.34	2 to 5 years.....	4.94

Four thousand eight hundred and fifty-six stillbirths were registered during the year and 4,312 children died from enteritis. These deaths were recorded as follows:

To 1 year of age.....	2,451
1 to 2 years of age.....	1,124
2 to 5 years of age.....	737
Total.....	4,312

Five hundred and six deaths were also recorded as due to infantile tetanus.

Cases of transmissible diseases reported

(Omitted.)

Deaths due to transmissible diseases

(Omitted.)

SUMMARY

Births.....	50,348
Marriages.....	17,372
Deaths under 1 year.....	7,218
Deaths from 1 to 2 years.....	3,134
Deaths from 2 to 5 years.....	2,491
Total deaths.....	28,533
Death rate per 1,000 of population.....	21.11
Total deaths from transmissible diseases.....	6,479
Per cent of deaths due to transmissible diseases.....	22.71
Excess of births over deaths.....	21,815
Ratio of births to deaths.....	1.77

Table of infantile mortality, fiscal year 1922-23

[Abridged—deaths by municipalities omitted]

	Under year	1 to 2 years	2 to 5 years
<b>I. Epidemic, endemic and infectious diseases:</b>			
Typhoid fever.....	1	4	10
Malaria.....	156	105	130
Measles.....	11	9	19
Whooping cough.....	66	24	10
Diphtheria.....	12	16	23
Influenza.....	93	43	54
Erysipelas.....	8	1	1
Cholera nostras.....	1		
Dysentery.....	17	11	17
Tetanus.....	4	5	11
Tuberculosis of the respiratory system.....	11	14	13
Tuberculosis of the intestines and peritoneum.....		2	1
Tuberculosis of other organs.....	9	6	2
Syphilis.....	47	9	5
Purulent infection, septicæmia.....	22	13	8
Other infectious diseases.....	3	3	4
<b>II. General diseases not included above:</b>			
Rickets.....	447	642	457
Pernicious anemia.....	6	4	37
Other general diseases.....	7	3	4
<b>III. Diseases of the nervous system and of the organs of special sense:</b>			
Encephalitis.....	3	3	3
Simple meningitis.....	106	46	30
Other diseases of the spinal cord.....	2	2	1
Cerebral hemorrhage.....	18	2	5
Infantile convulsions.....	34	2	1
Other diseases of the nervous system.....	6	3	3
<b>IV. Diseases of the circulatory system:</b>			
Endocarditis and myocarditis (acute).....	1	2	2
Other diseases of the heart.....	11	6	9
<b>V. Diseases of the respiratory system:</b>			
Diseases of the larynx.....	3	2	1
Bronchitis acute.....	661	255	166
Bronchopneumonia.....	433	248	176
Pneumonia.....	174	105	88
Pleurisy.....	1		3
Congestions and hemorrhagic infarct of the lung.....	4	3	
Asthma.....	5	3	8
Other diseases of the respiratory system (tuberculosis excepted).....			1
<b>VI. Diseases of the digestive system:</b>			
Diseases of the mouth and annæxa.....	1	3	
Other diseases of the pharynx and tonsils.....	1	3	2
Diarrhea and enteritis.....	2,451	1,124	737
Ankylostomiasis.....	15	18	56
Other parasites specified.....	17	52	70
Appendicitis and typhlitis.....	1	1	1
Intestinal obstruction.....	22	5	5
Other diseases of the intestines.....	53	18	16
Other diseases of the liver.....	5	2	3
Other diseases of the digestive system (cancer and tuberculosis excepted).....	2	1	
<b>VII. Diseases of the genito-urinary organs:</b>			
Acute nephritis.....	76	111	165
Other diseases of the kidneys and annæxa.....	3	1	1
<b>VIII. Diseases of the skin and of the cellular tissue:</b>			
Gangrene.....	1	4	4
Other diseases of the skin and annæxa.....	3	3	
<b>IX. Locomotion: Diseases of the bones and the organs of locomotion</b>			
<b>X. Congenital malformation</b>			
<b>XI. Diseases of early infancy:</b>			
Congenital debility, icterus, and sclerema.....	1,137		
Infantile tetanus.....	506		
Other diseases peculiar to early infancy.....	184		
Lack of care.....			
<b>XII. External causes:</b>			
Acute poisoning.....	2	3	2
Burns.....	11	16	11
Accidental drowning.....	1	1	1
Starvation (deprivation of food or water).....	34	2	3
Other external violence.....	5	2	3
<b>XIII. Ill-defined diseases:</b>			
Causes of death ill-defined.....	123	126	71
Causes of death not specified or unknown.....	82	36	35
Grand total.....	7,218	3,134	2,491



Vital statistics of Porto Rico—Births, marriages, stillbirths, and deaths for the fiscal year 1922-23

[Abridged]

		Male	Female			Male	Female
<b>BIRTHS</b>				<b>MARRIAGES</b>			
Race:				Race:			
White	18,680	17,622		White	7,157	7,195	
Colored—				Colored	1,529	1,491	
Half-breed	1,068	971		Nativity:			
Indian	187	190		Native	8,579	8,644	
Mulatto	5,215	4,952		Foreign	107	42	
Negro	773	690		Age:			
Total colored	7,243	6,803		Under 20 years	385	3,155	
Sex:	25,923	24,425		20 to 30 years	6,656	4,948	
				Over 30 years	1,645	583	
Civil condition:				Previous conjugal conditions:			
White—				Single	7,481	8,339	
Legitimate	15,325	14,283		Widowed	861	256	
Illegitimate	3,389	3,334		Divorced	344	91	
Colored—				Total		17,372	
Legitimate	4,972	4,874					
Illegitimate	2,237	1,934					
Total		50,348					

STILLBIRTHS

Race:			Civil condition:		
White	3,636		Legitimate	3,082	
Colored	1,220		Illegitimate	1,774	
Sex:			Total	4,856	
Male	2,779				
Female	2,077				

DEATHS

Age:			Age:		
Under 1 year	7,218		90 to 100 years	216	
1 to 2 years	3,134		Over 100 years	52	
2 to 5 years	2,491		Nativity:		
5 to 10 years	1,236		Porto Rico	28,441	
10 to 15 years	1,730		United States	10	
15 to 20 years	1,032		Spain	49	
20 to 25 years	1,614		Hispanoamerica	9	
25 to 30 years	1,519		West Indies	20	
30 to 40 years	2,442		Other countries	3	
40 to 50 years	1,840		Unknown	1	
50 to 60 years	1,729		Total	28,533	
60 to 70 years	1,476				
70 to 80 years	1,170				
80 to 90 years	632				

		Male	Female			Male	Female
Race:				Civil condition:			
White	10,675	10,266		Single	2,597	2,482	
Colored—				Married	10,843	9,739	
Half-breed	1,157	1,092		Widowed	907	1,766	
Indian	100	95		Divorced	24	34	
Mulatto	1,878	2,008		Unknown	90	51	
Negro	651	611		Total	28,533		
Total colored	3,786	3,806					
Sex:	14,461	14,072					

Profession or occupation:		
Agriculture—		
Husbandman proprietors	121	
Journeyman day laborers and farm laborers	4,377	
Commerce—		
Proprietor merchants	103	
Merchants' clerks	21	
Industry—		
Owners of factories	7	
Artisans and industrial laborers	1,148	
Cigarmakers	122	
Professionals in general	340	
Unknown	170	
Housework (women)	7,313	
Miners without profession (both sexes)	14,809	
Domicile:		
Urban	9,550	
Rural	18,983	
Total	28,533	
Causes of deaths:		
Classification by groups—		
Epidemic, endemic, and infectious diseases	5,304	
General diseases, not included above	2,827	
Diseases of the nervous system and of the organs of special sense	761	
Diseases of the circulatory system	1,347	
Diseases of the respiratory system	4,224	
Diseases of the digestive system	7,106	
Nonvenereal diseases of the genito urinary system and anexa	1,729	
The puerperal state	341	
Diseases of the skin and of the cellular tissue	61	
Disease of the bones and of the organs of locomotion	13	
Malformations	102	
Early infancy	1,827	
Old age	1,386	
External causes	559	
Ill-defined diseases	946	
Total	28,533	

Causes of deaths:		
Epidemic, endemic, and infectious diseases—		
Typhoid fever	123	
Malta fever	5	
Malaria	992	
Measles	52	
Whooping cough	104	
Diphtheria	57	
Influenza with pulmonary complications specified	94	
Influenza without pulmonary complications specified	596	
Mumps	1	
Cholera nostras	4	
Dysentery amebic	4	
Dysentery unspecified or due to other causes	123	
Leptosy	1	
Erysipelas	23	
Chicken-pox	1	
Anthrax	9	
Tetanus	119	
Tuberculosis of the respiratory system	2,572	
Tuberculosis of the meninges and central nervous system	7	
Tuberculosis of the intestines and peritoneum	75	
Tuberculosis of the vertebral column	1	
Tuberculosis of the lymphatic system (mesenteric and retroperitoneal glands excepted)	35	
Tuberculosis of organs other than the above	107	
Syphilis	4	
Gonococcus infection	171	
Purulent infection septicemia	17	
Other infectious diseases		
General diseases not included above—		
Cancer and other malignant tumors of the buccal cavity	31	
Cancer and other malignant tumors of the stomach and liver	133	
Cancer and other malignant tumors of the female genital organs	133	
Cancer and other malignant tumors of the peritoneum, intestines, and rectum	9	
Cancer and other malignant tumors of the breast	9	
Cancer and other malignant tumors of the skin	12	
Cancer and other malignant tumors of unspecified organs	101	
Benign tumors and tumors not returned as malignant (tumors of the female genital organs excepted)	13	
Acute rheumatic fever	13	
Chronic rheumatism, osteoarthritis, gout	10	
Scurvy	3	
Rickets	1,657	
Diabetes mellitus	27	
Pernicious anemia	558	
Other anemias and chlorosis	76	
Diseases of the pituitary gland	2	
Diseases of the adrenals (Addison's diseases)	1	
Alcoholism (acute or chronic)	5	
Chronic poisoning by organic substances	1	
Other general diseases	33	



Causes of deaths—Continued.

Diseases of the nervous system and of the organs of special sense—	
Encephalitis.....	30
Simple meningitis.....	217
Nonepidemic cerebrospinal meningitis.....	1
Tabes dorsalis (locomotor ataxia).....	4
Other diseases of the spinal cord.....	12
Cerebral hemorrhage.....	232
Cerebral thrombosis and embolism.....	14
Hemiplegia.....	8
General paralysis of the insane.....	24
Other forms of mental alienation.....	58
Epilepsy.....	51
Convulsions (nonpuerperal) (5 years and over).....	1
Infantile convulsions (under 5 years of age).....	42
Chorea.....	1
Softening of the brain.....	11
Other diseases of the nervous system.....	52
Diseases of the ear.....	3
Diseases of the circulatory system—	
Pericarditis.....	5
Endocarditis and myocarditis (acute).....	292
Angina pectoris.....	66
Other diseases of the heart.....	648
Aneurysm.....	19
Arteriosclerosis.....	282
Other diseases of the arteries.....	15
Embolism and thrombosis (not cerebral).....	3
Diseases of the veins (varices, hemorrhoids, phlebitis, etc.).....	1
Hemorrhage without specified cause.....	16
Diseases of the respiratory system—	
Diseases of the larynx.....	16
Bronchitis acute.....	66
Bronchitis chronic.....	95
Bronchitis not otherwise defined under 5 years of age.....	1,081
Bronchitis not otherwise defined 5 years and over.....	95
Bronchopneumonia.....	1,380
Pneumonia lobar.....	18
Pneumonia not otherwise defined.....	1,267
Pleurisy.....	42
Congestion and hemorrhagic infarct of the lung.....	28
Gangrene of the lung.....	4
Asthma.....	97
Pulmonary emphysema.....	12
Other diseases of the respiratory system (tuberculosis excepted).....	23
Diseases of the digestive system—	
Diseases of the mouth and annexe.....	6
Other diseases of the pharynx and tonsils.....	12
Diseases of the esophagus.....	3
Ulcer of the stomach.....	21
Ulcer of the duodenum.....	5
Other diseases of the stomach (cancer excepted).....	149
Diarrhea and enteritis (under 2 years of age).....	3,575
Diarrhea and enteritis (2 years and over).....	1,650
Ankylostomiasis.....	1,017
Parasites not specified.....	170
Appendicitis and typhlitis.....	24
Hernia.....	10
Intestinal obstruction.....	69
Other diseases of the intestines.....	128
Acute yellow atrophy of the liver.....	9
Hydatid tumor of the liver.....	2
Cirrhosis of the liver, specified as alcoholic.....	1
Cirrhosis of the liver, not specified as alcoholic.....	99
Biliary calculi.....	2
Other diseases of the liver.....	63
Diseases of the pancreas.....	4
Peritonitis, without specified cause.....	80
Other diseases of the digestive system (cancer and tuberculosis excepted).....	7
Nonvenereal diseases of the genitourinary system and annexe—	
Acute nephritis (including unspecified, under 10 years of age).....	1,102
Chronic nephritis (including unspecified, 10 year and over).....	417
Other diseases of the kidneys and annexe (diseases of the kidneys in pregnancy excepted).....	146
Calculi of the urinary passages.....	7
Diseases of the bladder.....	13
Stricture of the urethra.....	1
Other diseases of the urethra, urinary abscess, etc.....	2
Diseases of the prostate.....	3
Cysts and other benign tumors of the ovary.....	3
Salpingitis and pelvic abscess.....	3
Benign tumors of the uterus.....	3
Nonpuerperal uterine hemorrhage.....	27
Other diseases of the female genital organs.....	2
The puerperal state—	
Abortion.....	5
Other accidents of pregnancy.....	1
Puerperal hemorrhage.....	60
Other accidents of labor.....	3
Puerperal septicemia.....	154
Puerperal phlegmasia alba dolens, embolus, sudden death.....	52
Puerperal albuminuria and convulsions.....	52
Following childbirth (not otherwise defined).....	60

Causes of deaths—Continued.

Diseases of the skin and of the cellular tissues—	
Gangrene.....	45
Acute abscess.....	6
Other diseases of the skin and annexe.....	10
Diseases of the bones and of the organs of locomotion—	
Diseases of the bones (tuberculosis excepted).....	11
Diseases of the joints (tuberculosis and rheumatism excepted).....	2
Malformations—	
Hydrocephalus.....	14
Congenital malformations of the heart.....	6
Other congenital malformations (stillbirths not included).....	82
Early infancy—	
Congenital debility, icterus, and sclerema.....	1,137
Premature birth.....	31
Injury at birth.....	3
Other diseases peculiar to early infancy.....	150
Infantile tetanus.....	506
Old age—Senility.....	1,386
External causes—	
Suicide by solid or liquid poisons (corrosive substances excepted).....	8
Suicide by poisonous gas.....	2
Suicide by hanging or strangulation.....	70
Suicide by drowning.....	6
Suicide by firearms.....	10
Suicide by cutting or piercing instruments.....	1
Other suicides.....	6
Other acute accidental poisonings (gas excepted).....	59
Conflagration.....	2
Accidental burns (conflagration excepted).....	64
Accidental drowning.....	39
Accidental traumatism by firearms (wounds of war excepted).....	94
Accidental traumatism by cutting or piercing instruments.....	40
Accidental traumatism by fall.....	4
Accidental traumatism by machines.....	1
Traumatism by railroad accidents.....	2
Traumatism by automobile accidents.....	5
Traumatism by injuries by other vehicles.....	1
Injuries by animals (not poisoning).....	2
Starvation (deprivation of food and water).....	42
Excessive heat.....	5
Lightning.....	7
Other accidental electric shocks.....	2
Homicide by firearms.....	2
Homicide by cutting or piercing instruments.....	3
Fracture (cause not specified).....	39
Other external violence (cause specified).....	27
Other external violence (cause not specified).....	16
Ill-defined diseases—	
Sudden death.....	4
Cause of death ill-defined.....	589
Cause of death not specified or unknown.....	353
Total.....	28,533

NOTE.—Tables noted as omitted or abridged are on file in the office of the commissioner of health, San Juan, and in the Bureau of Insular Affairs, Washington.



The following is a list of the names of the persons who have been appointed to the various positions in the Department of the Interior, under the act of Congress, approved March 3, 1879, and amended by the act of Congress, approved July 1, 1890, and the act of Congress, approved August 1, 1892.

Secretary of the Interior, *John D. Evans*.  
 Assistant Secretary of the Interior, *John W. Foster*.  
 Commissioner of the General Land Office, *John W. Foster*.  
 Commissioner of the Bureau of Reclamation, *John W. Foster*.  
 Commissioner of the Bureau of Indian Affairs, *John W. Foster*.  
 Commissioner of the Bureau of Geographical Names, *John W. Foster*.  
 Commissioner of the Bureau of Land Management, *John W. Foster*.  
 Commissioner of the Bureau of Prisons, *John W. Foster*.  
 Commissioner of the Bureau of Penitentiaries, *John W. Foster*.  
 Commissioner of the Bureau of Quarantine, *John W. Foster*.  
 Commissioner of the Bureau of Steam Navigation, *John W. Foster*.  
 Commissioner of the Bureau of Fish and Fisheries, *John W. Foster*.  
 Commissioner of the Bureau of Forestry, *John W. Foster*.  
 Commissioner of the Bureau of Mines, *John W. Foster*.  
 Commissioner of the Bureau of Plant Industry, *John W. Foster*.  
 Commissioner of the Bureau of Soils, *John W. Foster*.  
 Commissioner of the Bureau of Weather Service, *John W. Foster*.  
 Commissioner of the Bureau of Zoology, *John W. Foster*.

Note.—Listed below are the names of the persons who have been appointed to the various positions in the Department of the Interior, under the act of Congress, approved March 3, 1879, and amended by the act of Congress, approved July 1, 1890, and the act of Congress, approved August 1, 1892.











Universidad de Puerto Rico  
Recinto de Ciencias Médicas  
Biblioteca  
Colección Puertorriqueña

Universidad de Puerto Rico  
Recinto de Ciencias Médicas  
Biblioteca  
Colección Puertorriqueña



