

REPORT
OF THE
DEPARTMENT OF HEALTH
OF THE
ISTHMIAN CANAL COMMISSION
FOR THE
MONTH OF DECEMBER, 1905

W. C. GORGAS
Colonel, Medical Corps, U. S. Army
Chief Sanitary Officer

Gift of the Panama Canal Museum

WASHINGTON
GOVERNMENT PRINTING OFFICE
1906

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ANCON, CANAL ZONE, *January 16, 1906.*

To the GOVERNOR OF THE CANAL ZONE,

Ancon, Canal Zone.

SIR: I herewith forward the sanitary report for the month of December. The health conditions of the Isthmus remain excellent. During the month we had only one case of yellow fever on the Isthmus—that of an employee of the Commission who was taken sick at Colon December 11. In the city of Panama the last case occurred November 11.

At present we have on hand no quarantinable disease of any kind on the Isthmus.

The sick rate of the employees continues very low. With a force of about 22,000 we had on the average during the month 427 in hospital. This would give us a sick rate of slightly over 19 per 1,000. While the sick rate is very small, the death rate has been large. This was due to the large number of fatal cases of pneumonia occurring among the negro employees. Of the 74 deaths, 33 were due to pneumonia, and all of these cases of pneumonia occurred among the negroes. Leaving out these 33 cases of pneumonia, our death rate for the month would be at the rate of about 22 per 1,000 per year.

Our white employees suffer much less than the negroes. Among the whites we had only 4 deaths, and of these 4 deaths only 2 were from disease. This would give us an annual death rate among the whites of only 8 per 1,000. The death rate among the negroes, on the other hand, would give us an annual death rate of about 44 per 1,000. It is difficult for me to account for this great difference. Of course, the whites, on the average, take very much better sanitary care of themselves; sleep under mosquito bars, take quinine, and observe other sanitary regulations to a much greater extent than do the negroes.

Recently an attack has been made upon the conduct of affairs, generally, on the Isthmus by a writer of prominence in the "Independent," and he criticises severely what he believes to be the unsanitary condition of Colon, pointing out its location over a swamp, poor houses, poor arrangements for disposing of night soil, etc., and calling attention to the absurd system of sanitation which pays so much attention to mosquito work and fumigation.

In reply to criticisms of this kind I would like to call attention to the fact that the sanitary department on the Isthmus was not established to demonstrate any theory of disease. We came for a practical purpose—to decrease disease as much as possible. The absurd.

measures have certainly so far accomplished this result. The facts stand forth that at present we have not a single case of yellow fever on the Isthmus, and during the whole month of December had only one; that malaria has been brought so well under control that our total sick rate is as small as that of any considerable body of men working anywhere in the United States.

This writer, Mr. Bigelow, judges us by a sanitary standard of ten years ago, and as applied to the temperate zones. He is, apparently, unaware that recently acquired knowledge has entirely revolutionized tropical sanitation.

Our knowledge and experience in tropical sanitation have shown us that if every house in Colon had been supplied with modern plumbing and the buildings themselves had been well-built Philadelphia cottages, and we at the same time had had uncovered cisterns and water barrels, we would by this time have lost half our nonimmune force from yellow fever. But if we look after the cisterns and water barrels and take appropriate measures with regard to the sick from yellow fever, it is of very little importance whether we have a modern water-closet or the more primitive pit.

What we are after is to get rid of yellow fever. We hope in the near future to have Colon filled in, and good buildings and clean water-closets erected in Colon, just such as would please Mr. Bigelow, but we can not afford to wait for these desirable conditions before getting rid of yellow fever.

What I maintain is that the results here and elsewhere in tropical sanitation have justified the measures taken, and that we should not be criticised for not having wasted our energies on measures that would have been impossible to rapidly execute, and, according to the well-nigh universal belief of modern sanitarians, would have had little or no effect upon the diseases which we were endeavoring to control.

Very respectfully,

W. C. GORGAS,
Chief Sanitary Officer.

REPORT

OF

DEPARTMENT OF HEALTH, ISTHMIAN CANAL COMMISSION,

DECEMBER, 1905.

YELLOW-FEVER CASES AND DEATHS, FROM JULY 1,
1904, TO DECEMBER 31, 1905.

PANAMA, COLON, CANAL ZONE, AND TO AND FROM FOREIGN PORTS.

	Employees of Commission appointed in United States		Employees of Commission, appointed on Isthmus		Employees of the Panama R. R. Co.		Not employ- ees of the Commission or Panama R. R. Co.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Panama	36	11	27	6	4	1	58	28
Colon.....	16	1	10	3	6	3	29	12
Canal Zone	21	4	7	2	2	1	3	1
To and from for- eign ports.....	0	0	0	0	5	2	22	9
Total	73	16	44	11	17	7	112	50

RÉSUMÉ.

	Cases.	Deaths.
Employees of Commission appointed in the United States.....	73	16
Employees of the Commission appointed on Isthmus.....	44	11
Employees of Panama R. R. Co.....	17	7
Not employees of Commission or Panama R. R. Co	112	50
Grand total	246	84

YELLOW-FEVER CASES AND DEATHS FROM DECEMBER 1, 1905, TO DECEMBER 31, 1905.

	Employees of Commission appointed in United States.		Employees of Commission appointed on Isthmus.		Employees of the Panama R. R. Co.		Not employees of the Commission or Panama R. R. Co.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Panama.....	0	0	0	0	0	0	0	0
Colon.....	1	0	0	0	0	0	0	0
Canal Zone.....	0	0	0	0	0	0	0	0
To and from foreign ports.....	0	0	0	0	0	0	0	0
Total	1	0	0	0	0	0	0	0

RÉSUMÉ.

	Cases.	Deaths.
Employees of Commission appointed in the United States.....	1	0
Employees of the Commission appointed on Isthmus.....	0	0
Employees of Panama R. R. Co.....	0	0
Not employees of Commission or Panama R. R. Co.....	0	0
Grand total.....	1	0

YELLOW-FEVER REPORT, DECEMBER, 1905.

	Cases.	Deaths.
Panama.....	0	0
Colon.....	1	0
Canal Zone.....	0	0
To and from foreign ports.....	0	0
Total for December.....	1	0

CASES AND DEATHS BY TEN DAYS FOR MONTH OF DECEMBER, 1905.

	Cases.	Deaths.
First ten days.....	1	0
Second ten days.....	0	0
Third ten days.....	0	0
Total	1	0

GENERAL SANITATION.

CITY OF PANAMA.

Street cleaning and garbage collection:

Maximum number of men at work.....	57
Minimum number of men at work.....	7
Daily average of men at work.....	43
Maximum number of carts	20
Minimum number of carts	10
Daily average of carts	18
Maximum number of loads of sweepings.....	58
Minimum number of loads of sweepings.....	10
Daily average of loads of sweepings	32
Total number of loads of sweepings	998
Maximum number of loads of garbage.....	50
Minimum number of loads of garbage.....	35
Daily average of loads of garbage.....	44
Total number of loads of garbage	1,372
Total number of loads of garbage	1,372
Total number of loads of sweepings	998
Total number of loads of stones.....	81
Total number of loads of sand stones.....	56
Total number of loads of mud	269
Total number of loads of lumber.....	18
Grand total of loads.....	2,794

Extermination of rats:

The work of rat extermination continues; 9 men are employed in this work; 1,711 rats were caught during the month, 92 of which were sent alive to the laboratory at Ancon.

Yard cleaning:

Since the withdrawal of the yard-cleaning force, the work is done by the occupants of the premises. One subforeman is employed, who, under the supervision of an inspector, directs the remedying of any unsanitary condition that may exist. The failure to comply with orders issued results in a summons before the alcalde. During the month 109 persons were served with notices to put their premises in a sanitary condition, and 19 fines were imposed for failure to comply with the orders.

House cleaning:

Maximum number of men at work	56
Minimum number of men at work	21
Daily average of men at work	41
Maximum number of rooms cleaned	76
Minimum number of rooms cleaned	10
Daily average of rooms cleaned	51
Total number of rooms cleaned	1, 269
Carts, daily	2
Maximum number of carts of rubbish removed	21
Minimum number of carts of rubbish removed	1
Daily average of carts of rubbish removed	10
Total number of carts of rubbish removed	246
Material used—	
Soap	pounds 343
Bichloride of mercury	do 53
Chloride of lime	do 27

Houses whitewashed:

Maximum number of men at work	30
Minimum number of men at work	13
Daily average of men at work	23
Maximum number of rooms whitewashed	37
Minimum number of rooms whitewashed	7
Daily average of rooms whitewashed	17
Total number of rooms whitened	422
Material used—	
Lime	pounds 9, 200
Flour	do 955
Glue	do 70

Free distribution of water:

Maximum number of water carts	15
Minimum number of water carts	10
Daily average of water carts	13
Daily average of gallons	11, 301

During the month 350,350 gallons of water have been distributed, covering the districts in the neighborhood of the following streets: Tablas, Cienega, Chorrera, Mercado, Granillo, Cocoa Grove, Barraza, Jose de Alba, Ganado, Jirardot, Cordova, Camilo Torres, Explanadas, Sona, Manuel de Urriola, Constitucion, Sucre, Pese, Paraiso. Barrels destroyed, 112.

Stegomyia brigade:

Houses inspected	7,995
Houses reinspected	607
Houses where larvæ were found	1,765
Tanks reported in good condition	2,004
Tanks reported in bad condition	1,798
Wells reported in good condition	2,134
Wells reported in bad condition	932
Cisterns reported in good condition	93
Cisterns reported in bad condition	79
Barrels reported in good condition	2,987
Barrels reported in bad condition	5,097
Houses closed, not inspected	723
Material used—	
Oil	barrels.. 10
Faucets supplied, new	11
Barrel covers supplied, new	30
Tank covers supplied, new	38
Tank covers repaired	16
Well covers supplied, new	65
Well covers repaired	7
Stands for barrels, new	8
Filter covers supplied, new	3
Well screens supplied, new	5

Anopheles brigade:

Cesspools filled	1
Wells filled	26
Wells cleaned	1
Mosquito oil used in oiling stagnant pools, streams, wells, cesspools, yards, etc	barrels.. 82

Fumigating brigade:

Houses fumigated	258
Rooms fumigated	2,731
• Number of cubic feet	10,774,662
Pyrethrum used	pounds.. 15,087
Sulphur used	do 7,611
Alcohol used	gallons.. 202
Packages of newspaper	57
Feet manila paper	6,560
Packages tacks	93
Matches	do 12
Candles	78
Nails	pounds.. 17
Flour	hundredweight.. 43

Sick inspection:

During the month was organized a service of inspection for the early detection of any case of yellow fever that might occur. For this purpose 4 inspectors are employed, whose duty it is to daily

visit the hotels, boarding houses, and other places where nonimmunes reside. Such places have been listed, numbering 100, and are equally divided among the 4 inspectors. When a case of sickness is reported to the office, one of the two attending physicians is immediately dispatched to ascertain the nature of the sickness, and in all cases where the subject is a nonimmune suffering with fever he is sent to the Ancon Hospital and the premises are fumigated.

Number of cases inspected during the month 247, of which none have been yellow fever. Urinary analysis has been made in each case, and only 12 gave a positive reaction.

Census of nonimmune population:

Number of blocks previously inspected.....	82
Number of blocks inspected in December.....	17
Number of blocks inspected to date	99
Number of nonimmunes on file in—	
August.....	427
September	816
October	593
November.....	409
December	420

Total number of nonimmunes on file to date 2, 665

Census of nonimmunes by nationality.

Barbados.....	16	Jamaica.....	63
Canada	1	Martinique	4
Colombia	15	Montserrat	5
Costa Rica.....	1	Mexico	14
Cuba	2	Norway	1
Curacao	10	Nicaragua	5
China.....	8	Peru	5
Corse	1	Philippines.....	2
Denmark.....	1	Scotland	2
Ecuador.....	2	Spain	8
England	7	St. Vincent.....	2
British Guiana.....	1	Sta. Lucia	7
France	4	Sweden	1
Germany.....	2	Switzerland	1
Granada	5	St. Thomas.....	2
Haiti	1	United States.....	170
Holland.....	2	Venezuela.....	2
India	3		
Italy.....	43		
Ireland	1		
		Total	420

Patients sent to Ancon Hospital.

Forty-eight patients have been sent to Ancon Hospital, all being employees of the Commission.

SANITATION—COLON AND CRISTOBAL.

COLON.

Most of the street repairing in Colon for this month has been devoted to the grading and ditching of Bottle alley, Cash street, and the intersecting streets as given below, preparatory to the surfacing of gravel.

Front and Bolivar streets, bisecting the town through its whole length, have been raised from a virtually impassable condition and are now excellent. Second, Fourth, Fifth, Sixth, Seventh, Eighth, Ninth, Tenth, and Eleventh, intersecting streets, are all ditched and graded preparatory to the reception of material. Bottle alley and Cash alley, streets running parallel to Front and Bolivar streets, are ditched and graded and need only a topping of gravel to make them good.

Material used in street improvement:

Number of cubic yards gravel, etc., received since October 17, 1905, 1,043.

Report of medical inspectors:

On December 18 a more careful system of inspection for fever cases was instituted with a view of discovering at the earliest date a possible yellow fever case. Four local physicians were appointed medical inspectors, at \$75 each per month, each having charge of a district for daily inspection. The different departments in Cristobal are furnished with printed reports for the purpose of reporting all "gold" employees absent each day from duty. These cases are also seen at once by the health office physicians. In addition to this the laborers' quarters have been inspected by him daily.

Cinchonizing of laborers:

On account of the widely separated quartering of these men, quinine has been dispensed at their places of work. No satisfactory statistics are available to show just what results have been obtained. The average number of patients admitted to Colon Hospital from these laborers would show this. The average number of daily doses dispensed is 550, which is about one-third of the average number of laborers employed daily.

Yellow fever:

Although the American resident population in Cristobal is about 450 persons for the month of December, an increase of 300 over the month of August, and in addition to this there are residing in Colon and in the railroad reservation, as near as can be ascertained, 250 more, there was only one case of yellow fever occurring during the month. This is the only American contracting this disease in Colon and Cristobal since August 25, and it is believed with the present system of inspection, together with the reward offered for such cases, that no cases have been unreported.

Sanitation of Colon:

By far the largest amount of garbage collection and yard cleaning that has been done so far was done during this month. The loads as reported were hauled by carts drawn either by two small mules or one American mule, representing probably three or four times the amount of garbage collected in the customary low board cart. Fences are being removed at the same time as the cleaning of the yard is done, much facilitating this work.

Sanitation of Christobal:

On account of the rapid increase of population in Cristobal, the loads of garbage have increased tremendously during this month. Streets have been in the process of building through the laborers' quarters and the grounds graded and drained, the condition here being very much improved.

The general effect of the work by the sanitary department in Colon and Cristobal is now apparent and the outlook far less discouraging.

Mount Hope:

Most of the work here has been removing the underbrush and vegetation and preparing the groundwork for future sanitation. On account of the unexpected heavy rains this work has not progressed as rapidly as hoped.

Fumigation:

With the exception of the regular monthly fumigations, it has been necessary to do very little in this line, as only one suspect of yellow fever besides the actual case has been reported. The fumigation in Cristobal was due to the regular monthly fumigation.

Stegomyia mosquito brigade work:

On October 16 there were found 4,076 stegomyia breeding places in the main portion of the town alone. On November 30 these places were reduced to 917. At the close of the month of December these places were reduced to 533.

Stegomyia mosquito brigade:

The work of the stegomyia mosquito brigade has been thorough and a great deal has been accomplished. Although this work has been held back on account of the lack of spigots to be used in barrels, the main part of the town is well supplied, and it is designed as soon as possible to reach out into the outskirts.

Sanitation of Colon:

Number of loads of yard garbage collected.....	1, 113
Number of loads of can garbage collected.....	1, 245
Number of loads carted to storehouse.....	12
Number of streets cleaned.....	32

Sanitation of Cristobal:

Number of loads of can garbage collected.....	1, 531
Number of loads of yard garbage collected.....	70
Number of loads of night-soil buckets collected.....	411

Sanitation of Cristobal—Continued.

Number of loads of stone hauled	169
Number of miscellaneous loads carted	130
Number of loads of lumber hauled	144

Sanitation of Mount Hope:

Number of loads of garbage collected	42
Number of night-soil buckets collected	394
Number of feet of underbrush cut	140,000
Number of feet of vegetation cut	450,000

Mount Hope Cemetery:

Number of feet of vegetation cut	160,000
Number of feet of underbrush burned	80,000
Number of feet of underbrush cut	60,000

Fumigation of Colon:

Number of houses fumigated	18
Number of cubic feet fumigated	539,890

Fumigation of Cristobal:

Number of houses fumigated	10
Number of cubic feet fumigated	289,690

Stegomyia mosquito brigade:

Square feet of vegetation removed	497,304
Water receptacles overturned	4,749
Water receptacles collected	32,589
Number of drains cleaned	362,483
Number of crab holes worked	16,212
Number of barrels spiggoted	159
Number of tanks oiled	55
Number of barrels covered	1,550
Number of barrels elevated	110
Number of pools oiled	3,006
Number of water-closets oiled	415
Square feet of surface oiled	13,720
Number of drains oiled	62
Number of barrel stands made	116
Number of properties inspected	1,199
Number of barrels oiled	18
Number of wells oiled	190
Number of barrels overturned	22

STREET REPAIRING—COLON.

Ditching and elevating Fifth, Sixth, Seventh, Eighth, Ninth, Bolivar, Balley, and Cash streets. Unloading gravel and metting Second street. Spreading gravel on Bolivar street.

Report of medical inspector:

Fever cases reported in Colon December 1 to 31	90
Fever cases reported in Colon inspected	71

Report of medical inspector—Continued.

Fever cases sent to hospital as suspicious	9
Fever cases screened and treated at home	1
Panama Railroad laborers' quarters at Dock No. 4, inspected daily.	
Fever cases sent to hospital December 1 to 31, 1905	10
Cases referred to the Cristobal Dispensary	18
Isthmian Canal Commission "gold" employees reported to health officer as absent from duty December 16 to 31, inclusive	67
Isthmian Canal Commission "gold" employees inspected.	67
Isthmian Canal Commission "gold" employees sent to hospital by health-office physician	6
Isthmian Canal Commission laborers' quarters and detention camp inspected daily.	
Cases admitted to detention camp December 1 to 31, inclusive	316
<i>Cinchonizing of Isthmian Canal Commission laborers:</i>	
Average number of doses dispensed daily	550

SANITATION—CANAL ZONE.

From September 1 to December 31 but one case of yellow fever occurred in the Canal Zone. This case was contracted at Matachin in September by the station agent at that point while occupied in checking freight in the box cars which come from Colon. It is, therefore, fair to assume that there are very few, if any, infected *stegomyia* present in the Canal Zone at this time.

Throughout the month there was a constantly increasing non-immune population at all towns between La Boca and Gorgona, and no yellow fever has been present; yet we are making every effort to keep these towns free of *Stegomyia* by destroying their breeding places as rapidly as found.

Also, as there is a possibility of a mild case of yellow fever entering the Zone, the hotels where the nonimmune population is concentrated are still fumigated, so as to reduce to a minimum the chance for the spreading of such a case.

North of Gorgona there are at present very few employees located, and sanitary brigades between Cristobal and Gorgona have been numerically decreased at these points.

The principal work now is the antimalarial campaign, and every effort is being made to destroy the breeding places of the *Anopheles* in the vicinity of the settlements. The area covered by these camps is constantly increasing and our radius of action must be increased accordingly.

In the vicinity of most of the camps the surface drainage is in fairly good shape, and as rapidly as possible there is being constructed subsurface drains, so as to make the work of a permanent character.

During the wet season the grass grows rapidly, and it is necessary to keep this grass cut down in lowlands, where water collects and drainage is difficult.

It is found that the anopheles prefer to breed in waters containing much algæ, or vegetable matter, and have not yet found any in containers where vegetable matter is entirely absent.

Many ponds exist which can not be drained, and such are treated with oil.

At Corozal, where the Isthmian Canal Commission Hotel is located, near swampy lowlands, the malarial situation is well under control, and there is little malaria among the whites.

At Pedro Miguel the houses are being screened as soon as built, and this is going to have a very good effect upon the malarial conditions there.

In general, it can be said that but few mosquitoes are seen at the camps during the daytime, but this state of affairs did not exist twelve or fourteen months ago.

The malarial mosquito most commonly found in the Canal Zone is the Albapies.

It will be noticed from the résumé of the work accomplished during December that the larger part of the work consists of drainage, or antimalarial work, and that the brush and swamp grass is being removed in extending the area of action.

The native towns are being kept in fair condition, and the natives are keeping the grounds around their houses in a more tidy condition than formerly.

The following is a summary of the work accomplished during December:

LA BOCA.

Brush cut and burned.....	square yards..	2, 250
New ditches dug	linear feet..	2, 400
Old ditches stoned.....	do.....	225
Old ditches cleaned and graded.....	do.....	5, 450
Night-soil pails emptied	daily..	105
Garbage cans emptied	do.....	120
Houses fumigated (1); capacity.....	cubic feet..	18, 000

ANCON.

Brush cut and burned	square yards..	30, 700
Old ditches cleaned and graded.....	linear feet..	12, 865
New ditches dug.....	do.....	350
Old ditches stoned.....	do.....	1, 500
Road stoned and graded, 4 feet wide.....	do.....	790
Ditches V-shaped and cemented	do.....	175
Ancon Hospital Laundry cemented.....	square feet..	100

COROZAL.

Grass cut and burned	square yards..	465, 000
Swamp filled in	do	200
Swamp drained	do	4, 500
New ditches dug	linear feet..	640
New ditches stoned	do	96
Old ditches cleaned and graded	do	5, 600
Night-soil cans emptied	daily	50
Garbage cans emptied	do	63
Houses fumigated (1); capacity	cubic feet..	540, 000

MIRAFLORES.

Brush cut and burned	square yards..	3, 475
Old ditches cleaned and graded	linear feet..	810
Night-soil cans emptied	daily	4
Garbage cans emptied	do	20

PEDRO MIGUEL.

Brush cut and burned	square yards..	22, 848.
Old ditches cleaned and graded	linear feet..	1, 565
Night-soil pails emptied	daily	25
Garbage cans emptied	do	45
Houses fumigated (2); capacity	cubic feet..	59, 610

PARAISO.

Brush cut and cleared	square yards..	46, 516
Swamp filled in	do	10
New ditches dug	linear feet..	770
New ditches stoned	do	202
Old ditches cleaned and graded	do	4, 834
Night-soil cans emptied	daily	30
Garbage cans emptied	do	90
Houses fumigated (1); capacity	cubic feet..	10, 000

CUCURACHA.

Brush cut and cleared	square yards..	65, 000
Swamp drained	do	22
New ditches dug	linear feet..	650
Old ditches stoned	do	150
Old ditches cleaned and graded	do	10, 000
Garbage cans emptied	daily	20
Closets built .....	.....	3

CULEBRA.

Brush cut and cleared	square yards..	90,319
New ditches dug	linear feet..	3,169
New ditches stoned	do.....	144
Old ditches cleaned and graded	do.....	17,185
Houses fumigated (11); capacity.....	cubic feet..	1,249,000
Garbage cans emptied	daily..	295
Night-soil pails emptied	do.....	180
Closets erected		5

EMPIRE.

Brush cut and cleared	square yards..	13,505
Swamp drained	do.....	460
New ditches dug	linear feet..	1,203
Old ditches cleaned and graded	do.....	17,311
Garbage cans emptied	daily..	300
Night-soil pails emptied	do.....	75
Houses fumigated (9); capacity.....	cubic feet..	91,738

LAS CASCADAS.

Brush cut and cleared	square yards..	56,301
Grass cut and cleared	do.....	5,000
Swamp filled in	do.....	100
Ponds drained	do.....	3,400
New ditches dug	linear feet..	1,318
Old ditches cleaned and graded	do.....	1,800
Garbage cans emptied	daily..	103
Night-soil pails emptied	do.....	47

BAS OBISPO.

Swamp filled in	square yards..	933
New ditches dug	linear feet..	190
New ditches stoned	do.....	190
Garbage cans emptied	daily..	20
Night-soil pails emptied	do.....	40
Closets erected		3

MATACHIN.

Brush cut and cleared	square yards..	929
Swamp filled in	do.....	16
New ditches dug	linear feet..	67
Old ditches cleaned and graded	do.....	847
Garbage cans emptied	daily..	10
Pits dug for closets		2

GORGONA.

Brush cut and cleared	square yards..	12,900
Swamp filled in	do.....	47
New ditches dug	linear feet..	300
Old ditches cleaned and graded.....	do.....	10,000
Garbage cans emptied	daily..	135
Night-soil pails emptied.....	do.....	170

SAN PABLO.

Brush cut and cleared	square yards..	34,572
Swamp drained.....	do.....	800
New ditches dug	linear feet..	750
Old ditches cleaned and graded.....	do.....	1,900
Garbage cans emptied	daily..	5

TABERNILLA.

Grass cut and cleared.....	square yards..	1,600
New ditches dug	linear feet..	300
Night-soil pails emptied.....	daily..	8
Garbage cans emptied.....	do.....	8
Closets erected.....		4

TABERNILLA (CARPENTER SHOP).

Closets built		50
Coffins made		34
Platforms for tents, 15 by 42 feet.....		8

BOHIO.

Brush cut and cleared	square yards..	13,944
Old ditches cleaned and graded.....	linear feet..	23,662
Garbage cans emptied	daily..	15

GATUN.

Brush cut and cleared	square yards..	62,909
Grass cut and burned	do.....	94,471
New ditches dug	linear feet..	416
Night-soil pails emptied	daily..	1
Garbage cans emptied.....	do.....	13
Houses fumigated (8); capacity.....	cubic feet..	110,000

RECAPITULATION.

Brush cut and cleared	cubic yards..	1, 000, 000
New ditches dug	linear feet..	12, 500
Ditches stoned	do.....	2, 500
Old ditches cleaned and graded.....	do.....	113, 000
Swamp filled in.....	square yards..	2, 000
Swamp drained.....	do.....	8, 000
Night-soil pails emptied	daily..	750
Garbage cans emptied	do.....	1, 250
Houses fumigated.....		33
Capacity	cubic feet..	2, 000, 000
Closets built.....		67
Coffins made		34
Platforms built for tents.....		8

QUARANTINE SERVICE.

Payta, Peru, has been declared free from plague. No cases or deaths had been reported from that place in forty-five days on December 17, 1905, and merchandise for the interior is no longer fumigated.

Plague, however, still remains epidemic at Antofagasta, Chile. Bills of health from that port show 7 cases and 3 deaths for the two weeks ending December 4, 1905, and 40 cases and 12 deaths from smallpox for the same period.

Smallpox is still present in epidemic form in Valparaiso, Iquique, Antofagasta, and Coquimbo. All the above are Chilean ports, at which boats for Ancon and Panama call for freight and passengers, but the ships are located in open bay.

The inhabited hulks lying off Flamenco Archipelago were fumigated with sulphur during the month to kill rats and other vermin, as these hulks have more or less intercourse with the south boats, and rats travel from one boat to the other, for which reason it was thought best to fumigate. A large number of rats, mice, etc., were collected after exposure of six hours to sulphur gas.

On December 21, 1905, a nonimmune was taken sick on board the tug *Perico* and sent to Ancon Hospital, where later it was found that he was suffering from malarial fever. However, the boat was fumigated with sulphur in the holds and pyrethrum in the living rooms. The sweepings after fumigation were burned.

Yellow fever was declared epidemic at Guayaquil December 19 by the local board of health at that place. Twenty cases and 11 deaths were reported for one week. In view of the above information it was deemed advisable to extend the period of observation of passengers coming from Guayaquil to this port from four

to six days, this being in conformity with the recommendation of the last Pan-American Sanitary Congress.

The painting and screening of the detention house Casa Dinger, which was started in November, was finished during the month. There still remains a few minor repairs, which it is expected will be completed during January.

The work of rendering the water retainers mosquito-proof has been carried out and with good results.

Over 300 rats were destroyed at La Boca during the month. A portion of these rats were sent to Ancon Hospital from time to time for examination as to the liability of their being infected with plague. To date, however, all such examinations have been negative.

The dock and laborers' quarters at La Boca were washed and scrubbed with a 1-1,000 bichloride of mercury solution. Traps have been placed on board all ships that come to dock, also around the camp and throughout the village. Cheese, meal, and meat, which were poisoned with arsenic, strychnine, or both, have been liberally distributed around the various places where it was thought that rats might frequent.

The work accomplished at the ports of Ancon and Panama and Colon and Cristobal is submitted in tabulated statement below:

Number of vessels inspected and passed	65
Number of vessels detained in quarantine	0
Number of vessels fumigated on arrival	19
Number of vessels fumigated prior to sailing	7
Total number of crew inspected	4, 183
Total number of persons vaccinated	247
Number of persons held in quarantine at detention house to complete period of incubation of yellow fever and plague	
Number of persons held under observation to complete period of incubation of yellow fever and plague, not in detention house	60
Number of persons landed from foreign ports:	
Cabin	1, 344
Steerage	2, 001
	———— 3, 345
Number of persons leaving for foreign ports:	
Cabin	599
Steerage	1, 677
	———— 2, 276
Number of persons arriving from coast towns on launches and small sailing vessels	1, 089
Immigration for the month from foreign ports:	
Increase in cabin	745
Increase in steerage	324
	———— 1, 069

Immigration from coast towns on small craft (approximate)	
steerage	185
Total increase for the month	1, 254
Number of immigrants recommended for rejection under the	
immigration laws	3
Number of certificates issued to outgoing passengers	50
Number of persons refused certificates on account of diseases	
barred by the immigration regulations	0
Number of bills of health issued	2
Number of bills of health viséd	10
Number of circulars relative to malarial fever distributed	
(approximate)	743
Number of persons leaving for coast towns on launches and	
small sailing vessels	904

REPORT OF QUARANTINE TRANSACTIONS, PORT OF CRISTOBAL AND
COLON, FOR MONTH OF DECEMBER.

Number of vessels boarded and inspected	54
Number of vessels detained in quarantine	0
Number of vessels fumigated on arrival	16
Number of vessels fumigated prior to sailing	7
Number of vessels disinfected while in port	0
Total number of crew inspected	3, 433
Total number of passengers inspected	3, 766
Number of persons vaccinated on board vessels	218
Number of persons held under observation to complete	
period of incubation of yellow fever (6 days)	60
Number of passengers landed at Colon from foreign ports:	
Cabin	1, 311
Steerage	1, 944
	3, 255
Number of passengers in transit	305
Number of passengers embarking at Colon for foreign ports:	
Cabin	435
Steerage	1, 565
	2, 000
Number of persons arriving at Colon from coast towns on	
small sailing craft	206
Number of persons leaving Colon for coast towns on small	
sailing craft	45
Total number of passengers arriving at Colon during Decem-	
ber	3, 461
Number of persons rejected under immigration laws	3

REPORT OF QUARANTINE TRANSACTIONS AT THE PORTS OF ANCON AND PANAMA.

Number of vessels inspected and passed	11
Number of vessels detained in quarantine	0
Number of vessels disinfected	3
Total number of crew inspected	748
Total number of passengers inspected:	
Cabin	150
Steerage	184
	— 334
Total number of persons vaccinated	29
Number of persons held in quarantine at the detention house to complete period of incubation of yellow fever ..	15
Number of persons held under observation on board ship to complete five days	0
Number of persons landed at Ancon and Panama from foreign ports for residence on the Isthmus:	
Cabin	33
Steerage	57
	— 90
Number of persons embarking at Ancon and Panama for foreign ports:	
Cabin	164
Steerage	112
	— 276
Number of persons arriving at Panama from coast towns on launches and small sailing vessels	883
Number of persons leaving Panama for coast towns on launches and small sailing vessels	859
Total number of passengers landed at Ancon and Panama during the month	973
Total number of passengers embarking at Ancon and Panama during the month	1,135
Showing an apparent decrease of	162
Number of bills of health issued	2
Number of bills of health viséed	10
Number of circulars relative to malarial fever distributed ..	300
Number of immigrants recommended for rejection	0
Number of certificates issued to outgoing passengers	50
Number of passengers refused certificates on account of trachoma or other diseases	0

REPORT OF IMMIGRATION AT THE PORT OF COLON

Cabin.

United States.....	328	
England	7	
Port Limon	11	
Jamaica	99	
European ports	45	
West Indian ports	4	
Colombian ports	83	
Venezuela	17	
Habana	2	
		596

Steerage.

Fortune Island (laborers)	56	
United States.....	19	
Bocas	206	
Jamaica (laborers, 10)	822	
Port Limon	255	
European ports	47	
Habana	5	
Colombian ports	114	
Colombian ports (laborers)	65	
Venezuelan ports	31	
Martinique	3	
West Indies	154	
		1, 777
Total.....		2, 373

HOSPITALS AND DISPENSARIES.

Consolidated report of cases treated at Ancon, Colon, Miraflores, Gorgona, and Culebra during the month of December, 1905.

Class.	Remaining Dec. 1.	Admitted.	Died.	Discharged.	Remaining Dec. 31.	Total treat- ed.
<i>Ancon.</i>						
Canal employees	226	939	22	966	177	
Railroad employees ..	17	35	1	40	11	
Nonemployees	71	198	7	193	69	
Total	314	1, 172	30	1, 199	257	1, 172
<i>Colon.</i>						
Canal employees	150	565	13	576	126	
Railroad employees ..	38	96	7	96	31	
Nonemployees	38	67	5	66	34	
Total	226	728	25	738	191	954
<i>Miraflores.</i>						
Canal employees	90	318	9	289	110	
Railroad employees ..	8	4	-----	5	7	
Nonemployees	60	14	5	4	65	
Total	158	336	14	298	182	337
<i>Gorgona.</i>						
Canal employees	19	118	3	115	19	118
<i>Culebra.</i>						
Canal employees	25	164	5	162	22	
Railroad employees ..	-----	1	-----	-----	1	
Nonemployees	2	5	2	2	3	
Total	27	170	7	164	26	197
Grand total	-----	-----	-----	-----	-----	2, 778

Number treated.

	White.	Colored.	
Ancon	{ 312	917	Hospital.
	{ 220	610	Dispensary.
Colon	{ 141	587	Hospital.
	{ 115	294	Dispensary.
Miraflores	{ 446	1, 430	Cristobal dispensary.
		337	Hospitals.
Gorgona	{ 5	94	Hospital.
	{ 235	740	Dispensary.
Culebra	{ 37	133	Hospital.
	{ 790	2, 247	
	2, 301	7, 389	

Average number of canal employees constantly sick during month.

Ancon	208. 00
Colon	160. 00
Miraflores	10. 25
Gorgona	19. 64
Culebra	29. 5

REPORT OF ANCON HOSPITAL.

Number of patients in hospital first of month:

Canal employees	226
Panama Railroad employees	17
Nonemployees	68
Ex-employees	3
	<u>314</u>

Admitted during month:

Canal employees	939
Panama Railroad employees	35
Nonemployees	192
Ex-employees	6
	<u>1, 172</u>

Died during month:

Canal employees	22
Panama Railroad employees	1
Nonemployees	7
Ex-employees	0
	<u>30</u>

Discharged during month:

Canal employees.....	966	
Panama Railroad employees.....	40	
Nonemployees.....	187	
Ex-employees	6	
		1,199

Remaining:

Canal employees.....	177	
Panama Railroad employees.....	11	
Nonemployees.....	66	
Ex-employees	3	
		257

Died and discharged:

Average number of days of treatment for each patient.....	6.4
Average number of canal employees constantly sick during month	208

NATIONALITY.

Class.	Number treated.	American.		Other nations.	
		White.	Colored.	White.	Colored.
Canal employees:					
United States.....	102	94	1	7	0
Others	897	22	0	86	789
Panama Railroad employees.....	29	9	0	1	19
Pay patients.....	139	15	0	56	68
Panama charity.....	19	2	0	9	8
Zone charity	37	2	0	5	30
Ex-employees	6	2	0	2	2
Total	1,229	146	1	166	916

Medical cases.....	1,137
Surgical cases.....	87
Eye cases.....	5

OPERATIONS.

Abscess of liver	2	Adenitis, cervicalis tubercu-	
Cholecystotomy	1	lous	1
Colopexy	1	Adenitis, axillary	1
Ruptured intestine	1	Adenitis, inguinalis	6
Stab wound of liver	1	Hemorrhoids	10
Volvulus	1	Stricture of rectum	1
Exploratory	1	Perineorrhaphy, complete ..	1
Appendectomies	3	Atresia vaginæ	1
Hernia, inguinal	3	Osteomyelitis of tarsals	1
Hernia, strangulated	2	Arthrotomy, knee	1
Hydrocele	4	Cataracts	2
Varicocele	1	Dacryocystitis	2
Vesical calculus	1	Various minor operations ..	41
Perineal urethrotomy	1		

PRINCIPAL DISEASES.

1. Typhoid fever		4
4. Malarial fever	521	
Malarial fever, E. A.	342	
Malarial fever, tertian	116	
Malarial fever, double tertian	8	
Malarial debility	4	
	—	991
6. Measles		4
14. Dysentery	7	
Dysentery, amœbic	9	
	—	16
19. Beriberi		20
27. Pulmonary tuberculosis		5
36. Syphilis		8
37. Gonorrhea of the adult		3
46. Alcoholism		3
47. Rheumatism	4	
Rheumatism, articular	3	
	—	7
57. Lead poisoning		3
61. Meningitis		1
66. Paralysis		1
72. Tetanus		1
75. Diseases of the eye		5
76. Diseases of the ear		4
77. Pericarditis		1
79. Aortic regurgitation		1
83. Hemorrhoids	10	
Adenitis, inguinalis	6	
Adenitis, axillary	1	
Adenitis, cervicalis	1	
	—	18

90. Bronchitis.....	5
92. Lobar pneumonia.....	25
Broncho pneumonia.....	4
	— 29
94. Pleurisy.....	1
100. Stomatitis.....	1
106. Diarrhea.....	8
107. Intestinal parasites.....	5
108. Hernias.....	6
113. Biliary calculi.....	1
114. Abscess of liver.....	2
115. Splenomegaly.....	4
118. Appendicitis.....	1
119. Chronic interstitial nephritis.....	7
Acute nephritis.....	3
Chronic parenchymatous nephritis.....	1
	— 11
125. Hypertrophy of prostate.....	1
126. Hydrocele.....	5
Epididymitis.....	2
Varicocele.....	1
	— 8
127. Endometritis.....	1
142. Gangrene of scrotum.....	1
144. Acute abscesses.....	11
154. Debility.....	15
164. Fractures.....	7
166. Wounds and contusions.....	14

SUMMARY.

Class.	Re- main- ing Dec. 1.	Admit- ted.	Died.	Dis- charged.	Re- main- ing Jan. 1.	Total treated.
Canal employees:						
United States.....	21	118	1	113	25	139
Others.....	205	821	21	853	152	1, 056
Panama Railroad em- ployees.....	17	35	1	40	11	52
Pay patients.....	49	104	6	104	43	153
Ex-employees.....	3	6	.....	6	3	9
Panama charity.....	1	27	.....	16	12	28
Zone charity.....	18	61	1	67	11	79
Total.....	314	1, 172	30	1, 199	257	1, 516

Cost of subsistence for each patient per day, 40 cents.

OUTDOOR DEPARTMENT.

Class.	White.	Colored.	Total.
Canal employees	208	575	783
Panama Railroad employees	5	7	12
Nonemployees	7	28	35
Total	220	610	830
Malarial fever			229
Wounds and contusions			62
Ulcers			41

REPORT OF COLON HOSPITAL.

Patients remaining November 30	226
Patients admitted during December	728
Total treated	954
Patients discharged during December	738
Deaths during December	25
Patients remaining December 31	191
Total to be accounted for	954

Average number of canal employees sick constantly, 160.
 Cost of subsistence per capita, per day, \$0.374.

CASES CLASSIFIED.

Class.	Remaining Nov. 30.	Admitted.	Discharged.	Died.	Remaining Dec. 31.	Total treat- ed.
Canal employees	150	565	576	13	126	715
Railroad employees	38	96	96	7	31	134
Municipal cases	15	11	11	1	14	26
Zone charity	7	32	25	1	13	39
Pay cases	4	3	4	1	2	7
Isolation cases	12	21	26	2	5	33
Total	226	728	738	25	191	954

NATIONALITY.

Class.	Admitted.	Americans.		Other nations.	
		White.	Colored.	White.	Colored.
Canal employees	565	52	1	45	467
Railroad employees.....	96	14	1	15	66
Municipal cases	11	0	0	1	10
Zone charity	32	0	0	1	31
Pay cases	3	0	0	1	2
Isolation cases.....	21	3	0	9	9
Total	728	69	2	72	585

SURGICAL REPORT.

Major operations:

Closure of fecal fistula.....	3
Herniotomy for irreducible inguinal hernia.....	2
Appendostomy, for dysentery.....	1
Perineal urethrotomy	1
Elephantiasis of scrotum	1
Uterine curettage	1
Double herniotomy (white man).....	1
Hysteromyomectomy	1
Trephining skull for fracture.....	1
Amputation, leg	1
Various, 1 each	5

Total 18

Minor operations 64

SPECIAL DISEASES TREATED.

Malaria	595	Dysentery, bacillary.....	8
Pneumonia	22	Dysentery, amœbic	1
Beriberi.....	1	Yellow fever.....	1

MALARIAL CASES CLASSIFIED.

Jamaicans	67
Martiniquans	154
Barbadians	156
Others	218
Total	595

COLON HOSPITAL DISPENSARY.

Class.	White.	Colored.	Total.
Canal employees	82	115	197
Railroad employees.....	23	123	146
Nonemployees	10	56	66
Total	115	294	409

PRINCIPAL DISEASES.

Malaria	111
Wounds.....	40
Gastritis	9
Bronchitis.....	18
Dysentery and diarrhea	12

CRISTOBAL DISPENSARY.

Class.	White.	Colored.	Total.
Canal employees.....	424	1, 282	1, 706
Railroad employees.....	21	83	104
Nonemployees	1	65	66
Total	446	1, 430	1, 876

PRINCIPAL DISEASES.

Malaria, dysentery, constipation, skin eruptions.

LABORATORY REPORT.

Blood examinations:	
Tertian malaria.....	257
Estivo-autumnal	224
Estivo-autumnal and tertian.....	33
Double tertian.....	7
Estivo-autumnal and double tertian.....	2
Quadruple tertian.....	1
Negative	228
Total	752

Urinalyses:

Albumen	903
Hemoglobin	4
Negative	533
Total	<u>1,440</u>

Sputum examinations, negative (for tubercle bacillus) 18

Examination of stools (115):

Ova of uncinaria duodenale	34
Ova of trichocephalus dispar	35
Ova of ascaris lumbricoides	15
Amoeba coli	4
Rhabdonema strongyloides	5
Cercomonas intestinalis	7
Bacillary dysentery	9
Negative	40

GENERAL WORK.

During the month the average number of patients has been higher than at any other time since the establishment of the hospital, the largest number being 272.

The tent wards are still in use and are being placed in good condition. The new building, to be used as bathroom and toilet for the tents, has been started.

The lower ward in building No. 1 (railroad hospital) has been changed to a female ward, and the ward formerly used as a female ward has been turned into a mess hall for the orderlies and attendants.

The foundation for the laundry should be completed within a few days. The supports for the storehouse are completed, and the construction work will be begun at once. Building No. 17 will not be ready for occupancy for at least ten days. Building No. 2 is progressing favorably and has been promised us within three months. The new operating room is now in use and has proven very satisfactory.

Aside from the construction of wards, the three most important things to be accomplished here are: (1) The sea wall; (2) the fence and road around the hospital grounds; (3) the construction of both married and bachelor officers' quarters.

REPORT OF MIRAFLORES HOSPITAL.

Class.	Re- main- ing last month.	Admit- ted.	Dis- charg- ed.	Died.	Re- main- ing.	Total treat- ed.
Canal employees	90	318	289	9	110	318
Railroad employees	8	4	5	0	7	4
Charity cases	50	12	3	4	55	12
Pay cases	0	0	0	0	0	0
Ex-employees	10	2	1	1	11	3
Total	158	336	298	14	183	337

Average number of canal employees sick constantly, $10\frac{1}{4}$.

NATIONALITY.

Class.	Number treated.	Americans.		Other nations.	
		White.	Colored.	White.	Colored.
Canal employees	318	1	0	0	317
Panama Railroad em- ployees	4	0	0	0	4
Charity cases	12	0	0	0	12
Pay cases	0	0	0	0	0
Ex-employees	3	0	0	0	3
Total	337	1	0	0	336

MALARIA.

Jamaicans	16
Barbadians	103
Martiniques	148
Panamans	5
Other West Indians	15

Surgical operations: Circumcisions, extracting of teeth, incision and curetting of bubos, incision wound of forehead, and wound of hand.

Principal diseases treated in dispensary: Malaria, rheumatism (chronic), conjunctivitis, lacerated wounds and bronchitis.

MONTHLY CONSOLIDATED REPORT OF THE DAILY REPORTS OF
DISPENSARY.

Class.	White.	Colored.	Total.
Canal employees	1	300	301
Railroad employees	0	2	2
Nonemployees	0	11	11
Ex-employees	0	1	1

Principal diseases treated in hospital: Malaria, insanity, dysentery, beriberi, tuberculosis and leprosy.

COST OF SUBSISTENCE FOR PATIENTS DURING MONTH.

Total number of patients fed (excepting lepers)	5, 225
Total number of lepers fed	234
Total silver employees fed	757
Total gold employees entitled to subsistence	366
Total gold employees not entitled to subsistence	132

Total number furnished subsistence 6, 734

Cost of patients (excepting lepers) and silver employees, \$0.179 per diem	\$1, 045. 50
Cost of lepers at \$0.233 per diem	54. 52
Cost of gold employees entitled to subsistence, \$0.62 per diem	240. 14
Cost of gold employees not entitled to subsistence, \$0.62 per diem	82. 12

Total amount expended for subsistence	1, 422. 28
Amount paid auditor by those not entitled to subsistence	82. 12

Total cost of patients and others entitled to sub-
sistence 1, 340. 16

TOTAL NUMBER OF DAYS' TREATMENT DURING DECEMBER.

Acute and chronic	3, 489
Insane	1, 736
Lepers	234

Total 5, 459

Incurable chronic cases	3, 448
Others	2, 011

Total 5, 459

REPORT OF CULEBRA HOSPITAL. .

Cost of subsistence, per capita, per day (exclusive commissary bill), \$0.36 silver.

Patients admitted during the month of December	170
Patients discharged during December	155
Patients transferred to Ancon	9
Deaths during December	7
Remaining in hospital December 31	26
Total to be accounted for	197

CASES CLASSIFIED.

Class.	Re- main- ing Dec. 1.	Ad- mit- ted.	Died.	Dis- charged.	Trans- ferred.	Re- main- ing.	Total treated.
Canal employees ..	25	164	5	153	9	22	189
Panama Railroad employees	0	1	0	0	0	1	1
Ex-employees	0	2	0	0	0	2	2
Pay cases	0	1	1	0	0	0	1
Charity cases	2	2	1	2	0	1	4
Total	27	170	7	155	9	26	197

NATIONALITY.

Class.	Num- ber.	Americans.		Other nations.	
		White.	Colored.	White.	Colored.
Canal employees	164	25	0	11	129
Panama Railroad employ- ees	1	0	0	0	1
Ex-employees	2	0	0	0	2
Pay cases	1	0	0	1	0
Charity cases	2	0	0	0	2
Total	170	25	0	12	133

SPECIAL DISEASES TREATED.

Malaria	126	Black water fever	1
Pernicious malaria	2	Traumatic orchitis	1
Æstivo-autumnal malaria ..	2	Rheumatism	1
Dysentery	1	Rheumatism and malaria ..	1
Amœbic dysentery	2	Tuberculous meningitis and	
Ankylostomiasis	2	malaria	1
Pleurisy	1	Diarrhea	1
Pneumonia	1		
Lobar pneumonia	2	Total	146
Beriberi, atrophic	1		

SURGICAL OPERATIONS.

Abcesses	4	Laceration of arms	1
Tropical ulcers	17	Laceration of lip	1
Compound comminuted		Laceration of hand	1
fracture of leg	1	Fractured leg	1
Compound fracture of foot.	1	Shock of injuries	1
Incised wound, scalp	2	Adenitis	1
Contused wound, hand	1	Tumor removed	2
Contused wound, foot	1	Pleura aspiration	1
Contused wound, arm	2	Splinter extracted	1
Amputation of right leg	1		
Amputation of finger	3	Total	44
Laceration of foot	1		

Daily average of Isthmian Canal Commission employees sick, 29.5.

MONTHLY DISPENSARY REPORT.

	White.	Colored.	Total.
Canal employees	790	2, 244	3, 034
Nonemployees	0	3	3
Railroad employees	0	0	0
Total	790	2, 247	3, 037

PRINCIPAL DISEASE TREATED.

	White.	Colored.	Total.
Malaria	525	1, 602	2, 127

NUMBER OF CASES OF MALARIA ADMITTED TO HOSPITAL DURING
MONTH.

Jamaicans	9
Barbadians	45
Martiniquans	52
Total	106

REPORT OF GORGONA HOSPITAL.

CASES CLASSIFIED.

Class.	Remain- ing last month.	Admit- ted.	Dis- charged.	Died.	Re- main- ing.	Total treated.
Canal employees ...	19	118	115	3	19	99
Railroad employees ..	0	0	0	0	0	0
Charity cases	0	0	0	0	0	0
Pay cases	0	0	0	0	0	0
Total	19	118	115	3	19	99

	Per day.
Average number of canal employees sick constantly	19.64
Cost of subsistence daily, per man	\$0.33+

NATIONALITY.

Class.	Number treated.	Americans.		Other nations.	
		White.	Colored.	White.	Colored.
Canal employees	99	3	0	2	94
Railroad employees		0	0	0	0
Charity cases		0	0	0	0
Pay cases		0	0	0	0
Total		3		96	

LIST OF PRINCIPAL DISEASES TREATED.

Malaria	107
All other	11

Surgical operations: No surgical operations of any importance.

DISPENSARY CASES TREATED IN GORGONA DISTRICT AND PATIENTS TRANSFERRED TO HOSPITALS.

Station.	Treated in district.		Total.	Transferred to hospitals.		Total.
	White.	Colored.		White.	Colored.	
Gorgona: Bas Matachin, canal employees	194	540	734	25	160	185
San Pablo: Tabernilla, railroad employees	1	8	9	0	0	0
Frijoles: Bohio, nonemployees	15	32	47	0	0	0
Total			790			185

PRINCIPAL DISEASES TREATED.

Malaria	451
Plumbism	7
Gastro-intestinal	162
Respiratory	17
Boils, ulcers, and abscesses	84
Nervous diseases	30
Unclassified	224
Total	975

REPORT OF LA BOCA DISPENSARY.

CASES TREATED.

	White.	Colored.	Total.
Canal employees.....	101	1, 016	1, 117
Railroad employees.....	27	954	981
Nonemployees.....	25	125	150
Total	153	2, 095	2, 248
Malaria	47	1, 440	1, 487
Visited at quarters.....	31	193	224
Sent to hospitals.....	12	52	64

REPORT OF EMPIRE DISPENSARY.

NATIONALITY.

Class.	Number treated.	Americans.		Other nations.	
		White.	Colored.	White.	Colored.
Canal employees.....	1, 199	317	4	66	812
Railroad employees.....	12	1	0	0	11
Nonemployees.....	79	0	0	6	73
Total	1, 290	318	4	72	896

MONTHLY CONSOLIDATED REPORT OF DAILY REPORTS OF EMPIRE DISPENSARY.

Class.	White.	Colored.	Total.
Canal employees	383	816	1, 199
Railroad employees.....	1	11	12
Nonemployees.....	6	73	79
Malaria	112	403	515
Visited at quarters.....	102	248	350
Sent to hospital.....	22	61	83

PERCENTAGE.

Place.	Population.	Number treated.	Sent to hospital.
Empire	419- 819	404	25
Cunnette	439- 638	573	37
Cerro	168- 302	91	3
Lirrio .....	.....	60	17
Other places .....	.....	162	1
Total	1, 026-1, 759	1, 290	83

REPORT OF LAS CASCADAS DISPENSARY.

PATIENTS TREATED.

	White.	Colored.	Total.
Canal employees	18	657	675
Railroad employees	6	24	30
Nonemployees	8	31	39
Total .....	.....	.....	744

PRINCIPAL DISEASES TREATED.

Malarial fever	476	Gonorrhea	3
Bronchitis	40	Syphilis	2
Diarrhea	20	Ulcer, tropical	1
Rheumatism, muscular		Surgical	50
(acute)	5	Others, minor	142
Rheumatism, articular			
(chronic)	3	Total	744
Chancroids	2		

Sent to hospital during month, 57.

REPORT OF BASOBISPO DISPENSARY.

CASES TREATED.

	White.	Colored.	Total.
Canal employees.....	255	989	1,244
Railroad employees.....	0	0	0
Nonemployees.....	158	108	266
Total			1,510

REPORT OF PARAISO DISPENSARY.

CASES TREATED.

	White.	Colored.	Total.
Isthmian Canal Commission employees.....	116	795	911
Panama Railroad employees.....	6	6	12
Nonemployees.....	6	23	29
Total	128	824	952
Malarial fever	37	486	523
Visited at quarters.....	64	255	319
Sent to hospital	10	49	59

The prevailing disease was malarial fever and minor surgical wounds.

REPORT OF TABOGA SANITARIUM.

Class.	Re- main- ing last month.	Admit- ted.	Died.	Dis- charged.	Re- main- ing.	Total treat- ed.
Canal employees	6	40	0	33	12	46
Railroad employees	0	2	0	2	0	2
Charity cases	0	2	0	0	2	2
Pay cases	1	3	0	4	0	4
Total	7	47	0	39	14	54

Principal diseases treated, malarial fever.

REPORT OF VACCINATIONS IN THE CANAL ZONE AND IN THE CITIES OF PANAMA AND COLON.

Panama:

Chorrillo.....	182
Calzada.....	136
Calle de Taboga.....	28
Granillo.....	36
Carrera de Veraguas.....	78
Carrera de Camilo Torres.....	43
San Francisco.....	18
Carrera del Paraiso.....	33
Total.....	554

REPORT OF THE BOARD OF HEALTH LABORATORY.

The work of this department for the month consisted of the following:

Examination of rats from La Boca and Panama for trypanosomes and plague bacilli.

Examination and report upon the ice plant of the Panama-American Corporation.

Experiments upon mosquitoes to determine the length of time of maturation, with particular reference to the *anopheles*.

Investigation of the organisms (bacteria) occurring in the Rio Grande water supply.

Investigation of the purity of certain samples of alcohol.

Investigation of certain stains.

A bulletin has been prepared upon a piece of apparatus for testing the relative values of fumigating agents.

Bulletins are being prepared upon malaria in certain native villages in the Canal Zone and upon the distribution of trypanosomes in rats, with the description of a previously undescribed species.

GENERAL STATISTICS.

DEATHS DURING THE MONTH OF DECEMBER.

	Population.	Deaths during December.	Annual average per 1,000 for the month.
Employees of the Canal Commission and Panama Railroad Co.	22,000	74	40.36
Panama, Colon, and Zone.....	42,843	231	65.17

DEATHS BY COLOR.

White:		
Male.....		25
Female		11
Black:		
Male.....		179
Female		79
Chinese:		
Male.....		9
Female		0
Color not stated:		
Male.....		2
Female		0

DEATHS BY NATIONALITY.

Americans.....	3	Mexicans.....	1
Chileans.....	1	Nicaraguans	2
Chinese	9	Panamans	131
Colombians.....	26	Spaniards	3
Costa Ricans.....	3	Venezuelans	1
French.....	1	West Indians	118
Germans	2		
Greeks	1		
Italians	3		
		Total.....	305

DEATHS BY AGES.

Under 1 year	59	50 to 60 years	26
1 to 4 years.....	14	60 to 70 years	13
4 to 10 years	10	70 to 80 years	7
10 to 20 years	15	Over 100 years	1
20 to 30 years	59	Not stated	11
30 to 40 years	45		
40 to 50 years	45		
		Total.....	305

DEATHS OF EMPLOYEES OF COMMISSION AND PANAMA RAILROAD COMPANY.

White	4
Black.....	70

DEATHS OF ISTHMIAN CANAL COMMISSION EMPLOYEES BY NATIONALITY.

Americans.....	2	Panamans	5
Colombians.....	4	West Indians	60
Italians	2		
Nicaraguans	1		
		Total.....	74

CAUSES OF DEATH.

Nephritis	5	Cholecystitis	1
Pneumonia, broncho and lo- bar	33	Strangulated hernia	1
Ankylostomiasis	2	Uræmia	1
Meningitis	2	Accidents	6
Valvular disease of heart	5	Alcoholism	1
Malarial fever	10	Cerebral hemorrhage	1
Typhoid fever	1	Senile debility	1
Tetanus	1	Unknown	1
Tuberculosis	1		
Amœbic dysentery	1	Total	74

CAUSES OF DEATH.

[Panama, Colon, Canal Zone and Panama Railroad Company,
including employees of Commission.]

	Panama.	Colon and Cristobal.	Ancon hos- pital.	Line hos- pitals.	Colon hos- pital.	Zone.	Total.
<i>I. General diseases.</i>							
Typhoid fever	2			1			3
Malarial fever	14	5	4	4	5	17	49
Malarial fever, pernicious	3						3
Malarial cachexia	1	1					2
Measles						1	1
Membranous croup						1	1
Dysentery, amœbic	4	1	1	1		2	9
Beriberi	19						19
Leprosy				1			1
Pyæmia		1					1
Tuberculosis	8	2	2	1			13
Syphilis	2			1			3
Cancer of liver	1						1
Cancerous cachexia	1						1
Anæmia chlorosis	1						1
Anæmia, progressive pernicious	1						1
Alcoholism, chronic	1					1	2
Ankylostomiasis		1	1	1			3
Rachitis	1						1
<i>II. Diseases of the nervous system.</i>							
Meningitis, simple			1	1			2
Cerebral, hemorrhage and conges- tion	1			1			2
Œdema of brain			1				1
Cerebral softening	1			4			5
Epilepsy		1					1
Convulsions	1	2				3	6
Tetanus	2					1	3

CAUSES OF DEATH—Continued.

	Panama.	Colon and Cristobal.	Ancon hospital.	Line hospitals.	Colon hospital.	Zone.	Total.
III. <i>Diseases of the circulatory system.</i>							
Arterio-sclerosis.....	1						1
Pericarditis.....			1				1
Organic disease of heart.....	4	3	1			4	12
Myocarditis.....		1					1
Hemorrhage.....	2					1	3
Angina.....	1						1
IV. <i>Diseases of the respiratory system.</i>							
Acute bronchitis.....	3						3
Chronic bronchitis.....	1						1
Broncho-pneumonia.....	8	1	3			1	13
Pneumonia.....	6	6	12	5	14	1	44
Pleurisy.....	1						1
Œdema of lung.....						1	1
V. <i>Diseases of the digestive system.</i>							
Diarrhea and enteritis, acute.....	14	1				2	17
Enteritis, chronic.....	1						1
Gastro-enteritis, chronic.....		1				1	2
Gastro-enteritis, acute.....	2						2
Entero-colitis.....	3						3
Hernias, strangulated.....			1				1
Hepatitis.....	1						1
Cirrhosis of liver.....	1				1		2
Cholecystitis.....			1				1
VI. <i>Diseases of the genito-urinary system and its adnexa.</i>							
Acute nephritis.....	2			2	2		6
Bright's disease.....	4		1		1		6
Nephritic colic.....	1						1
Other diseases of the kidney and adnexa.....					1		1
XI. <i>Early infancy.</i>							
Tetanus neonatorum.....	1						1
Other diseases peculiar to early infancy.....	1	1				5	7
Marasmus.....						1	1
XII. <i>Old age.</i>							
Senile debility.....	2					1	3
XIII. <i>Affections produced by external causes.</i>							
Accidental traumatisms.....	1	2		1	1	2	7
Asphyxia.....	1						1
Accidental drowning.....		1				2	3

CAUSES OF DEATH—Continued.

	Panama.	Colon and Cristobal.	Ancon hos- pital.	Line hos- pitals.	Colon hos- pital.	Zone.	Total.
XIV. <i>Ill-defined diseases.</i>							
Dropsy	3	1	.....	.....	.....	2	6
Stillborn .....	.....	3	.....	.....	.....	.....	3
Diseases not stated	2	2	.....	.....	.....	8	12
Total	131	37	30	24	25	58	305

PERSONNEL REPORT.

Office of chief sanitary officer:

Chief sanitary officer	1
Executive officer	1
Chief clerk	1
Chief of second division	1
Clerks	10
Official vaccinator	1
Messengers	2
Janitor	1
Watchman	1
Laborers	2

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Office of director of hospitals:

Director of hospitals	1
Physician	1
Clerks	3
Subforeman	1
Visiting chaplain	1
Messenger	1
Quartermaster	1
Engineer	1
Fireman	1
Sailors	3

14

Ancon Hospital:

Superintendent	1
Pathologist	2
Physicians	6
Surgeon	1
Internes	8
Nurse, chief	1

Ancon Hospital—Continued.

Nurse, assistant chief.....	1
Nurse, operating room	1
Dietist	1
Nurses	51
Chief clerk	1
Clerks	3
Timekeeper	1
Commissary	1
Druggist	1
Assistant druggists	3
Storekeeper	1
Steward	1
Laundrymen	3
Cooks	2
Embalmer	1
Head waiter	1
Quartermaster	1
Chaplains	2
Assistant chaplain	1
Attendants	41
Orderlies	63
Ward maids	23
Cooks	6
Scullions	8
Bakers	3
Laundrymen and laundresses	32
Scavengers	3
Watchmen	9
Waiters	11
Chambermaids	2
Gardener	1
Foreman	1
Subforemen	2
Doorkeepers	6
Laborers	60
Water boys	2

 369
Colon Hospital:

Superintendent	1
Pathologist	1
Physician-chemist	1
Physicians	5
Internes	7
Clerks	3
Stenographer	1
Chief nurse	1
Matron	1

Colon Hospital—Continued.

Operating-room nurse	1	
Nurses	25	
Druggist	1	
Dispensary clerk	1	
Steward	1	
Assistant steward	1	
Resident chaplains	2	
Ambulance driver	1	
Messengers	2	
Carpenters	2	
Printer	1	
Plumber	1	
Watchman	1	
Laundresses	13	
Orderlies	25	
Attendants	18	
Ward maids	14	
Surgeon dressers	2	
Scrubber	1	
Chambermaids	2	
Waiters	6	
Cooks	3	
Scullion	1	
Stableman	1	
Laborers	14	
Foreman	1	
	—	162

Culebra Hospital:

Physicians	2	
Internes	2	
Clerk and dispenser	1	
Chaplain	1	
Nurses	3	
Attendants	2	
Orderlies	4	
Cook	1	
Laundress	1	
	—	17

Gorgona Hospital:

Physicians	2	
Clerk and dispenser	1	
Nurse	1	
Chaplain	1	
Cook	1	
Orderlies	2	
Laundress	1	
Orderly	1	
	—	10

Miraflores Hospital:

Physicians	2	
Internes	2	
Insane keeper	1	
Nurses	9	
Pharmacist	1	
Quartermaster	1	
Clerk and dispenser	1	
Cooks	3	
Watchman	1	
Attendants	9	
Orderlies	8	
Scullions	2	
Ward maids	3	
		43

Corozal Dispensary:

Physician	1	
Attendant	1	
		2

Empire Dispensary:

Physician	1	
Attendant	1	
		2

Las Cascadas Dispensary:

Physician	1	
Interne	1	
Clerk and dispenser	1	
Attendant	1	
		4

La Boca Dispensary:

Physician	1	
Nurse	1	
Attendant	1	
		3

Pedro Miguel Dispensary:

Physician	1	
Dispensing clerk	1	
		2

Taboga Sanitarium:

Superintendent	1	
Nurses	4	
Cook	1	
Attendants	4	
Orderlies	4	
Laborers	4	
Laundresses	4	
		22

Laboratory of Board of Health:

Acting chief of laboratory	1
Nurses	2
Subforeman	1
Laborers	8

12

Health office of Colon and Cristobal:

Health officer	1
Physician	1
Chief clerk	1
Stenographer	1
Sanitary inspectors	6
Foreman carpenter	1
Timekeeper	1
Clerk	1
Assistant timekeeper	1
Sanitary foremen	3
Male nurses	2
Assistant foremen	3
Medical inspectors	4
Foremen	7
Subforemen	7
Scavengers	9
Messenger	1
Engineer	1
Masons	2
Carpenters	12
Laborers	269

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Health office of Panama:

Health officer	1
Attending physician	1
Physicians	2
Medical inspector	1
Chief clerk	1
Time clerk	1
Storekeepers	2
Sanitary inspectors	17
Sanitary foremen	36
Assistant time clerk	1
Subforemen	28
Mason	1
Carpenters	17
Painter	1
Laborers	379
Water boys	19

489

Quarantine service:

Chief quarantine officer	1
Quarantine officer of Colon and Cristobal	1
Assistant quarantine officer of Ancon and Panama	1
Physician	1
Clerk and stenographer	1
Disinfector	1
Quartermaster and disinfector	1
Interne	1
Engineer	1
Quartermaster and ship's keeper	1
Firemen	1
Sailors	3
Matron	1
Cook	1
Cook's helper	1
Watchmen	2
Waiters	2
Boatmen	4
Subforeman, or rat catcher	1

26

Office of chief sanitary inspector:

Chief sanitary inspector	1
Assistant chief sanitary inspector	1
Sanitary inspectors	21
Chief clerk	1
Timekeeper	1
Stenographers	2
Clerk	1
Sanitary foremen	7
Carpenters	20
Masons	6
Scavengers	22
Night-soil men	35
Subforemen	14
Water boys	14
Foremen	21
Laborers	597

764

Property division, department of health:

Chief of division	1
Storekeeper	1
Assistant storekeeper	1
Clerks	5
Assistant storekeeper	1
Watchmen	3
Laborers	3

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RÉSUMÉ.

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Gorgona Hospital	10
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Corozal Dispensary	2
Empire Dispensary	2
Las Cascadas Dispensary	4
La Boca Dispensary.....	3
Pedro Miguel Dispensary.....	2
Taboga Sanitarium.....	22
Laboratory of board of health	12
Health office of Colon and Cristobal.....	334
Health office of Panama.....	489
Quarantine service	26
Office of chief sanitary inspector	764
Property division, department of health.....	15
Grand total.....	2,311

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