Report on Work for the RELIEF AND CONTROL OF UNCINARIASIS

In Southern United States, Grenada, Costa Rica, Guatemala, and Panama for Quarter Ending March 31, 1915; also Egypt for period Jan.1 to Feb.15,1915.

THE ROCKEFELLER FOUNDATION

INTERNATIONAL HEALTH COMMISSION

61 BROADWAY, NEW YORK, U. S. A.

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Report on Work for the

RELIEF AND CONTROL OF UNCINARIASIS IN SOUTHERN UNITED STATES

Quarter Ending March 31, 1915.

EXPLANATORY NOTE

- 1. The accompanying report for the Southern United States for the calendar quarter ending March 31, 1915, includes, with an introductory summary, the reports of the respective State Directors as submitted.
- 2. In recording the sanitary surveys and the sanitary progress in dispensary and community work, the state reports have employed the classification and sanitary values that were adopted at the Atlanta conference in 1911 and about which there have been differences of opinion among health officers, particularly emphasized since the advent of the pit privy. The 1914 report of The Rockefeller Sanitary Commission, because of the differences of opinion with regard to the sanitary values of the respective types of privies in use, will omit the classification altogether and indicate merely how many homes had a privy when the work began, and how many when it closed. The several states approving, this modification will be adopted also in future quarterly reports.

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3. A form is being submitted for the consideration of the State Health Officers engaged in intensive community work that will provide blanks for indicating (1) the type of soil formation prevailing in the community; (2) for each home within the community will note especial cases where the privy, with reference to the drinkingwater supply, is dangerously located; and (3) for all the homes will indicate the presence or absence of a privy, and for each privy found, its type. the initial and final surveys, in addition to other blanks, will provide a table for the following information:

> No. of Families Without Privies No. of Families With Privies

> > Types of Privies Found:

- 1) Sewerage
- 2) Septic Tank: Cement 3) Septic Tank: Barrels
- 4) Pail: Fly-Proof Vault: Housed
- 5) Pail: Fly-Proof Vault: Unhoused
- 6) Pail: Vault Not Fly-Proof: Housed 7) Pail: Vault Not Fly-Proof: Unhoused
- 8) Pit Privy: Fly-Proof: Housed
- 9) Pit Privy: Fly-Proof: Unhoused
- 10) Pit Privy: Not Fly-Proof: Housed
- 11) Pit Privy: Not Fly-Proof: Unhoused
- 12) Open Privy: Closed Back
- 13) Open-Back . Privy

If this table, or some modification of it, appeals to those State Health Officers engaged Vin Vthe introduction will be glad to supply report blanks to cover the recording of the sanitary surveys in the manner indicated.

This will obviate the necessity for attaching sanitary values to the various types of privies. So far as the reports are concerned, if at any time, on the basis of further experience and study, the State Health Officers in conference should agree on sanitary values for the various types of privies, the information as recorded will be useful in connection with such an agreement.

4. In Ashe county, North Carolina, the county made an appropriation of \$250.00, which, owing to some misunderstanding with the field director, was withdrawn. In that county 505 persons were subsequently examined microscopically by another field director without the aid of county funds. Although the number of persons examined was as large as has been recorded in approximately 120 recorded county dispensary campaigns, and although approximately 48 recorded county dispensary campaigns in other states have been conducted without the aid of county appropriations, it has been decided, with the approval of the North Carolina State Health Officer, that in order to make the dispensary records in North Carolina uniform, the work done in Ashe county will be classified merely as an infection survey and not as a dispensary campaign. This change will appear in the annual report for 1914 and in all other reports following this one. This will slightly alter in future reports the information given in several tables in this report.

JAF/MKG

New York, July 15, 1915

SOUTHERN UNITED STATES.

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Work in the Southern United States during the quarter ending March 1. The Work Undertaken. 31, 1915, followed two main lines of activity: (1) Intensive Community Work; and (2) Dispensary Work. In those states which had been either wholly or very largely covered by county dispensaries before the activities of the Rockefeller Sanitary Commission closed on December 31, 1914, intensive community work was undertaken for the purpose of demonstrating: (a) that the infection with Uncinariasis in circumscribed areas could be measurably reduced; and (b) that measurable improvement could be made in these same areas in that phase of sanitation relating to soil-pollution.

Dispensary work was continued during the quarter in those states where there were heavilyinfected counties still to be reached.

I. COMMUNITY WORK.

- 1. Plan of Work. Intensive community work contemplates the cure and prevention of Uncinariasis in circumscribed areas, by:
 - (A) CURATIVE MEASURES:
 - (1) The microscopic examination of every inhabitant for Uncinariasis;
 - (2) The treatment of every inhabitant found infected; and,
 - (3) The weekly re-examination and re-treatment until cured of every inhabitant found infected; and,

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- (B) SANITARY MEASURES:
 (1) An inspection of privy conditions at every home within the area; and,
- (2) The construction of new or the improvement of old privies until every home in the community is provided with at least one privy of a type which will effectually check the spread of Uncinariasis by putting a stop to soil-pollution.
- 2. Extent of Operations. During the quarter, community work was completed in the following localities:

	I				1	1
State	County	Community	Director	Assistant Director	Work Began	Work Ended
Mississippi ^W	.libtool.co	mach Eaton-Grove	R.N.Whitfield	G.G.Hampton	Feb. 1	March 31
North	Pitt	Wheeler Falkland	M.E.Champion	J.E.Friday W.S.Tuttle	Sept.22 Nov.21	March 31 March 31
Carolina	Pitt	Grimesland	M. E. Champion	W.C.Gay	Dec.12	March 31
	Scotland	St.John's	D.C.Absher and			
			M.W.Steele	S.R.McKay	Oct.17	March 31
	Scotland	Snead's Grove	D.C.Absher and		,	
			M.W.Steele	T.B.Stansel	Nov. 1	March 31
	Scotland	John's Station	D.C.Absher and	7.7.7		
			M.W.Steele	F. P. Pace	Nov. 7	March 31
	Wayne	Rosewood	P.W.Covington	R.R.Bridges	Dec.12	March 31
	Wayne	Smith's Chapel	P.W.Covington	Kolbe Curtice	Dec.12	April 14*
	Wayne	Eureka	P.W.Covington	Miss Livermore		
				and Mr.Curtice	Feb. 1	May 1*
South	Aiken	Kitching's Mills	F.M.Routh	F.C.Polk	Jan.23	April 27*
Carolina	Aiken	Bethcar	F.M.Routh	J.Q.Peeples	Feb. 6	April 27*
	Aiken	Otts	F.M.Routh	J.Q.Peeples	March 6	April 27*
Virginia	Southamp- ton	Courtland	E.L.Flanagan		Jan.15	March 31

3. Type of Communities Selected. Practically all the communities selected are agricultural.

As a rule, those communities are preferred which have a well-marked, progressive community-spirit, centering, perhaps, in the schools of the district.

Typical conditions in the various communities are exhibited in Table 1, which gives the average area, number of families, number of inhabitants, etc., for the fourteen communities completed during the quarter:

Table 1	Average
Area	11 (sq.mi.)
Number of schools,	2
No. of Families: (a) Total	137
(b) White	73 63 1
No. of Tenant Families: (a) Total (b) White (c) Colored	88 30 58
No. of Persons: (a) Total (b) White (c) Colored (d) Indian	656 346 306 3

^{*} Included as completed during first quarter, 1915, because work was so nearly finished on March 31, 1915.

Table 2 gives the same data, but itemizes it by communities:

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Table 2*								NAME	OF C		ITY**					
	Average	Total	Eaton	Wheeler	Falkland	Grimes- land	Saint John's	Snead 's Grove	John's Station	Rosewood	Smith: Chapel	Eureka	Kit- ching's Mills	Bethcar	Otts	Court-
1. Area, square miles			27	14	40	24	17	16	20	11	18	12	25	16	9	
2. Number of schools	2	33	5	4	2	2	2	2	2	2	3	2	3	2	2	
	137	1913	178	221	103	144	136	138	130	127	157	124	207	99	68	81
(b) White		1027	106	193	64	93	77	49	37	72	81	60	61	54	33	47
(c) Colored		878	72	28	39	51	55 4	89	89	55	76	64	146	45	3 5	34
4. Number of tenant families: (a) Total		1149	62	117	66	80	94	120	107	82	96	78	143	60	44	
(b) White	30	396	37	90	33	42	14	2	22	28	36	27	24	25	16	
(c) Colored	58	753	25	27	33	38	80	118	85	54	60	51	119	35	28	
5. Number of persons:								•								
		9176		1108	491	677	637	742	582	584	757	586	991	411	308	346
(b) White	11		545	936	328	3 89	349	252	166	300	415	279	276	235	135	243
(c) Colored			411	172	163	288	262	490	401	284	342	307	715	176	173	103
(d) Indian	3	41				<u> </u>	26		15						<u> </u>	

4. Examining and Treating Infected Persons. The number of persons residing in these fourteen communities was 9,176. Of these, 6,565, or 71.5 per cent., were microscopically examined for Uncinariasis, and 1,270, or 19.5 per cent. of those examined, were found infected. First treatments were administered to 1,110 persons, or 85.2 per cent. of those found infected; and 254, or 22.9 per cent. of the persons treated, were shown by microscopic re-examination to be cured.

Table 3 gives the results for each community in examining for, treating, and curing Uncinariasis:

Table 3°													N A I	€ E () F	CO	M M	UNI	TY											
	TO	TAL		ton					Grin		Sa		Sne			n's			Smi 1				Kit	hings	į				Cor	rt-
	ļ		Gre	ove	Whee	eler	Fall	cland	1	land	Jol	nts	Gre	ve	St	ation	Ros	ewood	Chap	pel	Eur	reka	Mil	lls	Be	thear	0	1.5	10	nd
	No.	P.C.	No.	P. C.	No,	P.C.	No.	P.C.	No.	P.C.	Nc.	P.C.	, ×	P.C.	Nc.	, C.	No.	P.C.	No.	P.C.	No.	P.C.	¥o.	P.C.	No.	υ Α	, o ,	D,	No.	ο. Ο.
1.Census	9176		956		1108		491		677		637		742		582		584		757		586		991		411		308		346	
Micro- scopi- cally																														
3. Persons Found Infected								16.9																						
4. Fersons								10.4	40	17.8	187	33.1	118	28.3	142	33.2	81	18.3	219	43.2	49	10.8	71	8.3	109	29.1	60	21.2	4	2.3
	1110	85.2	88	100.	47	95.9	23	41.1	32	69.6	182	97.3	84	71.2	133	93.7	80	98.8	219	100.	49	100.	2	2.8	109	100.	60	100.	2	50.0
5. Persons Cured***	254	22.9			14	29.8	4	17.4	16	50.0	80	44.0	7	8.3	42	31.6	37	46.3	19	8.6	23	46.9			9	8.3	2	3.3	1	50.0

^{*}Figures for work accomplished outside of the community boundaries are excluded.

^{**}The state and county in which the community is located; the name of the director and assistant director, and the time consumed in completing the work, will be found at the top of page 2.

page 2.

***It is the custom to administer from one to six treatments. These treatments generally produce cures. For determining positively which cases have been cured, a microscopic re-examination is required from two to eight weeks after treatment. Often this re-examination cannot be made. Consequently, the number of persons recorded as positively cured is reduced.

5. Sanitary Improvement. In securing the installation of improved privies at every house in the fourthest communities, very gratifying progress was made. When the work began, it was found from sanitary surveys that only 1,022, or 53.4 per cent. of the 1,913 houses, had privies of any kind; and that 996, or 87.5 per cent., of the privies in use were of the old, open-seat, open-back, insanitary type. At the conclusion of the work, there were privies at 1,696, or 88.7 per cent., of the homes; and of these 1,696 privies, only 206, or 12.1 per cent., were of the open-seat, open-back type. The results for this feature of the work are summarized in Table 4:

Tal	ole 4*	Number	Per cent. of Whole
1.	Number of houses in the communities,	1913	ton the end was
	Number of new privies built,	674 794	35.2 41.5
		1468	76.7
	Number of old privies unimproved, Number of houses without privies,	228 217 445	11.9

Table 5 shows the extent of progress made in each community in having the inhabitants protect themselves against the dangers of soil-pollution:

Table 5*		Final Inspection						I	niti	al II	nspec	tion		
		Type of Privy						Type of Privy					-	
		B or P**	c	D	E	F	Total	A	B or p**	C	D	E	F	fotal
TOTAL	26	1458	5	1	206	217	1913	17	1	3	5	996	891	1913
Eaton Grove		102			26	49	178	1				78	99	178
Wheeler	4	188			15	14	221	1				87	134	221
Falkland	2	88			7	. 6	103	2				89	12	103
Grimesland	6	96			32	10	144	5				92	47	144
St. John's	1	131			2	2	136	1				56	79	136
Snead's Grove	1	65			26	46	138	1				68	69	138
John's Station	3	86			14	27	130	3				64	63	
Rosewood		71	1	1	36	18	127			1	1	90		127
Smith's Chapel		128			21	8	157				2	79	76	157
Eureka		88			26	10	124			2	2	61	59	124
Kitching's Mills	3	204					207		1			92	114	
Bethcar		71			1	27	99					29	70	99
Otts		68					68					35	33	68
Courtland	5	72	4				81	4				76	1	81

^{*}Figures for work accomplished outside of the community boundaries are excluded.

**The pit privy has been rated as P, and for convenience placed in the column with
the privies of the B class, pending the assignment of a sanitary value to the pit privy.

6. Per Capita Expenditure: Groups of Communities Compared with Single Communities. In an effort tour due the capense of community work, the experiment was tried of combining two or more communities in a county into a single working unit, and placing these communities under the supervision of one field director. In Pitt county, North Carolina, two communities were thus combined; and three each in Scotland and Wayne counties, North Carolina, and in Aiken county, South Carolina. Of the fourteen communities completed during the quarter, only three (Eaton Grove, Wheeler, and Courtland) were worked singly, the other eleven having been worked on the group plan.

Table 6 compares the per capita expenditure for working the communities on the group plan with that for working them singly. A total of approximately \$6,638.75 was expended by the International Health Commission in the eleven communities worked on the group plan, which gives a per capita expenditure, based on a population of 6,766 persons, of \$.98, as compared with a per capita expenditure of \$1.26 for the three communities worked singly, which had a total of 2,410 inhabitants, and in which approximately \$3,045.89 was expended by the International Health Commission:

Table 6									
Communities W	orked :	in Groups		Communities Worked Singly					
	Per Capita Expendi- ture	Amount Expen- ded*	Census		Per Capita Expendi- ture	Amount Expen-	Census		
TOTAL	\$.98	\$6,638.75	6,766	TOTAL,		\$3,045.89	2,410		
Falkland(Grimesland)	1.22	1,422.20	1,168						
St.John's) Snead's Grove.(John's Station)	1.06	2,079.00	1,961	Eaton Grove,	. 59	566.56	956		
Rosewood) Smith's Chapel(Eureka)	1.02	1,954.08	1,927	Wheeler,	1.60	1,770.91	1,108		
Kitching's Mills) Bethcar(Otts)	.69	1,183.47	1,710	Courtland,	2.05	708.32	346		

7. Per Capita Expenditure: Average for Each Community. The aggregate amount expended by the International Health Commission in the fourteen communities completed during the quarter, was approximately \$9,684.64. This is exclusive of the expenses of the microscopists and other incidental expenses borne by the communities. The total population of these fourteen communities

^{*}Approximate.

was 9,176 persons. The per capita expense to the Commission, based on the number of inhabitants, was others one \$1.06.

Table 7 shows separately the approximate amount of money spent, the number of inhabitants, and the per capita expenditure for each community:

Table 7	Per Capita Expenditure	Amount Expended*	Census
TOTAL,	\$1.06	\$9,684.64	9,176
Eaton Grove,	.59	566.56	956
Wheeler,	1.60	1,770.91	1,108
Falkland,		711.10	491
Grimesland,		711.10	677
St. John's,		693.00	637
Snead's Grove,		693.00	742
John's Station,		693.00	582
Rosewood,		626.76	584
Smith's Chapel,		649.72	757
Eureka,		677.60	586
Kitching's Mills,		394.49	991
Bethcar,		394.49	411
Otts,	1.28	394.49	308
Courtland,		708.32	346

8. Incidental Results of the Work. It should be noted that all of the results accomplished by intensive community work are not shown in the preceding summaries. All figures have been excluded from the tables except those for work accomplished within the boundaries of the community, and within the period of time during which work in the communities was in progress. It has been found, however, that the influence of the work within the community boundaries extends into the surrounding country; and that large numbers of persons are examined who reside outside the community, and many privies are installed or improved at homes which are not included in the community survey. A very perceptible improvement in sanitary conditions often takes place in the territory immediately adjoining areas in which community work has been undertaken. Again, it has been found that many families which were unable, from one cause or another, to install or improve privies at their homes while the work was going on, have made the necessary improvement after the community work was finished. Definite figures for incidental results of this kind, however, are not included as part of the regular community record.

^{*} Approximate.

9. Local Cooperation. It has been difficult in some cases to find communities ready to lend the wife entired cooperation. After the work has made some advancement in certain localities, however, it has not been uncommon for other communities to take the initiative in asking for the work, and offering to provide whatever cooperation may be required. In at least two counties where whole-time health officers are employed, the county boards of health have instructed these health officers to continue intensive community work on the general plan demonstrated in those counties by the field directors. The Virginia State Board of Health, after having seen a demonstration of the possibilities in community work, has voted funds for continuing it; and has invited the International Health Commission to cooperate in further extending it.

II. DISPENSARY WORK.

CHAPTER I - GENERAL SUMMARY.

- 1. Extent of Operations. Some of the heavily-infected counties in the states of Alabama, Georgia, Tennessee, and Texas had not been reached by dispensary work when the activities of the Rockefeller Sanitary Commission came to a close on December 31, 1914. The International Health Commission on January 1, 1915, assumed the place of the Rockefeller Sanitary Commission in aiding these states to continue the dispensary work, in an effort to extend to the inhabitants of all these heavily-infected counties an opportunity to be examined for Uncinariasis, and, if infected, to receive the benefits of treatment.
- 2. Plan of Work. The dispensary plan of work has three main features: (1) the Dispensary Work proper, consisting of the examination and treatment of infected persons; (2) an Infection Survey, consisting of the microscopic examination of a minimum of two hundred rural children of school age (6-18 years) taken at random in each county; and (3) a Sanitary Survey, consisting of the inspection of privy conditions at at least one hundred rural homes in each county. The infection and sanitary surveys are made as incidental features of the dispensary work, without increasing very greatly the expenditure of either time or money.
- 3. Persons Microscopically Examined: To Date. The total number of persons microscopically examined for Uncinariasis in the eleven Southern states, up to March 31, 1915, by the field

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staff and state laboratories combined, was 1,323,226. Of these, 1,136,510, or 85.9 per cent. were examined by the field staff; and 186,716, or 14.1 per cent., by the state laboratories. Table 8 shows by states the number of persons examined by both agencies up to March 31, 1915:

Table 8	TOTAL	By Field Staff	By State Laboratory
TOTAL.	1,323,226	1,136,510	186,716
Alabama,	60,331	57,250	3,081
Arkansas,	54,465	52,970	1,495
Georgia,	118,034	102,607	15,427
Kentucky,	202,309	128,030	74,279
Louisiana,		55,002	4,546
Mississippi,	. 174,168	166,623	7,545
North Carolina,	321,377	279,169	42,208
South Carolina,	72,144	58,787	13,357
Tennessee,	88,285	85,188	3,097
Texas,	70,633	68, 357	2,276
Virginia,	101,932	82,527	19,405

4. Persons Microscopically Examined: First Quarter, 1915. The total number of persons microscopically examined in the states where dispensary work was in progress during the first calendar quarter of 1915, by the field staff and state laboratories combined, was 49,376. Of these, 48,339, or 97.9 per cent., were examined by the field staff; and 1,037, or 2.1 per cent., by the state laboratories. The results for the first quarter of 1915 in examining for Uncinariasis are given in Table 9:

Table 9	TOTAL	By Field Staff	By State Laboratory
TOTAL.	49.376	48,339	1.037
Alabama,	4,787	4,508	279
Georgia,	29,655	29,329	326
Tennessee,	9,842	9,521	321
Texas,	5,092	4,981	111

5. Persons Treated: To Date. A total of 711,414 persons was treated for Uncinariasis in the eleven Southern states up to March 31, 1915. This includes the work of the field staff and the practicing physicians. The number of persons treated by the field staff was 456,878, or 64.2 per cent.; by the practicing physicians, 254,536, or 35.8 per cent. Table 10 exhibits for each state the total number of persons treated, and shows separately the number treated by practicing physicians and by the field staff:

Table 10	TOTAL	Field Staff	By Practicing Physicians
www.libtool.com.cn	711,414	456,878	254,536
Alabama,		45,019	8,141
Arkansas,	10,393	6,970	3,423
Georgia,		57,121	34,282
Kentucky,		37,916	65,777
Louisiana,		37,225	13,289
Mississippi,	112,737	73,919	38,818
North Carolina,		99,012	61,699
South Carolina,	51,337	38,411	12,926
Tennessee,	27,525	25,573	1,952
Texas,	24, 235	18,603	5,632
Virginia,	25,706	17,109	8,597

6. Persons Treated: First Quarter, 1915. A total of 16,898 persons was treated during the quarter ending March 31, 1915, by the staff and practicing physicians combined. Of these, 16,480, or 97.5 per cent., were treated by the field staff; and 418, or 2.5 per cent., by the practicing physicians. The figures for each state for the first calendar quarter of 1915 are given in Table 11:

Table 11	TOTAL	By Field Staff	By Practicing Physicians
TOTAL	16,898	16,480	418
Alabama,	1,499	1,499	
Georgia,	11,627 2,326	11,627 2,241	85
Texas,	1,446	1,113	333

7. Counties Having Dispensary Work Completed. The total number of counties having dispensary work completed up to March 31, 1915, was 628. Work in forty-nine of these counties was completed during the first quarter, 1915. Table 12 shows by states the number of counties in which dispensary work has been completed:

Table 12	Number Up To March 31, 1915	Number During First Quarter, 1915	Number Prior To First Quarter,1915
TOTAL,	628	49	579
Alabama,	60	7	53
Arkansas,			43
Georgia,	93	27	66
Kentucky,			32
Louisiana,	49		49
Mississippi,	76		76
North Carolina,			100
South Carolina,	41		41
Tennessee,	52	9	43
Texas,		6	45
Virginia,			31

8. Counties Having Infection Surveys Completed. Infection surveys were completed in 634

counties up to March 31, 1915. Thirty-eight of these surveys were made during the first quarter,
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1915. The number of infection surveys made in each state, prior to, during, and through the
quarter ending March 31, 1915, is shown in Table 13:

Table 13	Number Up To March 31, 1915	Number During First Quarter,1915	Number Prior to First Quarter, 1915
TOTAL	634	38	596
Alabama,		3	36
Arkansas,			48
Georgia,	92	23	69
Kentucky,	22		22 °
Louisiana,			55
Mississippi,			78
North Carolina,			100
South Carolina,	32		32
Tennessee,		6	56
Texas,		6	41
Virginia,			59

9. Counties Having Sanitary Surveys Completed. The total number of counties in the eleven Southern states in which sanitary surveys had been completed, up to March 31, 1915, was 689. Of these, thirty-six were completed during the first quarter, 1915. The figures for each state are given in Table 14:

Table 14	Number Up To March 31, 1915	Number During First Quarter, 1915	Number Prior To First Quarter, 1915
TOTAL,	689	36	653
Alabama,		3	47
Arkansas,	50	00 00.	50
Georgia,	92	24	68
Kentucky,	37		37
Louisiana,	55	70 to	55
Mississippi,	77		77
North Carolina,			100
South Carolina,	41		. 41
Tennessee,	72	3	69
Texas,		6	42
Virginia,		••	67

CHAPTER II - DETAILED REPORT FOR FIRST QUARTER, 1915.

1. Results Itemized by States. Figures in detail showing results accomplished in the states of Alabama, Georgia, Tennessee, and Texas, during the quarter ending March 31, 1915, are given in the following pages:

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ALABAMA

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1) WORK OF FIELD DIRECTORS a. Examinations

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					ula	. 1011		Cau	Ther	-Ru			P	os	iti	VE	t	0:	
County	Field Director	Appropriated	Expended	Sec'g Appr'n	Advertising	Holding Disp's	Educational Wk	School Work	Work in Homes	Total	Total Number	Total Positive	Uncinariasis	Ascaris	Hymenolepis	Trichocephalus	Oxyuris	T.Saginate	91 1
Cleburne Montgomery Morgan Randolph St. Clair Talladega Cullman* Jackson* Shelby#	Meriwether Williams Orr Meriwether Orr Caldwell Caldwell Williams Williams	\$ 37.72 248.77 50.00 31.20 7.00 200.00 100.00 49.00 23.00	\$ 37.72 248.77 50.00 31.20 7.00 91.50								1565 1371 25 877 143 171	686 1 234 2 35	449 686 1 234 2 35						
Total,		746.69	489.19								4508	1499	1499						

b. Treatments and Educational Work

			Numb	er (of	Per	°sc	ns	and								Educa	atio	nal		
		Tre	atme	nts	fo	r F	loc	kw	orm		he		ent:		or	K	ind of	Lec	ture	s	
	Field											(2)	ø		t. m	Pub.	lic	Sch	nool	Sp	cl.
County	Director	First	Second	Third	Fourth	Fifth	Sixth	Seventh	Total	Ascaris	Hymenole	a	T. Saginata	T. Nana	Total for Other Parasites	Number	Atten- dance	Number	Atten- dance	Number	Atten- dance
Cleburne Montgomery	Meriwether Williams		111	2					564 807							38 58	4450 4427	14	565	1	35
Morgan	Orr	1							1							12	1550	1	250		12
Randolph St. Clair	Meriwether	234							234							28	2371 1730	6	485 360		
Talladega	Caldwell	35	9	4					48							17	1870	_	1570		50
Shelby#	Williams	88					٠		88							22	1225				
Total,		1499	237	6					1742							194	17623	59	3230	3	97

c. Infection Survey

County	Surveyed By	Number Examined	Number Infected	Percent of Infection
Cleburne	Meriwether	788	348	44.1
Montgomery Randolph	Williams Meriwether	722 382	536 172	74.2 45.0
Total,		1892	1056	55. 8

^{*}Expenditures reported last quarter. #Work conducted during April, 1915.

ALABAMA (continued)

www.libtoof.comdcnsanitary Survey

					Type	of Pr	rivy		Sanitary
County	Surveyed By	A	·B	C	D	E	F	Total	Index
Cleburne Montgomery Talladega	Meriwether Williams Caldwell				10	76 143 69	99 30 40	185 173 109	5.45 8.26 6.33
Total,					10	288	169	467	6.70

2) WORK OF STATE LABORATORY

					F	ositi	ve to	:		
,	Total Specimens	Total	Hookworm	Ascaris	Hymeno- lepis	Tricho- cephalus	Oxyuris	Taenia Saginata	Taenia Nana	Protozoa
Examinations for Our Staff*										
Examinations for Physicians and Miscellaneous	279	92	62	16	4	. 2				88
Total Examinations	279	92	62	16	4	2				8

^{*} These are credited to counties from which they were sent in.

3) WORK OF CENTRAL OFFICE

			31 401	IK UF U	ENTRAL C	FF 1U.	II.a				
ENLI	STING F	HYSICIA	INS			ED	UCATIO	LAMC			
Number	of Phys	icians	73 B		res- ndence		Ву	Add	resses		
			4 전	63	יט	Pub	lic	Sci	hool	Spe	ecial
In State	Reporting	Reporting "Treating Hookworm"	No. Persons Reported Tr by Physicia	No. Letters Mailed	No. Pieces Literature Distribute	Number	Atten- dance	Number	Atten- dance	Number	Atten- dance
				700	10,000						

4) EXPENDITURES

_									
			Lo	cal	Funds				
	Indi	Lrect'	¢.			Direct			
	S'	TATE			STATE	COUNTY		Inter- national	
Rent	Heat, Light &c.	Postage	Printing, Office Sup's &c				From Other Sources	Health Comm.	TOTAL*
						\$466.19		\$4112.27	\$4578.46

^{*}Indirect expenditures, including estimated state funds, are not added in total with direct expenditures.

GEORGIA

www.libtool.com.cn

1) WORK OF FIELD DIRECTORS

a. Examinations

													Exami	nati	ons				
				D	ura	tion	of	Ca	mpai	lgn				Pos	iti	e	to	:	
County	Field Director	Appropriated	Expended	Sec'g Appr'n	Advertising	Holding Disp.	Educ. Work	School Work	Securing Drs.Endorsemt	Total	Total Number	Total Positive	Unctnariasis	Ascaris	Hymenolepis	Trichocephalus	Oxyuris	T.Saginata	T. Nana
Baker Bleckley Calhoun Campbell Cobb Columbia Coweta Crawford Dodge Dougherty Echols Effingham Glascock Gwinett Harris Heard Jeff Davis Madison Milton Oconee	Wood Whittle Henry Howell Howell Riser Buchanan Dedwylder Whittle Wood Dedwylder Leonard Rodgers Verner Moore Applewh'e Dedwylder Collinson Verner Riser	\$150.00 165x15 130.00 150.00 150.00 150.00 150.00 125.00 250.00 150.00 150.00 150.00 150.00	\$150.00 165.15 127.57 90.63 116.86 149.85 112.95 82.92 229.71 145.80 73.10 94.96 127.34 148.85 145.00 89.91 100.84 100.00	1 1 1	21332961 15417525213	18 20 19 20 18 25 15 17 25 21 12 20 17 20 17 15 14 19	2 1 3 4 2 1 1	6 5 1 1 1 1 3 1 4 6	2 2 1 3	22 23 26 27 23 36 28 23 29 27 20 25 20 28 28 17 24 24 21 23	931 1937 1361 625 798 609 651 1471 3290 514 1581 848 1733 683 1341 615 1372 594 909	715 1199 575 89 143 115 85 425 2421 190 327 696 756 279 198 268 431 284 141	575 58 102 106 73 425 2418 171 327 679 755 234 198 224 431	9 20 22	25 3 10 19 9 3 3 19 11 1 3 22	2	2	2 2 1 1	
Quitman Richmond Talbot Taliaferro Terrell Troup Twiggs	Henry Rodgers Moore Collinson Applewh'e Buchanan Whittle	100.00 200.00 100.00 150.00 150.00 150.00	100.00 158.94 100.00 93.90 125.42 98.33 150.00	2 2 1 6 1	3 6 8 2 2 1	20 17 16 18 18 18 20	2 2 2 6 3	4	3	25 27 27 27 27 32 27 22	938 924 629 341 1781 663 1300	424 448 290 27 428 74 836	424 405 290 27 413 65 831	14 2 1	2 44 14 9	1		3	
Total,		3220.15	3266.19	18	87	490	36	36	14	681	29329	12088	11728	158	269	5	8	13	

GEORGIA (continued)

www.libtool.com.cn

1) WORK OF FIELD DIRECTORS

d. Treatments and Educational Work

		Num	ber o	f Per	sons a	and Ti	imes	Treated			E	lucation	nal	
			Tre	atmen	ts for	Hool	CWOI	*IN			Kind	of Lea	tures	
									Pt	ablic	5	chool	S	pecial
County	Field Director	First	Second	Third	Fourth	Fifth	Sixth	Total	Number	Atten- dance	Number	Atten- dance	Number	Atten- dance
Baker	Wood	710	408	76	3			1197	25	1289	7	253	3	23
Bleckley	Whittle Henry	1183 575	585	243	24	1		2036 1137	46	2724 936	8 22	540 1041	,	
Campbell	Howell	70	53	53	53	2		231	23	744	2	55	1 1	5 35
Cobb	Howell	104	98	98	98	11		409	11	1185	-	33	Τ.	33
Columbia	Riser	108	79	66	35			288	28	1477	8	517		
Coweta	Buchanan	73	65	65				203	32	1061	10	805		
Crawford	Dedwylder	420	383	383				1186	3	250	34	2515	1	100
Dodge	Whittle	2418	1207	782	22	5		4434	39	2308	29	2093	1	40
Dougherty	Mood	171	162	65	2	2		402	25	875	22	1216		
Echols	Dedwylder	327	319	319				965	5	250	19	1290		
Effingham	Leonard	678	576	535	1			1790	21	2065	10	463		
Glascock	Rodgers	739	683	636	638	2	2	2700	5	610	11	687		
Gwinett	Whittle	234	219	173	1			627	19	1105	11	1260		
Harris	Moore	196	87	60				343	14	625	14	754		
Heard	Applewhite	184	184	184				552	15	933	43	1831	1	50
Jeff Davis	Dedwylder	431	431	435 182	12	1		1297 717	7 15	425 1220	23	1125 700	4	260
Milton	Verner	284	96	182	12	1		288	19	1010	18	1235	1	40
Oconee	Riser	170	137	106	13			426	32	1399	11	1235		40
Quitman	Henry	424	255	181	1			861	23	501	14	467	1	42
Richmond	Rodgers	401	373	367	362			1503	3	380	7	1008	ī	90
Talbot	Moore	319	236	97	00.0			652	13	619	6	277	2	38
Taliaferro	Collinson	26	25	23				74	12	320	13	510	_	45
Terrell	Applewhite	388	386	381				1155	14	892	42	3685	1	11
Troup	Buchanan	65	65	65				195	13	982	11	772		
Twiggs	Whittle	833	382	280	20	6	5	1526	35	1244	18	498		
Total,		11627	8031	6207	1291	31	7	27194	520	27429	420	26817	18	704

GEORGIA (continued)

vw.libtool.com.ch) WORK OF FIELD DIRECTORS

www.libtool.com.ch) WORK OF FIELD DIRECTORS
c. Infection Survey

County	Surveyed By	Number Examined	Number Infected	Percent of Infection
Baker	Wood	483	465	96.2
Bleckley	Whittle	602	581	96.5
Calhoun	Henry	535	307	57.3
Campbell	Howell	310	43	13.8
Cobb	Howell	251	48	19.1
Columbia	Riser	225	62	27.5
Coweta	Buchanan	374	61	16.3
Crawford	Dedwylder	676	253	37.4
Dodge	Whittle	1098	1060	96.5
Dougherty	Wood	421	102	24.2
Echols	Dedwylder	320	285	89.0
Effingham	Leonard	645	614	95.1
Glascock	Rodgers	411	409	99.5
Gwinett	Verner	1194	174	14.5
Harris	Moore	528	189	35.7
Heard*	Applewhite	784	121	15.4
Jeff Davis	Dedwylder	362	315	87.0
Madison	Collinson	791	205	25.9
Milton*	Verner	297	34	11.4
Quitman	Henry	510	320	62.7
Richmond	Rodgers	259	180	69.5
Talbot	Moore	452	231	51.1
Taliaferro	Collinson	183	20	10.9
Terrell*	Applewhite	894	248	27.7
Troup	Buchanan	284	44	15.5
Twiggs	Whittle	301	296	98.3
Oconee*	Riser	309	68	22.0
Total,		13449	6735	50.0

^{*}Partially reported in last quarter 1914.

GEORGIA (continued)

www.libtool.com.t) work of field directors d. Sanitary Survey

County	Surveyed By				Туре	of Pr	ivy		Sanitary
County	but veyed by	A	В	C	D	E	F	Total	Index
Baker Bleckley Calhoun Campbell Cobb Columbia Coweta Crawford Dodge Dougherty Echols Effingham Glascock Harris Heard Jeff Davis Milton Quitman Richmond Talbot Taliaferro Terrell Troup Twiggs Gwinett* Madison* Oconee*	Wood Whittle Henry Howell Riser Buchanan Dedwylder Whittle Wood Dedwylder Leonard Rodgers Moore Applewhite Dedwylder Verner Henry Rodgers Moore Collinson Applewhite Buchanan Whittle Verner Collinson Riser	1			46	136 116 112 93 123 88 145 118 192 164 176 193 86 407 146 332 181 68 220 358 75 155 202 19 136 234 214	135 138 65 140 95 68 27 245 157 255 229 47 69 16 118 253 139 77 74 46 156 50 174 91 135 68	271 254 177 233 219 156 172 363 349 419 405 240 155 469 264 585 320 145 294 404 231 205 376 110 271 370 282	5.0 4.5 6.3 3.9 6.0 5.6 8.4 3.2 5.5 3.9 4.3 8.0 5.5 11.1 5.6 5.6 4.6 7.4 8.8 3.2 7.5 5.3 1.7 5.3 7.5
Total,		1			46	4489	3203	7739	5.9

^{*} Second surveys.

GEORGIA (continued)

www.libtool.com.work of state laboratory

]	Positi	ve to	:		
	Total Specimens	Total Positive	Hookworm	Ascaris	Hymeno- lepis	Tricho- cephalus	Oxyuris	Taenia Saginata	Taenia Nana	Ameba	
Examinations for Our Staff*	53	9	9								
Examinations for Physicians and Miscellaneous	326	109	88	8	7	2	1			3	
Total Exams.,	379	118	97	8	7	2	1			3	

^{*} These are credited to counties from which they were sent in.

3) WORK OF CENTRAL OFFICE

ENI	ISTING 1	PHYSICIA	ns				EDUCA	CIONA	L		
Numbe	er of Phy	sicians	0 01	By Corr	es- ndence			By A	dres	ses	
			ns Trt ian	S	in a ei	Pu	blic	Sch	ool	Spe	ecial
In State	Reporting	Reporting "Treating Hookworm"	No. Person Reported Table by Physicia	No. letter Mailed	No. Pieces Literature Distribute	Number	Atten- dance	Number	Atten- dance	Number	Atten- dance
				10246	25580	3	825				

4) EXPENDITURES

				Loca	l Funds					
		Indi	rect*			Direct				
		ST	ATE		STATE	COUNTY	F4	Inter-		
Rent	Heat, Light &c	Postage	Printing, Office Sup's &c.					national Health Comm.	TOTAL*	
\$30.	30.	30.	50.			\$2889.61		\$11631.86	\$14521.47	

^{*} Indirect expenditures, including estimated state funds, are not added in total with direct expenditures.

TENNESSEE

1) WORK OF FIELD DIRECTORS a. Examinations

		1									1									
				I	ura	tio	n oi	E Ca	mpa	ign				Ex	ami	nati	ons			
									•						P	osit	ive	to):	
County	Field Director	Appropriated	Expended	Sec'g Appr'n	Advertising	Holding Disp's.	Educational Wk.	School Work	Work in Homes	Total	Total Number	Total Positive	Uncinariasis	Ascaris	Hymenolepis	Trichocephalus	Oxyuris	T. Saginata	T. Nana	·
Bledsoe Carroll	Townsend Rude		\$73.05		5	15	3			23	280 213	142	84 74	34		2	6		14	
Benton	Rude										203	54	54							
Grundy	Yancey	\$250.00	63.03	6	4	26	3			39	702	286	187	105		5	2	2	12	
Hardeman	Townsend		109.75		5	15	3			23	620	96	61	28			1		7	
Hardin	Robinson	175.00	104.93			18				18	1151	172	103	44		6	1		35	
Henderson	Robinson	200.00	90.53			20.				20	2075	535	524	121		5			12	
Henry	Rude		50.00		7	15				22	913	358	196	170		22			17	
McNairy	Robinson		29.35		2	15	3			20	747	198		28		1	1		17	
Macon	Yancey										283	87	71	37		3	6		6	
Morgan .	Rude	175.00		1	2					20	1521	830	533			49	5		28	
Sequatchie	Townsend	100.00	70.00	1	4	15	3			23	755	347	195	81		11	25	2	33	
Trousdale	Yancey										58	9	6	1		3	1		1	
Total,		900.00	660.68	8	29	156	15			208	9521	3188	2250	989		107	48	4	182	

b. Treatments and Educational Work

			Number	of Pe	rson	s Tr	eate	d			E	ducation	nal	
			Treatm	nents f	or H	lookw	orm				Kind	of Lec	tures	
	Field								Pu	blic	s	chool		Special
County	Director	First	Second	Third	Fourth	Fifth	Sixth	Total	Number			Atten- dance	Number	Atten- dance
Benton	Rude	54	54	54				162	1	100				
Bledsoe	Townsend	84	54	47		1		185	5	400	1	150		
Carroll	Rude	74	74	74				222	2	285	1	100		
Grundy	Yancey	178	125	121				424	17	285	1	89		
Hardeman	Townsend	61	5 5	53				169	5	350	1	150		
Hardin	Robinson	103	91	88		*		282	12	546		,		
Henderson	Robinson	524	510	510				1544	11	620	19	961		
Henry	Rude	196	185	182				563	4	650	4	650		
McNairy	Robinson	162	159	159				480	11	386	5	485		
Macon	Yancey	71						71	2	250	2	369		
Morgan	Rude	533	498	494				1525	8	600	6	375		
Sequatchie	Townsend	195	161	156			,	512	-3	350				
Trousdale	Yancey	6						6	2	120	2	300		
Total,		2241	1966	1938				6145	83	4942	42	3629		

TENNESSEE (continued) c. Infection Survey

County	Surveyed By	Number Examined	Number Infected	Percent of Infection
Benton Carroll	Rude Rude	203 213	54 74	26.7
Grundy	Yancey	364	158	43.4
Morgan McNairy	Rude Robinson	741 351	359 115	48.4
Weakley	Robinson	262	4	1.52
Total,		2134	764	35.8

d. Sanitary Survey

					Type	of Pr	ivy		Sanitary
County	Surveyed By	A	В	C	D	E	F	Total	Index
Benton Carroll Morgan	Rude Rude Rude			1 2	3 5 5	72 79 65	126 158 208	202 242 280	4.2 3.7 3.1
Total,				3	13	216	492	724	3.6

2) WORK OF STATE LABORATORY

	2) HOIL	S 02	Cana	ישונים	JILM I OF	<u> </u>				
						Pos	itive	to:			
	Total Specimens	Total Positive	Hookworm	Ascaria	Hymeno- lepis	Tricho- cephalus	Oxyuris	Taenia Saginata	Taenia Nana	Others	
Examinations for Our Staff*											
Examinations for Physicians and Miscellaneous	321	75	35	9		5		2	7	17	
Total Exams.	321	75	35	9		5		2	7	17	

^{*}These are credited to counties from which they were sent in.

3) WORK OF CENTRAL OFFICE

ENLIS	TING TH	E PHYSIC	IANS					ED	UCATIO	NAL			
Numbe	r of Phy	ysicians	ர் ம	By Corresp	onde	nce				By Ac	idress	es	
	Tr. tr.			on .		_	ъ	Pu	blic	Scl	1001	Spe	cial
In State	State porting reating Nevran Ported Ported		. Perso ported Physic	No. Letter Mailed	No. Pieces	Literature	Distribute	Number	Atten- dance	Number	Atten dance	Number	Atten- dance
3400		40	85	650	10,	,000		2	350	1	300	4	400

4) EXPENDITURES

						7 23767	EWDII OILES				
				I	local	Funds	3				1
		direc					Dire	ct			
	STATE						STATE	COUNTY	Sa	Inter-	
Rent	Heat, Light &c.	Postage	Printing, Office Sup's &c.						From Other Sources	national Health Comm.	TOTAL
\$15.	6.	30.	10.					\$660.68		\$4055.09	\$4715.77

TEXAS

1) WORK OF FIELD DIRECTORS a. Examinations

www.libtool.com.cn

				Dr	ırat	ion	of	Cam	nai	en.			E		ina				
County	Field Director	Appropriated	Expended	Sec'g Appr'n	Advertising	Holding Disp's	Educational Wk.	School Work	Work in Homes	Total	Total Number	Total Positive	Uncinariasis	Ascaris	Hymenolepis o	Trichocephalus	Oxyuris	T. Saginata	T. Nana
Harrison Newton* Jackson Gregg Dallas Marion*	Outlaw Judkins Thorne Outlaw Judkins Thorne	\$200.00 200.00 300.00 200.00 300.00 100.00	\$200.00 200.00 152.40 200.00 300.00 100.00	7	888888	27 26 43 28 18 34	17			51 43	1141 737 420 1424	88 493 102 111 9 311					3	2	9
Total,		1300.00	1152.40	24	48	176	17			265	4981	1114	1114				3	2	9

^{*}Appropriation by International Health Commission.

b. Treatments and Educational Work

b. Treatments and Faucational Mo									A HUOI	-									
					Numl	per of										Educ	ation	al	
		Treatm	ents	for	Hool	kworm		rea (槽	ent	Par	or	ites			Kind of Lectures			
								03	S					Pu	blic	Sch	iool	S	pecial
County	Field Director	First	Second	Third	Fourth	Total	Ascaris		Trichoceph	xyuris	T. Saginata T. Nana		Total for Other Parasites		Atten- dance	Number	Atten-	Number	Atten-dance
Harrison	Outlaw	88	51	2		141								22	686	15 14	1639 1140		
Newton Jackson Gregg	Judkins Thorne Outlaw	488 106 111	284	28		106 165								23 4 16	703 142 363	23	1068 1451		260
Dallas Marion	Judkins Thorne	9 311	7 6	6	6	16 329								14 16	333 791		4760 1620		60 50
Total,	1	1113	394	44	6	1557								95	3018	111	11678	5	370

c. Infection Survey

County	Surveyed By	Number Exami ned	Number Infected	Percent of Infection
Harrison Newton Jackson Gregg Dallas Marion	Outlaw Judkins Thorne Outlaw Judkins Thorne	539 856 584 334 1364 463	85 419 90 105 8 276	15.7 48.9 15.4 31.4 .58 59.6
Total,		4140	983	23.7

TEXAS (continued)

d. Sanitary Survey

www.li	ottoor.com.cn		Type of Privy										
County	Surveyed By	A	В	C	D	E	F	Total	Index				
Harrison Newton Jackson Gregg Dallas Marion	Outlaw Judkins Thorne Outlaw Judkins Thorne	105 4 110 62		31	24 268	196 1 155	177 93 307 116 247	282 313 312 226 485 278	37.4 8.17 1.3 48.6 29.79 5.5				
Total,		281		31	292	352	940	1896	21.3				

2) WORK OF STATE LABORATORY

· ·						Po	siti	e to			
	Total Specimens	Total Positive	Hookworm	Ascaris	Hymeno- lepis	Tricho- cephalus	Oxyuris	Taenia Saginata	Taenia		
Examinations for Our Staff*											
Examinations for Physicians and Miscellaneous	111	34	32						2		
Total Examinations	111	34	32						2		

^{*}These are credited to counties from which they were sent in.

3) WORK OF CENTRAL OFFICE

ENI	ISTING	PHYSICIA	NS			EDU	CATIO	NAL						
Number	of Phy	sicians	n de	By Corre	spondence			Ву	Addre	sses				
			12 4	ហ	ed e	Pub	lic	Scl	nool	Sp	ecial			
In State	Reporting	Reporting "Treating Hookworm"	No. Persons Reported Tr by Fhysicia	No. Letters Mailed	No. Pieces Literature Distribute	Number	Atten- dance	Number	Atten- dance	Number	Atten- dance			
5126	93	31	333	3435	13458									

4) EXPENDITURES

		Lo	cal Fu	nds				
Inc	iirec	t*			Direct			
	STATE			STATE	COUNTY	Eq.	Inter-	
Postage	Porter	Telegrah & Tele- phone	Rent			From Other	national Health Comm.	TOTAL*
\$40.	60.	64.85		50 41 M 50	\$852.40		\$5369.99	\$6222.39
	Postage	Postage Porter	Indirect* STATE 436 Figure 1	Indirect* STATE Be legraph Then the phone contained by the contained by	STATE STATE Lefter by hone Rent by hone	Indirect* Direct STATE STATE COUNTY Direct STATE STATE COUNTY Direct STATE COUNTY Direct STATE COUNTY	Indirect* STATE STATE STATE STATE Output STATE Output STATE STATE STATE Output STATE	Indirect* STATE STATE STATE COUNTY A STATE STATE COUNTY International Health Comm.

^{*}Indirect expenditures, including estimated state funds, are not added in total with direct expenditures.

Report on Work for the
RELIEF AND CONTROL OF UNCINARIASIS IN GRENADA
Quarter Ending March 31, 1915.

www.libtool.com.cn
1. Plan of Work and Extent of Operations. Measures against Uncinariasis in Grenada during the quarter ending March 31, 1915, centered in the attempt to eradicate the disease from three selected areas: one located at Mount Morits, with an estimated population of 3,645 inhabitants; and two at St. David's (known respectively as Areas A and B), having a combined population estimated at 6,408 inhabitants. Actual work in these areas began on February 1st, and was conducted on the intensive plan, which requires:

1) Operation within a definite area;

2) The enumeration of the entire population in this area;

3) The microscopic examination of the entire population for Uncinariasis;

4) The treatment of all found infected with Uncinariasis;

5) The careful re-examination of every patient under treatment, after each weekly course of medicine, until a cure is effected.

2. Examinations and Treatments for Uncinariasis. During the quarter the work of examining and treating patients was conducted at the Central Laboratory or Head Office at Marine Villa, as well as locally at Mount Moritz and St. David's. The total number of persons microscopically examined was 7,906, of whom 3,440, or 43.5%, were found infected with Uncinariasis. First treatments were administered to 4,856 persons, of whom 14.1% were shown by re-examinations to be cured, and 85.9% remained under treatment. Table 1 gives detailed figures for each locality:

Table 1	TOT	AL	He Off		Areas Mt.Moritz St.David's			
	No.	P.C.	No.	P. C.	No.	P.C.	No.	P. G.
1. Persons Seen	13260		3754		3397		6109	
2. Persons Microscopically Examined for								
Uncinariasis					2500			
3. Persons Found Infected with Uncinariasis	3440	43.5	520	29.7	1050	42.0	1870	51.1
4. Persons Given First Treatment for Uncin-								
ariasis	4856		1285		1144		2427	
5. Persons Cured of Uncinariasis	686	14.1	403	31.4	126	11.0	157	6.5
6. Persons Remaining Under Treatment for								
Uncinariasis	4170	85.9	882	68.6	1018	89.0	2270	93.5

3. Incidental Examinations: Carriacou and St. Andrews Estate. Examinations were also made of 41 persons on the Island of Carriacou, and of 100 laborers on the St. Andrews estate. The results are shown below:

a) Island of Carriacou:

	Examined	INIECTED
Prior to this quarter,	24	0
During this quarter,	41	1_
Total,	65	1

b) St. Andrews Estate:

Www Pyring this quarter, Examined Infected Treated 100 90 100

This infection of 90% on the St. Andrews estate is the most intense yet found in Grenada in a group of laborers not selected in any way. A certain amount of dyspepsia, anemia, and cardiac dilatation was recorded by clinical examination, but no gross disease was in evidence in spite of the obviously intense infection in practically all of those examined.

4. Microscopic Examinations for All Parasites. The comparative frequency of infection by various intestinal parasites, including Uncinaria, among 7,906 specimens examined, was found to be:

Ascaris, 71.6% Trichuris, 63.0% Uncinaria, 43.5%

The percentage of specimens positive to one or more parasites, was 90.6%; negative, 9.4%. These results are exhibited in detail in Table 2:

Table 2	TOT	AL	Head Office		Are Mt.Moritz			avid's
	Ho.	ς. Α	No.	P. C.	No.	ນ ຄ	• • •	S.
1. Microscopic Examinations Made	7906		1750		2500		3656	
2. Microscopic Examinations Positive to All Parasites	7162	90.6	1373	78.5	2316	92.6	3473	95.0
3. Specimens Examined for Uncinaria Disclosing Incidentally the Presence of Other Intestinal Parasitic Infection:								
(a) Ascaris	5659	71.6	1227	70.1	1800	72.0	2632	72.0
(b) Trichuris	4982	63.0	1285	73.4	1786	71.4	1911	52.3
(c) Uncinaria			520	29.7	1050	42.0	1870	51.1
(d) Strongyloides			3	.2				
(e) Oxyuris	46	.6	4	.2	12	. 5	30	1.0
(f) Larvae of Muscidae	2	.03	1	.06			1	.03
4. Microscopic Examinations Negative to All Parasites	744	9.4	377	21.5	184	7.4	183	5.0

5. Subsequent Treatments for Uncinariasis. The number of patients given one treatment was 4,856. Of these, 52.0% received the second treatment; 33.1% the third; and 13.1% four or more treatments. The progress made during the quarter in following up the first treatment with other treatments until a cure was effected, is exhibited in Table 3.

Table 3 www.libtool.com.cn	TOTAL		Hea Offi		Areas Mt.Moritz St.David'				
	No.	P. C.	No.	ت م	No.	P. C.	No.	P. G.	
1. Persons Treated for Uncinariasis: (a) One treatment (b) Two treatments	4856 2526		1285 677				2427	44.6	
(c) Three treatments	1605 637	33.1 13.1	353 193	27.5 15.0	697 134	60.9	555 310	22.9	
(e) Total number of treatments	9624		2508		2741		4375		

6. Laboratory and Educational Work. Table 4 gives the results of fecal and blood examinations in the laboratory; and shows the progress made in aiding the general public to understand Uncinariasis and the measures necessary for controlling it:

Table 4	
1. Laboratory Work: (A) Fecal Examinations.	Number
(a) No. of specimens examined,	12431
(b) No. of specimens positive to all parasites,	
(c) No. of specimens positive to Uncinaria,	4975
(B) Blood Examinations.	
(a) No. of specimens examined,	172
(b) Average percentage haemoglobin,	70.0
(c) Minimum percentage haemoglobin,	30.0
(d) Maximum percentage haemoglobin,	
2. Educational Work;	
(a) Number of addresses delivered,	109
(b) Attendance,	14119

7. Cooperation of Public Officials and Teachers. The cooperation of public officials and school-teachers has been very promising. In February a public lecture on "The Economic Aspects of Disease" was delivered in St. George's by the Medical Officer in Charge. His Excellency the Governor presided at this meeting, and spoke in general of sanitary conditions in Grenada, and in particular of the campaign against Uncinariasis.

The schools are the main centers around which districts are marked off and the census taken. Teachers have been selected as part-time assistants, for taking the census; collecting specimens; distributing medicines and literature; and for general educative and recording work. The teachers have shown a very marked and intelligent interest in the work, and have come regularly to the Head Office at Marine Villa from long distances to attend the lectures on health topics arranged for them and for the sanitary inspectors of the Island.

8. Preventive Measures. Efforts are being made to secure the amendment of existing sanitary laws in such manner as will serve best to give permanence to the results obtained

by the treatment and cure of infected persons. It has been recommended:

- That the pollution of the soil and streams be prohibited, under penalty for violation;

 2) That the disposal of fecal matter be carried out:
 - - (a) by burial, as in a pit privy;
 - (b) by combustion; or,
 - (c) by disposal in the sea in certain designated locations; and
- 3) That a corps of sanitary inspectors, entirely distinct from the staff engaged in examining and treating, be employed to report nuisances and to aid in carrying out the sanitary requirements.
- 9. Conditions of Uncinaria Infection. Dr. Angus MacDonald, the Medical Officer in Charge, has drawn the following conclusions based on his work to date:
 - "1) Age. All ages are infected, but, except in definite districts, infection is uncommon under ten years and rare under five.
 - "2) Sex. Adult males are infected in greatest number.
 - "3) Occupation. Practically all are or have been engaged in agricultural pursuits (barefoot); and infection seems to date from leaving the home garden to work elsewhere.
 - "4) Situation. Infection varies widely between different districts, chiefly the result of difference of soil, cultivation, and perhaps of water supply. Infection in the town is low; and in all cases of town infection the patient has resided in the country at periods ranging as high as twelve years previously.
 - "5) Soil. The red clay bears a high infection; while also a high inf ction is found in definite districts on light, ashy, or sandy soil, over 'tiff', conglomerate, and tough basalt.
 - "6) Meteorology. The more moist windward side of the Island probably carries a higher infection.
 - "7) Cultivation. The densely cacao-shaded areas have a high percentage; open cultivation of recurrent or rotation crops (corn, peas, tannia, potato, etc.) in definite districts also bears a high infection.
 - "8) Complicating Diseases. From casual blood examinations it is evident that Malaria is widespread in the Island and is responsible for much morbidity. The comparative debilitating influence of the Ankylostome and Malaria parasites will be discussed in a later report.
 - 19) Water Supply. The water supply is mainly from streams and springs. In one definite district the supply is from ponds. This district bears a high hookworm infection and a high Malaria infection. The nature of soil and cultivation suggest little chance of soil infection. I have examined samples of water from four ponds in this district. The water of all is grossly polluted. There is suggestion of possible water infection which would explain the contradictory conditions enumerated above under 1, 4, 5, and 6. "

Report on Work for the
RELIEF AND CONTROL OF UNCINARIASIS IN COSTA RICA
Quarter Ending March 31, 1915.

COSTA RICA.

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- 1. Plan of Work. Work in Costa Rica during the quarter ending March 31, 1915, was conducted on the dispensary plan.
- 2. Extent of Operations. Dispensaries for the free diagnosis and treatment of Uncinariasis were held in the following localities:

Province	Canton	Districts
Puntarenas	Puntarenas	Paquera and Tambor; Lepanto and Corozal; Miramar, LaUnion, and Barranca; Chomes; Manzanillo; LaPitahaya, Aranjuez, and Acaloupe.
Puntarenas	Esparta	City of Esparta, Maranonal, Juanilama, and San Jose Chiquito; San Rafael, San Juan Grande, and El Baron; San Jeronimo, Macacona, Los Nances, and Paires.
San Jose	Puriscal	Barbacoas; Desamparaditos; Crifo Alto; Crifo Bajo; Jicaral; San Antonio.
Alajuela	Atenas	Mercedes; Jesus; San Isidro.

The laboratories in the Cantons of Puntarenas, Puriscal, and Atenas were operated continuously during the quarter; those in the Canton of Esparta, which had been in operation since November 3, 1914, were closed on February 27, 1915. A special report on the work in Esparta has been prepared, from which the following brief summary is taken:

RESULTS IN CANTON OF ESPARTA

		Number	Percentage
1.	Census	5267	00 to 00
2.	Persons Microscopically Examined for		
	Uncinariasis	3469	65.9
3.	Persons Found Infected with Uncinariasis .	3194	92.1
4.	Persons Treated for Uncinariasis	2034	63.7
5.	Persons Cured of Uncinariasis *	132	6.4

^{*}It is the custom to administer from one to six treatments. These treatments generally produce cures. For determining positively which cases have been cured, a microscopic re-examination is required from two to eight weeks after treatment. Often this re-examination cannot be made. Consequently, the number of persons recorded as positively cured is reduced.

I. WORK OF THE FIELD STAFF. www.libtool.com.cn

1. Examinations and Treatments for Uncinariasis. A total of 10,594 persons, or 24.8% of the entire population, was examined for Uncinariasis in the four cantons where work was under way during the quarter. It was found that 84.6% of those examined were infected with Uncinariasis. Treatment was administered to 72.7% of those infected, and 7.2% of those treated were shown by microscopic re-examination to be cured. The figures in detail for each canton are given in Table 1:

Table 1.	TOTAL		TOTAL				nas Province nas Esparta		San Jose Province Puriscal		Alajuela Province Atenas	
	No.	P.C.	No.	P.C.	No.	₽. G.	No.	ال ال	No.	P. C.		
Census Persons Microscopically Examined	42794		15867		5267		13004		8656			
for Uncinariasis	10594	24.8	2569	16.2	2081	39.5	2658	20.4	3286	37.9		
ariasis	8962	84.6	2142	83.4	2005	96.3	2239	84.3	2476	75.3		
Uncinariasis	6515 466	72.7		74.0	1034	51.6	2188	97.7	1709	69.0		

2. Per Capita Cost of Examining and Treating for Uncinariasis. For securing these results, \$4,262.94** was expended during the quarter by the International Health Commission and the Costa Rican government combined. This gives the following as the per capita cost of examining and treating for Uncinariasis:

3. Subsequent Treatments for Uncinariasis. The laboratory examines and treats as many persons as possible during its first visit to a district. It moves then to an adjoining district, and returns in two weeks to administer second, third, and subsequent treatments.

Of the 6,515 persons given first treatments during the quarter, the record shows that 61.7% received two treatments; 11.1% three; and 2.8% four. The figures for each district are exhibited in Table 2:

^{*}See foot-note, page 1.

^{**}Approximate.

Table 2 www.libtool.com.cn		AL		arena:	market statements	vince arta	Prov	Jose ince	Alaj Prov Ate	ince
	No.	P. C.	No.	٠ 0	No.	٦	No.	P. C.	No.	P. C.
1. Persons Treated for Uncinariasis; (a) One treatment (b) Two (c) Three (d) Four (e) Five (f) Six (g) Seven 1. Persons Treated for Uncinariasis; (a) Treatment (b) Two (c) Three (d) Four (e) Five (f) Six	6515 4021 723 182 9 6		307	94.0 19.4	1034 1010 95 55 24 6	97.7		35.4 13.9	1709 748 16 1	43.8
(h) Total number of treatments	11482		3407		2230		3371		2474	

4. Comparative Degree of Infection Between Persons of School Age and Those of All Ages.

The microscopic examination of 3,692 school children between the ages of 6-18 years showed 90.0% of them to be infected with Uncinariasis. Among 10,594 persons of all ages, the percentage of infection was 84.6%. This greater degree of infection among school children is shown for each district in Table 3:

Table 3		AL	Puntarenas Province				San Jose Province Puriscal		Alajuela Province Atenas	
	No.	٠. د.	No.	P. C.	No.	P. C.	No.	P. C.	No.	P.C.
1. Children Microscopically Examined for Uncinariasis	3692		806		387		1278		1221	
	3324	90.0	757	93.9	379	97.9	1190	93.1	998	81.7
	10594		2569		2081		2658		3286	
4. Persons of All Ages Found Infected with Uncinariasis	8962	84.6	2142	83.4	2005	96.3	2239	84.2	2476	75.3

5. Degree of Infection with Uncinariasis, By Races. Table 4 compares by races the infection with Uncinariasis. It will be observed that 99.9% of the specimens examined were from the white and brown races combined. The results showed a higher rate of infection among the brown than among the white race, the percentage for each being: Brown race, 87.4%. white race, 77.0%.

Table 4 www.libtool.com.cn		TO:	TAL		arenas arenas			San . Prov:	ince	Alajuela Province Atenas	
		o N	P. C.	No.	ت 0	No.	<u>ي</u>	No.	ر د د	No.	P.C.
Uncinariasis	1. Persons Microscopically Examined for Uncinariasis		⇔⇔ €	3 088	ar 00 to 01	2082		2658		2155	
Uncinariasis	2. Persons Found Infected with Uncinariasis		83.6	2486	80.5	2005	96.3	2239	84.2	1615	74.9
							as				
The state of the s	mined	3582	The State of	1375	77.0	69	95.7	151		1987	74 7
(b) Brown Race Exa	mined ected	6390		1704 1423		2011	96.4	2507	83.4	168	78.0
(c) Negro Race Exa	mined ected	6	66.6	5	The state of the s	1 0	0.0	0		C	0.0
(d) Unclassi- Exa	mined ected	5 0		4	0.0	0	0.0	0	0.0	0	0.0

6. Infection with Parasites Other Than Uncinaria. The percentage of infection with parasites other than Uncinaria, among the 10,594 specimens microscopically examined, is shown in Table 5. Infection with Uncinaria was most common, this parasite being present in 84.6% of the specimens examined; Trichocephalus and Ascaris following in the order named with 58.0% and 49.8%, respectively:

Table 5	Number	Percentage
1. Total number of specimens examined,	10594	the en in the
2. Infected with Uncinaria,	8962	84.6
3. Infected with Trichocephalus	6150	58.0
4. Infected with Ascaris,	5273	49.8
5. Infectéd with Strongyloides,	206	1.9
6. Infected with Taenia,		.5
7. Infected with Amoeba,	18	.2

7. Anemia of Infected Persons. (a) Clinical Examinations. Record was kept of the clinical appearance of 5,936 persons infected with Uncinariasis. By far the larger proportion (84.6%) of these presented evidence of only a moderate anemia. The persons slightly anemic were 13.1% of the whole; those severely anemic, only 2.3%:

Table 6	Number	Percentage
1. Persons Clinically Examined	5936	NO AND DES NAME
2. Persons Slightly Anemic,	M	13.1
3. Persons Moderately Anemic,	5020	84.6
4. Persons Severely Anemic,	138	2.3

(b) Blood Examinations. Blood tests of specimens taken from 643 infected persons revealed any average had energippin index of 46.6%. Table 7 shows that more than half (56.0%) of those examined had an average had an approach from 30 to 50%:

Table 7 Average percentage	haemoglobin,	46.6%
Average Haemoglobin	Number of Specimens	Percentage of Total Specimens
10-30% 30-50% 50-70% 70-90%	12	3.6 56.0 33.4 5.0

8. Educational Work. Coincidently with the work of examining and treating for Uncinariasis, the staff has carried on educational propaganda to assist in the relief and control of the disease in those districts where laboratories were established. Statistics show that 1,219 lectures of various kinds were delivered by the staff during the quarter, and that these lectures were attended by approximately 18,551 persons. The number of lectures delivered and the average attendance at each, for the various districts, are given in Table 8:

Table 8				arenas				ince	Alajı	ince
		80	Punt	arenas w w	LSpa	e G	Puri	e car	Ate	200 mg
	No.	Aver	No.	Aver	No.	Aver	No.	Aver	No.	Aver
1. Addresses of All Kinds: (a) Number	1219		615		68		443		93	
(b) Attendance*	18551		8160		1180	17	5284		3927	42
2. Public Addresses: (a) Number	29		22		1		4		2	
(b) Attendance*	3214	111	2185	99	80	80	524	131	425	213
3. School Addresses: (a) Number	14		3		0		3	one pin day gas	8	
(b) Attendance*	748	53	104	35	0		296	99	348	44
4. Special Addresses: (a) Number	1176		590		67		436		83	
(b) Attendance*	14589	12	5871	10	1100	16	4464	10	3154	38

9. Preventive Measures. Hearty support is being given by the government to the movement for the construction of improved privies. The Minister of Government and Police has

^{*} Estimated; not by actual count.

instructed that all householders be required to provide their premises with privies of a type approved by the Uncirariasis Department. In the case of persons too poor themselves to pay for the construction of the privies, the government will have the privies erected at the expense of the municipality.

Sanitary surveys are made and every effort directed toward sanitary improvement, while the laboratories are working in a particular district. In this way it is hoped to have the measures of prevention proceed hand in hand with those of treatment and cure, and so Table 9 indicates the sanitary improvement give permanence to the results obtained. during the quarter for each district:

				T	уре о	Pri	vy	
Province	Province District		Al	в2	c ³	D ⁴	E ⁵	F ⁶
Total		First					15	397
		Last -	95	170	295			
Puntarenas	Puntarenas	First					15	282
		Last	26	77	181			
Puntarenas	Esparta	First						
		Last	69	90	91			1
San Jose	Puriscal	First						
		Last		3	23		•	
Alajuela	Atenas	First						115
		Last						

II. WORK OF THE CENTRAL OFFICE.

1. Nature and Extent of Central Office Activities. The work of the central office is primarily educational, and consists largely in securing the interest and cooperation of government officials, physicians, school-teachers, and the general public in measures directed against Uncinariasis. Table 10 shows what was done by the central office during the quarter in (1) educational work; (2) enlisting the support of physicians; and (3) examining and treating for Uncinariasis:

KEY: 1. Pit privy, fly-proof.

^{2.} Pit privy, with seat. 3. Pit privy, housed.

^{4.} Privy with pit.

^{5.} Privy without pit.

^{6.} No privy.

Table 10	
1. Educational Work:	
1. Educational work:	Number
A. By Correspondence:	
(a) Number of letters mailed,	297
(b) Number of pieces of literature distributed,	1608
B. By Addresses:	
(a) Total number of addresses delivered,	
(b) Total attendance upon all addresses delivered,	
(c) Number of public addresses delivered,	10
(d) Attendance upon public addresses delivered,	1775
(e) Number of school addresses delivered,	1
(f) Attendance upon school addresses delivered,	59
(g) Number of special addresses delivered,	1
(h) Attendance upon special addresses delivered	75
2. Enlisting the Physicians:	
(a) Number of physicians in Costa Rica,	101
(b) Number of physicians in Costa Rica, reporting	18
(c) Number of physicians in Costa Rica reporting that they are treating	
Uncinariasis,	11
(d) Number of persons reported examined for Uncinariasis by physicians	
and hospitals in Costa Rica,	1378
(e) Number of persons found infected with Uncinariasis by physicians	
and hospitals in Costa Rica,	491
(f) Number of persons treated for Uncinariasis by physicians and	
hospitals in Costa Rica.	393
3. Examining and Treating for Uncinariasis:	
(a) Number of persons examined for Uncinariasis,	9
(b) Number of persons found infected with Uncinariasis,	8
(c) Number of persons treated for Uncinariasis,	8

2. Support of the Government. Governors and Police Heads have been instructed by the government to assist in every manner possible the work of the Uncinariasis Department. These authorities cooperate by furnishing a census and sanitary survey of each district as it is worked; and render invaluable assistance to the Department in compelling such sanitary improvements in each district as seem necessary to safeguard the results obtained by the examination, treatment, and cure of infected persons.

Evidence of genuine interest upon the part of the government is reflected in the following table. Of a total expenditure during the quarter of \$4,262.94, approximately \$870.00, or 20.4%, was contributed by the local government; and \$3,392.94, or 79.6%, by the International Health Commission.

Total amount expended during quarter	\$4.262.94*
Contributed by the International Health Commission,	3,392.94
Contributed by the Costa Rican government,	870.00*

^{*} Approximate.

The amount expended by the local government is itemized below:

www.libtool.com.cn	\$870.00*
Light and telephone,	10.00
Office rent,	100.00
Postage frank,	60.00*
Telegraph frank,	15.00*
Printing,	425.00
Freight frank,	60.00*
Transportation,	200.00

3. Support of the Teachers. The Minister of Public Instruction and his officials have grasped the value of a systematic and intensive campaign in preventive medicine. They have authorized the Uncinariasis Department to publish, at the expense of the School Department, whatever literature is necessary for the instruction of pupils in this subject. One half-hour each week, the day and time to be uniform throughout the Republic, has been set aside for the instruction of pupils from the literature furnished. The teachers also have been instructed to attend all conferences held in their districts by the Uncinariasis Department, whether for the teachers especially or for the public generally; and to include, as part of their duties, cooperation with the Uncinariasis Department by bringing its work to the attention of councillors of the Board of Education in their respective districts, and by urging upon the parents of their pupils the importance of the examination and treatment of Uncinariasis, and the construction of improved privies.

^{*} Approximate.

Report on Work for the

RELIEF AND CONTROL OF UNCINARIASIS IN GUATEMALA

Quarter Ending March 31, 1915.

GUATEMALA.

- 1. Inauguration of work. Measures for the relief and control of Uncinariasis in Guatemala were formally inaugurated during the quarter ending March 31, 1915. The Pacayal and Las Marias estates were selected for preliminary operations. These two estates are situated, respectively, in the provinces of Chimaltenango and Santa Rosa, at distances of 114 miles and 50 miles from Guatemala City. Work on the Pacayal estate was begun on March 15th; on Las Marias, March 22nd.
- 2. Plan of Work. In securing specimens for examination and in administering treatment in Guatemala, it is necessary to go from house to house and to come in personal contact with the inhabitants. This is because the directions for taking the treatment can neither be read nor followed, if read. This method of dealing individually with the patients makes the results seem smaller in comparison with countries or localities where this individual attention is not required.
- 3. Examinations and Treatments for Uncinariasis. In the brief period of two weeks during which the work was in progress, the total number of persons examined for Uncinariasis was 1,194, of whom 450, or 37.7%, were found infected. Religious exercises during Holy Week prevented the treatment of a great many of the infected persons. However, first treatments were administered to 134 persons, or 29.8% of those infected. Table 1 itemizes the results for each estate:

Table 1	TO	TAL		EST ayal		e Maries
	No.	P. C.	No.	P. C.	No.	ρ _i
1. Families Visited	360		217		143	
2. Persons Visited					614	
3. Persons Microscopically Examined for Uncinariasis	1194	82.3	837	100.0	357	58.1
4. Persons Found Infected with Uncinariasis	450	37.7	198	23.7	252	
5. Persons Given First Treatments for Uncinariasis	134	29.8	134	67.7		60 K) PO W

4. Infection with Parasites Other Than Uncinaria. Microscopic examinations for intestinal parasites other than Uncinaria were carried on simultaneously with the routine examinations for Uncinaria. It was found that 90.2% of the 1,194 specimens examined were positive to at least one parasitic infection, Ascaris being present in 74.7% of the specimens; Uncinaria in 37.7%; and Trichocephalus in 34.3%. The results are exhibited in detail in Table 2:

Table &ww.libtool.com.cn	TOT	AL		EST yal		larias
•	No.	P. C.	. O %	P. C.	No.	ည <u>ရ</u> ,
1. Microscopic Examinations for Uncinariasis	1194		837		357	
2. Microscopic Examinations Positive to Uncinariasis		37.7	198	23.7	252	70.6
3. Microscopic Examinations Positive:						
(a) To all parasites	1077	90.2	728	87.0	349	97.8
(b) To Ascaris			667	79.7	225	63.0
(c) To Uncinaria	450	37.7	198	23.7	252	70.6
(d) To Trichocephalus	409	34.3	342	40.9	67	18.8
(e) To Taenia		1.1	11	1.3	2	.6
(f) To Strongloides	12	1.0	3	.4	9	2.5
(g) To Oxvuris	5	.4			5	1.4
4. Microscopic Examinations Negative		9.8	109	13.0	8	2.2

5. Extending the Work. The prospects for the success of the work in Guatemala are reported to be very gratifying. The cooperation of public officials, the medical profession, and the public has been most encouraging. Requests for the work already have been received from a great many estates: more than enough to engage the present force for some months ahead. These requests have been wholly unsolicited; and have been accompanied by offers of cooperation on the part of the estate-owners to the extent of providing food, lodging, and conveyances for the staff, and constructing improved privies.

6. Preventive Measures. Privies of the pit type are being recommended for preventing the further spread of infection. Prospects for installing these privies at every house on the Pacayal and Las Marias estates are considered good. Up to date, ten pit privies have been built. The results for this feature of the work are exhibited below:

No.	of houses on estates,	371
No.	having privies at start of work, 3	
No.	constructing privies since work began, 10	
No.	of houses having privies,	_13
No.	of houses without privies,	358

Report on Work for the
RELIEF AND CONTROL OF UNCINARIASIS IN PANAMA
Quarter Ending March 31, 1915.

- 1. Plan of Work. Measures against Uncinariasis in Panama are conducted on the dispensary plan. Dispensaries are established at convenient locations, to which the inhabitants are invited to come for free diagnosis and treatment. The sparsity of the population and the primitive modes of travel throughout the country, render it impracticable to conduct the work on a more intensive plan by visiting the people in their homes to secure specimens for examination and to administer treatment.
- 2. Extent of Operations. During the quarter ending March 31, 1915, dispensaries were operated in the following localities:

Province	District	Towns
Panama	Panama	Panama Juan Diaz
	Taboga	Taboga Otoque
	Arraijan	Arraijan Paja
-	Capira	Capira Cermeno LaCampana Potrero
	Chame	Chame Sora Cabuya Neuva Gorgona Bejugo
Bocas	Bocas	Bocas del Toro Bastimentos Chiriqui Grande
Cocle	Penonome	Penonome

The laboratories in the districts of Taboga, Chame, and Penonome were first opened during this quarter; those in the districts of Panama, Arraijan, Capira, and Bocas were continued in operation from the last quarter.

3. Examinations and Treatments for Uncinariasis. The total number of persons microscopically examined for Uncinariasis in these seven districts during the quarter, was 4,489. Of these, 2,968, or 66.1 per cent., were found infected; and 2,653, or 89.4 per cent., of those infected were treated. The remaining 315 persons (11.6 per cent. of those infected) were not treated either on medical grounds, because they refused the medicine, or because they could not be located after examination.

Persons who were treated were encouraged to submit specimens for re-examination, to ascertain

definitely whether or not a cure had been effected. The number of persons who did submit specimens World hieroscopic for examination, after taking treatment, was 332, or 12.5 per cent. of the total number of persons treated. The re-examinations showed that only 20, or but 6.0 per cent. of the persons submitting specimens for re-examination, were still infected with Uncinariasis, the remaining 312, or 94.0 per cent., having been cured.

Table 1	gives	hv	districts	the	results	for	this	faature	of	the	work.
TODAG T	K T A C D	DY	TTS LLIC LS	une	TESMILES	TOI	61172	TOULUIC	0.4	FILE	MOI W.

Table 1						Provi	nce	of P	ana	me			Boc		Cocle Province											
	TOT			TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		ama	Tab	oga	Arra	aijan	С	apira	Cha	me	Boc	as	Peno	nome
	No.	P.C.	No.	P.C.	No.	P. C.	No.	P.C.	No.	P. C.	No.	ρ. Ω.	No.	P. C.	No.	P.C.										
1. Persons Microscopi- cally Examined for Uncinariasis	4489		409		992		48		30		1227		1183		600											
2.Persons Found Infec- ted with Uncinar- iasis	2968	66.1	240	58.6	538	54.2	24	50.0	24	80.0	955	77.8	785	66.4	402	67.0										
3. Persons Given First Treatments for Uncinariasis	2653	89.4	225	93.8	516	95.9	19	79.2	25		828	86.7	723	92.1	317	78.9										
4. Persons Microscopi- cally Re-Examined for Uncinariasis	332	12.5	14	6.2	318	61.6																				
5.Persons Found Infec- ted with Uncinar- iasis upon Re-exami-																										
nation	20 312	94.0		21.4 78.6		5.3 94.7																				

4. Per Capita Cost of Examining and Treating for Uncinariasis. The amount expended in Panama during the quarter for examining these 4,489 and treating these 2,653 persons, was \$3,906.39. From this the per capita cost of examinations and treatments is found to be:

5. Subsequent Treatments for Uncinariasis. It has been seen that first treatments were given to 2,653, or 89.4 per cent., of the 2,968 persons found infected. All of those who received the first were urged to return for the second and ensuing treatments until cured.

Table 2 shows that 65.8 per cent. of the persons given first treatments also received the

^{*} It is the custom to administer from one to six treatments. These treatments generally produce cures. For determining positively which cases have been cured, a microscopic re-examination is required from two to eight weeks after treatment. This re-examination often cannot be made. Consequently, the number of persons recorded as cured is reduced.

second; but that only 46, or 1.7 per cent., returned for subsequent treatments.

Table 2www.libtool.co		en AL			1	Provi	nce (of Par	nama					cas vince	Coo	
			Par	nama	Tal	ooga	Arra	ijan	Caj	pira	Cha	ame	Boo	cas	Penor	ome
	No.	P.C.	No.	P.C.	No.	P.C.	No.	P. C.	No.	P. C.	No.	P. G.	No.	P. G.	No.	P. C.
1. Persons Treated for Uncinariasis:						•										
(a) One treatment(b) Two treatments						51.0			25 309		828 182	22.0			317	11.4
(c) Three treatments (d) Four treatments	44			1.3	18	3.5	- 17		1		1	.1	4	.6		
(e) Total treatments	4444		334		797		292		335		1011		1322		353	

6. Infection with Parasites Other Than Uncinaria. A large proportion of the specimens submitted for examination for Uncinaria, disclosed incidentally the presence of other intestinal parasitic infection. Ascaris and Trichocephalus were found to be very common, their percentages, in comparison with Uncinaria, being:

The percentages for these and other parasites, by districts, are given in Table 3:

Table 3		Province of Panama											Prov	as		cle		
	TO	TAL	Pan	Panama		Panama Ta		Taboga		Arraijan		pira	Chame		Bocas		Penc	nome
	No.	P.C.	No.	P. C.	No.	P.C.	No.	P. C.	No.	P.C.	No.	P. C.	No.	P. C.	No.	P. G.		
1. Specimens Examined for Uncinariasis	4489	day and old year	409			-4					1227		1183					
2. Specimens Positive to Uncinariasis	2968	66.1	240	58.6	538	54.2	24	50.0	24	80.0	955	77.8	785	66.4	402	67.0		
3. Specimens Examined for Uncinariasis Disclosing Incidentally the Presence of Other Intestinal Parasitic Infection: (a) Ascaris								37.5	-	16.7		17.9	-			48.7		
(b) Trichocephalus									3	10.0	77	6.3				16.8		
(c) Strongyloides				6.1	32		2	4.2	1	3:3	26	2.1	91	7.7	26	4.3		
(d) Ameba	-	.02			-	.1							1	.1				

7. Treatments for Parasites Other Than Uncinaria. In a few cases, treatments for Ascaris and Ameba were administered. Table 4 shows, however, that these amounted only to 4.0 per cent.

of the table number of treatments given:

Table 4 WWW.libtool.com.	cn _{ሞՕ} յ	PAT.				Provi	lnce	of Pa	nama	1			Bocas Province			cle vince
			Panama Tabo		oga	oga Arra		aijan Ca		Cha	ame	Вос	as Per		onome	
	No.	P.C.	No.	P. C.	No.	P. C.	No.	P. C.	No.	. G	No.	ρ.α.	No.	P.C.	No.	P.C.
1.Treatments Administered: (a) For all parasites					926		292		335		1020				383	
(b) For Uncinariasis (c) For Ascaris	4444	96.2	334	100.		86.1 13.9		100.	335	100.	1011	99.1	1322 6	99.5	353 30	
(d) For Ameba	1	.02											1	.1	<u> </u>	

8. Comparative Degree of Infection With Uncinariasis Between Persons of School Age and Those of All Ages. Table 5 gives by districts a comparison of the infection with Uncinariasis between persons of school age (6-18 years) and those of all ages. It shows that the percentage of persons of school age infected was 75.7 per cent., against a percentage of 66.1 for persons of all ages:

Table 5	TOTA	17.	Province of Panama									Bocas Province		Cocle Provinc		
	.011		Par	ama	Tal	oga	Arı	aijan	Ca	apira	Cha	une	Bocas		Penonome	
	No.	P.C.	No.	P.C.	No.	P. C.	No.	ပ္	No.	P.C.	No.	۳. c.	No.	P. C.	No.	٠. ت
1.Children Microscopi- cally Examined for Uncinariasis	1651		169		402		19		12		405		. 404		240	
2.Children Found Infected with Uncinariasis																83.3
 Persons of All Ages Microscopically Examined for Uncinariasis 			409		992		48	,	30		1227		1183		600	
4.Persons of All Ages Found Infected with Uncinariasis	2968	66.1	2,40	58.6	538	54.2	24	50.0	24	80.0	955	77.8	785	66.4	402	67.0

9. Degree of Infection with Uncinariasis, By Races. Table 6 compares by races the infection with Uncinariasis. Two columns of figures are given, the first presenting those for the period from the start of the work up to March 31; 1915 inclusive; and the second, those for the first quarter of 1915 only. Perhaps for purposes of comparison the former are more reliable.

Out of 9,810 specimens examined up to March 31, 1915, 8,725, or 88.9 per cent. of the whole, were furnished by members of the brown and negro races: 6,557, or 66.8 per cent. of the whole, having been furnished by members of the brown, and 2,168, or 22.1 per cent. of the whole, by members of the negro race. Among these 8,725 specimens, the percentage of infection was found to be:

The white race also furnished 631 specimens for examination; the Indian, 56; and the Chinese, 36: with the chinese races of but 723, or 7.4 per cent. of the 9,810 specimens examined. The percentages of infection among them were:

 Indian race,
 76.8%

 Chinese race,
 38.9%

 White race,
 35.0%

It is possible, however, that not enough specimens have been examined from members of the white, Indian, and Chinese races to afford a correct idea of their relative degree of infection in comparison with members of the brown and Negro races:

Table 6	-		Wo	Since rk gan	T	al For
			No.	P. G.	No.	P. C.
1. Persons Microscopically 2. Persons Found Infected			9810 5875	59.9		66.1
3. Persons Microscopically and Persons Found Info by Races:						
	(a) Indian race	Examined Infected		76.8	26	84.6
	(b) Brown race	Examined	6557		3271	
	(c) Negro race	Infected Examined	2168		836	
	(d) Chinese race		36		11	
	(e) White race	Infected Examined		38.9	342	63.6
		Infected	221	35.0	160	46.8
	(f) Unclassi- fied	Examined Infected		33.1	3	33.3

10. Index of Anemia. Some idea of the anemia of persons residing in the various districts is furnished by the blood examinations of 1,408 persons taken at random, without reference to the presence of Uncinaria infection. The results of these examinations are summarized in Table 7. The average percentage of haemoglobin was found to be 59.2 per cent., or 41.8 per cent. below the normal:

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Table 7	
www.libtool.com.cn	
Assessment Warner and a state of the state o	

Average Percentage Haemoglobin,	I		 T	Pro	-	.2%						
	TO	TOTAL			Panama Tabog		oga Chame		Province Bocas		Penonome	
	No.	P.C.	No.	P.C.	No.	P.C.	No.	ن ۵.	No.	ئ ئ م	No.	P.C.
1. Total haemoglobin tests made 2. Average haemoglobin: 0-10%		.07	T		187		297		618		302	
10-30%		1.1			1	. 5	2	.6	10	1.6	3	1.0
30-50%	. 192	13.6	2	50.0	31	16.6	16	5.4	115	18.6	28	
50-70%		73.0		50.0	135		270	90.9	442	71.5		59.3
70-90%		12.1			20	10.7	9	3.0	50	8.1	92	30.5

11. Educating the People: By Addresses. The staff lectures on the causes and effects, and the methods of relieving and controlling Uncinariasis, in each district where the laboratories are located. The addresses are of three kinds: (a) house-to-house, or individual; (b) to schools; and (c) to the general public. Table 8 exhibits, for each district, the number of lectures delivered and the average attendance at each:

Table 8	TOTAL			I	rovi	nce o	of Pa	anama				cas vince		cle vince
			Pana	una	Tab	oga	Arra	aijan	Char	ne	Boo	cas	Pen	onome
	No.	verage	No.	lverage	No.	Average	No.	Average	No.	Average	No.	verage	No.	Average
1. Lectures of All Kinds				-3-			~				The state of			
(a) Number	1737		143		414				771		197		212	
(b) Attendance	6745	4	358	3	1575	4	325		2397	3	826	4	1264	6
2. House-to-house (or Individual) Lectures:														
(a) Number	1726		143		414				770		189		210	
(b) Attendance	5891	3	358	3	1575	4	325		2097	3	553	3	983	5
3. School Lectures: (a) Number	2										2			
(b) Attendance	62	-									62	31		
4. Public Lectures: (a) Number	6								1		6		2	
(b) Attendance									300	300	211	35	281	140

12. Educating the People: By Literature. An extensive distribution of literature on the subject of Uncinariasis also is carried on by the staff in the field, and by the central office.

A total of 2,248 pieces of literature was distributed during the quarter. The number of pieces for each district is given in Table 9:

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Table 9 www.libtool.com.cn			Pro	vince of	Panama		Bocas Province	Cocle Province
	TOTAL	Panama	Taboga	Arraijan	Capira	Chame	Bocas	Penonome
1. Pieces Literature Distributed (a) Letters		202	575	25		450	352	644
(b) Posters	175		75			50	0.77	50
(c) Booklets(d) Leaflets		175	500	25		400	325	594

13. Work of Other Agencies. Examinations and Treatments for Uncinariasis are carried on also by the Santo Tomas Hospital, at Panama, in the province of Panama; and by the United Fruit Company, at Bocas del Toro, in the province of Bocas del Toro. The results are summarized in

Table 10.	TO	TAL	San Tom Hosp	as	Uni Fru Com	
	No.	P. C.	No.	ນ ຜູ	No.	P.C.
1. Persons Microscopically Examined for Uncinariasis 2. Persons Found Infected with Uncinariasis	1533 262	17.1	1242	17.9	291 40	13.7
3. Persons Treated for Uncinariasis: (a) Total treatments,						
(b) First treatments,						

- 14. Preventive Measures. The progress made in measures for the prevention of Uncinariasis has not been as gratifying as in those for its relief. For sanitary reform, it is necessary to rely upon the voluntary cooperation of the people; and it is difficult to persuade or induce them to construct new privies or improve the old ones. The President has been asked to cooperate in having these conditions remedied. He has pledged his support in three ways:
 - 1) By instructing the Secretary of Public Instruction to provide at once for the school at each provincial capital, and as soon as possible for all other schools, concrete septic-tank privies, with sub-soil overflow;
 - 2) By sanctioning a special budget from the next assembly for improving the sanitation in the Interior; and,
 - 3) By appointing a committee to report on the best types of privies for low and wet regions.
- 15. Present Sanitary Conditions. Table 11 gives data on sanitary conditions in the various districts, and shows, for purposes of comparison, the percentage of persons in each district who

were found infected with Uncinariasis among all specimens examined since the work began:

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Average per	centage of in	fection for all specimens examined,	60%
Province	District	Remarks	P.C.of Infection
Panama	Panama	Every house connected with a sewer (in city limits).	34%
	Taboga	Water-works in use; practically no toilets; night-soil disposal in ocean.	54%
	Arraijan	One municipal privy in use; five more being built; three more desired.	85%
TOTAL STANSON TOTAL STANSON ST	Chame'	Five or six pit and surface privies in town; the rest of the people go to the bush.	78%
Bocas del Toro	Basti- mentos	No privies at all; waste supposed to be thrown into the ocean.	58%
	Chiriqui Grande	No sanitation; everybody lives on the shore in reach of the ocean.	77%
Cocle	Penonome	A large town; a few privies. Sanitary survey being made	67%

Report on Work for the
RELIEF AND CONTROL OF UNCINARIASIS IN EGYPT
Period January 1 to February 15, 1915.

1.WEstentibf Coperations 1 The work in Egypt during the period January 1 to February 15, 1915, consisted of (I) Hospital Work and (II) Survey Work, following the plan adopted for that country. Hospital work was continued at the traveling hospitals located at Bilbeis and Minia el Qamh in Sharqia province, and at the Murad Pasha hospital at El Deir, in Qaliubia province. At Bilbeis and Minia el Qamh, more patients applied for treatment than could be accommodated by the hospitals. Survey work also was in progress in the province of Assiout, but was not completed. The report, therefore, is confined to hospital work.

HOSPITAL WORK.

1. Examinations and Treatments for Uncinariasis. The number of persons microscopically examined for Uncinariasis during this period of six weeks was 3,034, of whom 2,049, or 67.5%, were found infected. Of the number infected, 1,809, or 88.3%, were admitted to the hospitals; and 1,795, or 99.2% of those admitted, were given full treatment for Uncinariasis. During this period, 586 patients who had been previously treated returned to the hospitals for re-examination, a month or more after being discharged, and it was found that 533, or 91 per cent., of them had been completely cured. Table 1 exhibits these results:

Table 1		AL	Prov	iubia vince Deir pital	Bil:	arqia peis pital	Province Minia Qamb Hospital	
	No.	۳. c.	No.	P.C.	No.	ۍ. ت	No.	P. C.
1. Persons Microscopically Examined for Uncinariasis	3034		524				1689	
2. Persons Found Infected with Uncinariasis	2049	67.5	390 352			65.4 75.8	1050	
3. Persons Admitted to Hospitals						97.3		
5. Persons Discharged Before Full Treatment was Completed	14				11	2.8	3	.3
6. Persons Microscopically Re-examined for Uncinariasis After Having Received Full Treatment	586	***			191		395	
7. Persons Found Cured of Uncinariasis Upon Microscopic Re-examination	533	91.0			176	92.1	357	90.4

2. Microscopic Examinations for All Parasites. Microscopic examinations for Bilharzia, and for infection with intestinal parasites other than Uncinaria, were carried on simultaneously with the routine examinations for Uncinaria. The results are exhibited in Table 2:

Table 2	TOTA			ubia ince	Sh	arqia	Prov	ince
	TOTA	1	El Deir Hospital			eis ital		Qamh
	No.	ۍ ت	No.	ນ ຄ.	No.	P.C.	No.	P. C.
1. Microscopic Examinations Made: (a) Total	5606		1507		2221		4878	
(b) For Uncinariasis							1689 3189	
2. Microscopic Examinations Positive: (a) Total				42.1			1722	
(b) To Uncinariasis				74.4	1		1122 600	
3. Specimens Examined for Uncinariasis Disclos- ing Incidentally the Presence of Other Intestinal Parasitic Infection:								
(a) Oxyuris		27.0 25.0		53.2 41.0		26.7 14.0		19.1 25.5

3. Clinical Examinations for Diseases Other Than Uncinariasis. Persons admitted to the hospitals were also subjected to clinical examinations for diseases such as Pellagra and Bilharzia, and for such morbid conditions as Edema, Albuminuria, enlarged liver, dilated heart, and enlarged spleen. Table 3 shows the results of these examinations:

Table 3				Qaliubia Province		rqia	Province		
	1014			ir	Bilbeis Hospital				
,	No.	٠ ن ن	No.	P. G.	No.	P.C.	No.	P.C.	
1. Persons Admitted to Hospitals	1809		352		407		1050		
2. Persons Presenting Clinical Evidence of: (a) Bilharzia	1105	61.	246	69.9	245	60.2	614	58.5	
(b) Albuminuria	984	54.3		56.5	181	44.4	604	57.5	
(c) Enlarged spleen	206	11.4	28	7.9	39	9.5	139	13.2	
(d) Pellagra	181	10.	20	5.7	119	29.2	42	4.	
(e) Dilated heart					40	9.8	106	10.1	
(f) Enlarged liver					19	4.7	58		
(g) Edema*	15	.8	5	1.4	8	2.0	2	.2	

^{*} Present in absence of kidney disease, as evidenced by urinary casts.

4. Improvement in Patients Treated: Three Selected Cases. Of the patients admitted to the hospitals 54 per cent. had less than half the normal amount of haemoglobin on admission; on re-examination of these same patients one month after discharge, it was found that only 16 per cent. had as little haemoglobin as that. The value of the treatment is not always manifested at once. Occasionally, marked increase in the percentage of haemoglobin is found when the patient is seen again. Table 4 shows the improvement in three patients who received no special haematinic treatment:

Table 4						
Number of the Patient	Haemoglobin Percentage		Result of	Period Between Examination and		
	On Admission	On Re-Examination	Re-Examination	Re-Examination		
30	10	60	No ova found in feces	Nine months		
226	20	80	No ova found in feces	Seven months, ten days		
896	10	50	No ova found in feces	Forty days		

5. Improvement in Patients Treated: Cases Taken at Random. It will also be seen from Table 5 that the 1809 patients admitted to the hospitals had an average haemoglobin percentage of 47.3 upon admission. Opportunity was had for re-examining 719 of these, more than one month after treatment, and it was found that this average had been increased to 52.2%:

Table 5		TOTAL		Qaliubia Province		Sharqia Province			
				El Deir Hospital		Bilbeis Hospital		Minia Qamh Hospital	
	On Admis- sion	On Re- exami- nation	On Admis- slon	On Re- exami- nation	On Admis- Sion	On Re- exami- nation	On Admis- sion	On Re- exami- nation	
1. Average Haemoglobin for All Tests Made				60.9	44.6	49.1	47.8		
2. Total Haemoglobin Tests Made		719	352	69	407	255	1050	395	
3. Average Haemoglobin:									
100-91	 								
90-81		2		2					
80-71	25	45		8			25	37	
70-61	181	113		31	11	5		77	
60-51	615	262	199	20	109	128	307	114	
50-41	581	212	89	6	194	96	298	110	
40-31	257	66	24	1	58	20	175	45	
30-21	100	15	15		22	5	63	10	
20-11	27	4	3	1	7	1	17	2	
10-1	23		6		. 6		11		