

NARRATIVE REPORT OF COOPERATIVE MALARIA CONTROL WORK
IN MISSISSIPPI FOR THE YEAR 1922.

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GENERAL PLAN

It was decided at a conference of the field men that the State be provisionally divided into four malaria districts. District No. 1, Delta, 14 counties,- District No. 2, North Central, 13 counties,- District No. 3, North East, 25 counties,- District No. 4, Southern, 30 counties. That in so far as is practicable the larger towns be selected for control work, taking in consideration the favorable influence on surrounding towns, and that the towns be selected from that part of the district where malaria is most prevalent. That every effort be made to confine units within a single county, with the view of instituting county-wide control. That the large towns in those sections of the district where malaria is less prevalent be induced to take up anti-mosquito measures, but that no monetary aid be given them,- only advisory aid. That the work be started in 1922 in District No. 1 because of its high malaria rate; the average being 13.33. This district comprises 25% of the population of the state and 50% of the malaria.

The control work to embrace all geographical conditions, co-operating with drainage and highway engineers, industrial concerns or corporations and also to lend aid to property owners and tenants in keeping premises free of mosquito breeding.

Publicity and education as regards the subject of malaria prevention, etc. be conducted as local advantages permit.

To secure the cooperation of druggists and pharmaceutical houses whereby standard treatment of quinine for malaria may be

obtained in any community at a nominal cost.

That the work be divided into two classes: namely,- intensive operations in urban communities, and advisory aid in rural districts.

METHODS

Major and minor drainages were carried out in Yazoo City, Greenville, and Leland, Boyle, West Point, Greenwood. With the exception of Greenwood these were first year towns in mosquito control work, and typical of most towns in the delta, having within the city limits extensive natural mosquito breeding places. These breeding places consist of one or more shallow cypress lakes, slashes, breaks or low inundated areas. The work in two of these towns was impeded by the unusual high water in the spring rise of the Mississippi River, which lasted from May 1st to June 10th. The town of Boyle is included in the major drainage towns, however, this was made possible by a dredge canal for agricultural purposes. Minor drainage and oiling were carried out in the following second year towns,- Cleveland, Rosedale, Merigold, Tupelo, Columbus, Coffeenville, Batesville, Charleston and Holly Springs. Only advisory aid was given these towns.

Control measures were adopted for both urban and rural communities in Yazoo County. A number of fish hatcheries have been established in this county which no doubt will contribute to next year's control work. //

PUBLICITY

Many publications on malaria were prepared by the field men at different times. These articles have appeared in the local newspapers. In September a publicity campaign was started

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through the local newspapers. One hundred and twenty newspapers in the State were asked to give publicity to articles on malaria. These articles were forwarded to each paper once a week. They consisted of a series of questions and answers taken from Dr. H. R. Carter's bulletin on malaria control and were furnished by the United States Public Health Service. There are twenty one publications all of which have not been published yet. Fully 90% of the local newspapers are carrying these publications at the present time.

BULLETIN LETTERS

A careful study of the Vital Statistic reports shows that some of the physicians were not accurate in making morbidity reports.

A bulletin letter, dealing with the economic losses and undue advertising due to inaccurate reports was written to all physicians, requesting them to be careful in reporting on malaria. Their attention was called to duplications, repetition and indefinite summary of malaria cases.

A bulletin letter was written to all the County Health Officers requesting the name of physicians in their county reporting unreasonable number of cases of malaria. Replies to this letter show two cases of unreasonable reports.

A bulletin letter was written to all County Health Officers relative to posting placards in all public places.

A bulletin letter was written to 284 teachers relative to pamphlets on malaria.

A bulletin letter relative to the Standard Quinine Treatment was forwarded to 600 druggists.

Eleven thousand bulletins entitled "Some Facts About Malaria"

by Dr. C. C. Bass were furnished to teachers. These teachers were written special letters relative to devoting some of their time to the study and teaching of this subject to their classes, and were requested to give only one bulletin to a family.

PLACARDS

A special placard dealing with the mosquito and the standard quinine treatment was designed. Ten thousand of these cards were procured to be posted in the State. In March four thousand eight hundred cards were distributed throughout the State to be posted by County Health Officers and others of the personnel of the State Board of Health. These cards were posted in railroad depots, Post Offices, court-houses, Mayors' offices, schools and other public places. The executive offices of all railroads entering Mississippi were written special letters requesting permission to post cards in their depots. This permission was obtained from all railroads except one, - one of them making request for these placards in order that they might assist us in this work. The remaining number of placards were kept in the office and were forwarded to the various Health Officers only upon request. Most of them being posted by the five field men, who were devoting all their time to Malaria Control Work.

Five thousand placards on the standard quinine treatment originally intended to be posted in Sunflower County were rearranged in order that they might be used in other counties and were distributed throughout the Delta. Most of them were posted in Sunflower, Coahoma and Bolivar counties. One man was employed two months devoting all of his time to tacking up cards on the main highways in these counties.

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There are now about one thousand of the old original placards and two thousand five hundred new special designed placards in the office. In the future these cards will be used for indoor placarding, as it seems impractical to use any outside signs that are not painted wood, or tin.

In Yazoo City the Anti-malaria Unit painted on brick walls several attractive signs (10 X 12 feet) portraying the Anopheles mosquito as the source of chills and fever. These signs were painted in prominent places; i.e., base ball park, water wagon, and corner building on square. On account of the artistic design they caused much interest and comment.

EDUCATION

LECTURES

Much time of the field Director was devoted to lectures. In the local medical societies the physicians were requested to make talks in the schools on Public Health with special emphasis on malaria, when they had the opportunity. However, few physicians indeed make public talks in schools, and it is only through the personal contact with the patient that their educational work is done. Very little educational work on Public Health can be done in public addresses unless the speaker is trained in this particular line. Most of the teaching is too technical to be of any value to the child. Considerable time was devoted to the educational work in the schools. In this State there are over seven hundred well organized consolidated or high schools. It is impractical for a speaker to visit these schools hoping to begin his work as soon as he arrives. The principals of these schools seem glad

to cooperate with the State Board of Health but will not permit the distributing of the various grades until it suits their convenience. It is best to have the superintendent arrange the periods and grades. This plan was resorted to in order to secure complete harmony and their cooperation for return visits. It was found to be impractical to include any children below the third grade. So little Public Health work has been done in the schools that the children in the lower grades seem to be as well informed as those in the higher grades and the most difficult problem was in simplifying the lecture so that all might understand. By this method the teaching was made popular to both students and teachers. They understand and take more interest in Public Health lectures if scientific and medical terms are never used.

While working with the Yazoo County Unit in April, one of the field representatives suggested a plan for demonstrating educational work. A laboratory was equipped that could be moved from place to place on a truck. This equipment was used in educational work in the schools and public gatherings in Yazoo County.

The Yazoo County Unit perfected a technique for mounting mosquitoes. This appeared to be a clever scheme to familiarize those interested in malaria with the different species of mosquitoes. The mounts were perfect and it was apparent that they would last indefinitely. In order to give these specimens a conspicuous place we arranged to have 150 mounts placed on paper weights. This proved to be a slow, tedious job, requiring too much time. It is not practical to prepare them for general educational work.

NORMALS

Beginning June 15th a series of lectures were given in the State Normals. These summer normals were attended by Mississippi school teachers. In the lectures the subject of malaria was presented to demonstration classes in the form of primary lectures in order to give the teachers an idea of a plan whereby this subject could be taught in the school-room to their classes. In connection with this a laboratory period was given to the instruction of teachers in the identification and classification of live wiggletails and mosquitoes as they pass through different stages of development. The laboratory was supplied with a number of mounted specimens of wiggletails and mosquitoes; also with the live top swimming minnows, and the role fish play in destroying mosquito larvae was explained. In both the lectures and laboratory work the importance of the Standard Quinine Treatment was emphasized.

EXPERIMENTAL WORK

It was arranged with Dr. C. P. Coogle of the Yazoo County Unit to furnish cages of live specimens of Anopheles for demonstration in the summer normals. These mosquitoes were captured under bridges along the highway near the railroad. Under the highway bridges Anopheles were hibernating; while under the railroad bridges none were found. It was thought that creosote perhaps was the repellant for mosquitoes. Most of the tenant houses in the delta cannot be screened and it was thought advisable to try out this chemical. Fifty gallons of creosote were procured. A mixture of three parts creosote, one part kerosene was sprayed on the walls and ceilings in the tenant homes. Many observations were made of these homes,-

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no mosquitoes being found in houses that were sprayed, while in houses not sprayed, many were observed. It is suggested that this is indicated in houses which cannot be screened and where barns and stables containing domestic animals are in close proximity, and that the rooms in these houses be treated with creosote spray every thirty days during the mosquito breeding season.

STANDARD QUININE TREATMENT

It was anticipated that the sale of standard quinine treatment would show a decided increase in the State. Placards had been posted in every county in the State,- some counties have used only a small number, while others have used several hundred. Educational work has been done in many schools. All the physicians and a number of the druggists were familiar with the standard treatment. The four wholesale drug houses supplying this territory agreed to furnish us the number of treatments sold in the State. We made an effort to get several manufacturers to put out the standard treatment, but were unsuccessful. Unfortunately only one house manufactured the standard treatment and they practically doubled their former price, which caused the druggists to discontinue handling the product. Practically all the standard treatments sold in the state are prepared at the prescription counter and it is impossible to secure the number sold.

Statistical data relative to lectures and types of schools in which lectures were given,- placards, pamphlets and distribution of same,- epidemiological investigations,- statistics on malaria cases in the State, and photographs illustrating some of the antimalaria work are included in this report.

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A supplemental report will be made showing increase or decrease in the gross sale of quinine in the State for the years 1921 and 1922. Also showing decrease in malaria incidence as compared with the average for the last seven years, and what districts were affected.

EPIDEMIOLOGY

Jan. 23,- Epidemic of siphtheria at Pleasant Grove Consolidated School-

Enrollment 125-

Number of cases developed in community 8-

Number of deaths 3-

Source of infection unknown-

Children given toxin antitoxin 80-

Complete report made to State Board of Health.

Feb. 12,- Epidemic of ptomaine poisoning at Mississippi State College for Women-

Enrollment 888-

Number of students taking meals in dining hall 798-

Number of cases of ptomaine poisoning 488-

Deaths none-

Source of poisoning, chicken salad-

Complete report made to State Board of Health.

Apr. 25,- Typhoid epidemic at Greenwood-

Number of cases 7-

Deaths none-

Source of infection, private water supply-

Complete report made to State Board of Health.

Aug. 1,- Typhoid epidemic in rural section of Carroll County-

Number of cases 36-

Deaths on August 1, 2-

Deaths reported later 11,- not authentic-

Source of infection, well on Round Lake supplying drinking water to fishing parties-

Complete report relative to foci of infection, and distribution of typhoid vaccine made to State Board of Health.

Nov. 13,- Diphtheria endemic at Hernando High School-

Number of cases 3-

Number of deaths 2-

Source of infection unknown-

Enrollment of school 150-

Number taking Schick's Test 60-

(Schick's Test unsatisfactory)

Number taking toxin-antitoxin 150- (The school board passed ordinance making this vaccination compulsory)

Complete report made to State Board of Health-

Nov. 25,- Diphtheria endemic at Ittabena High School-

Enrollment 450-

Number of cases from June 1st to Nov. 15th 8-

Deaths none-

Source of infection unknown-

Number given Schick's Test, all above 10 years of age-

It is impossible to give number taking toxin-antitoxin as most of the pupils were treated in office of family physician.

This school board passed an ordinance making this vaccination compulsory-

Partial report to State Board of Health-

May 1st to June 10th,- Assigned to Public Health work in over-flowed area of Yazoo Basin.

See separate and complete report covering activities-

LOCATIONS OF MALARIA CONTROL DEMONSTRATION
WORK IN MISSISSIPPI FOR THE YEARS OF 1920, 1921, and 1922.

Towns cooperating with the State Board of Health and International
Health Board.

<u>1920</u>	<u>1921</u>	<u>1922</u>
Batesville	Cleveland	Boyle
Biloxi	Clinton	Greenwood
Canton	Holly Springs	Greenville
Charleston	Merigold	Leland
Coffeerville	Rosedale	West Point
Columbus	Greenwood	Yazoo City
Gulfport		Yazoo County
Tupelo		

TOWNS CARRYING ON INDEPENDENT WORK, 1922.

Biloxi	Jackson
Canton	Natchez
Grenada	Starkville
Gulfport	University
Hattiesburg	Water Valley
Inverness	Webb
Winona	

EDUCATIONAL LITERATURE
NULLETINS ON MALARIA DISTRIBUTED.

No. of bulletins mailed out - - - - - 11,000.

LIST OF COUNTIES IN WHICH BULLETINS WERE DISTRIBUTED IN SCHOOLS.

Hinds County - - - 25 schools.	Washington County - - - 11 schools
Lee " - - - 54 "	Warren " - - - 6 "
Tunica " - - - 19 "	Holmes " - - - 25 "
Madison " - - - 14 "	Quitman " - - - 47 "
Coahoma " - - - 15 "	Monroe " - - - 68 "

Total number of schools - - - 284.

DISTRIBUTION OF PLACARDS ACCORDING
TO DISTRICTS.

Delta, 14 counties - - - - -	4,350
Central, 13 counties - - - - -	649
East, 25 counties - - - - -	1,063
Southern, 30 counties - - - - -	<u>866</u>
Total - - - - -	7,328

Approximately 400 placards were posted by the Director of Malaria Control Work in traveling over the State. These cards were placed along the main highways, and no records of counties were kept.

PUBLIC LECTURES

<u>Date</u>	<u>Place</u>	<u>No. Present</u>
2/19	Eupora, Webster Co. Parent-Teachers and Public	200
2/22	Pleasant Grove, Panola Co. School and Public	250
4/29	Eden, Yazoo County	90
11/6	Hernando, DeSoto County, Parent-Teachers and Public	50
	Total Number Present	590
	Number Lectures	4

REPORT OF EDUCATIONAL WORK IN THE
SUMMER NORMALS ON MALARIA CONTROL WORK.

6/15,16,	Hattiesburg State Normal, Students enrolled Lectures given 6, Laboratory periods 2, 6 hrs. each.	829,
6/17,	Hattiesburg Colored Normal, Students enrolled Lectures given 2, Laboratory period 4 hrs.	120,
6/20,	Mississippi College Normal, Students enrolled Lectures given 4, Laboratory period 6 hrs.	610,
6/21,	Millsaps College, Regular Academic, Students enrolled Lectures given 2, Laboratory period 4 hrs.	150,
6/26,	Meridian Colored Normal, Students enrolled Lectures given 2, Laboratory period 4 hrs.	180,
6/28,	Newton Normal, Students enrolled Lectures given 2, Laboratory period 4 hrs.	332,
7/3,	Moorhead Normal, Students enrolled Lectures given 3, Laboratory period 4 hrs.	230,
7/5,	Greenville Colored Normal, Students enrolled Lectures given 2, Laboratory period 4 hrs.	80,
7/11,	Columbus Colored Normal, Students enrolled Lectures given 2, Laboratory period 4 hrs.	80,
7/12,	West Point Normal, Students enrolled Lectures given 2, Laboratory period 4 hrs.	200,
7/13,	Tupelo Normal, Students enrolled Lectures given 4, Laboratory period 4 hrs.	350,
7/14,	Tupelo Colored Normal, Students enrolled Lectures given 2, Laboratory period 1 hr.	90,
7/15,	Pontotoc Normal, Students enrolled Lectures given 2, Laboratory period 2 hrs.	190,
7/20,	Jackson Normal College, Colored, Students enrolled Lectures given 2.	246,
7/21,	Mize Normal, Students enrolled Lectures given 2.	125,
7/22,	Mendenhall Normal, Students enrolled Lectures given 1.	90,

7/22,	Mendenhall Colored Normal, Students enrolled Lectures given 1.	40,
7/24,	Wesson Normal, Students enrolled Lectures given 2.	150,
7/31,	Charleston Colored Normal, Students enrolled Lectures given 1.	40,
8/2,	Clarksdale Colored Normal, Students enrolled Lectures given 1.	150,
8/3,	Indianola Colored Normal, Students enrolled Lectures given 1.	70,
8/4,	Itta Bena Colored Normal, Students enrolled Lectures given 1.	150,

Number students enrolled, white	3,256,
Number students enrolled, colored	<u>1,246,</u>
Total	4,402,

Number lectures given	47,
Number hours laboratory exercise	57,

COLORED

Common Schools		Pupils Present	High Schools		Pupils Present.
Date	Place		Date	Place	
2/10	Foots, Washington County	108	2/8	Leland, Wash. Co.	253
2/10	Wayside, " "	28	2/9	Glen Allan " "	75
2/15	Fish Lake " "	131	2/15	Stoneville " "	65
2/15	Bogue " "	105	2/15	Evening Star " "	51
2/16	Trail Lake " "	150	2/20	Greenville " "	40
2/16	Winterville " "	103		Jonestown, Coahoma Co.	96
2/20	Greenville " "	150		Clarksdale, " "	90
	Beverly, Coahoma	110		Booker Washington	
	Matson, " "	80		Coahoma " "	90
3/3	Boyd Bayou, Leflore " "	75	3/3	Itta Bena, Leflore " "	100
3/6	Ratcliff, " "	32	3/6	Greenwood, " "	320
3/6	Pillow, " "	19	3/8	Rosenwald, " "	240
3/7	Minter City, " "	72	11/28	Water Valley,	
3/7	D. S. Jones, " "	94		Talobusha " "	300
3/8	Rising Sun, " "	63			
3/8	Sidon, " "	105			
4/21	Simmons, Yazoo County	30		Total Pupils Present	1855
4/22	Lake George, " "	40		Total Number Lectures	12
4/22	Campbelsville " "	65			
4/22	Colby " "	142			
4/23	Edgar " "	17			
4/23	Bowman " "	25			
11/7	Hernando, DeSoto " "	90			
11/9	Senatobia, Tate " "	70			
	Total Pupils Present	1904			
	Total Number Lectures	24			

<u>Date</u>	<u>School</u>	<u>Place</u>	<u>Pupils Pres.</u>
2/21	Convent Academy (col)	Greenville, Washington Co.	130
10/13	Tougaloo College (col)	(2 lectures, Madison Co.	210
11/7	Hernando College (col)	DeSoto Co.	70
11/15	Miss. Industrial Inst. (col)	Marshall Co.	200
11/16	Russ College (col)	" "	200
	Total Pupils Present		810
	Total Number Lectures		6

WHITE

High Schools		Pupils	Agricultural Schools		Pupils
Date	Place	Present	Date	Place	Present
2/16	Winterville, Wash. Co.	22		Raymond, Hinds Co.	200
2/20	Greenville, " "	242	11/9	Senatobia, Tate Co.	236
3/6	Greenwood, Leflore "	246	11/13	College Hill,	
3/14	Friars Point, Coahoma Co.	50		Lafayette Co.	190
	Jonestown, " "	31			
4/21	Yazoo City, Yazoo Co.	140		Total Pupils Present	626
4/23	Benton, " "	55		Total Number Lectures	3
4/27	Sardis, Panola, Co.	42			
4/29	St. Clairs, Yazoo Co.	46			
9/20	Star, Rankin Co.	130			
9/29	Water Valley, Yalobusha Co.	210			
10/3	Grenada, Grenada Co.				
	(3 lectures)	120			
10/11	Pocahontas, Hinds Co.	46			
10/12	Flora, Madison Co.	195			
10/24	Tula, Lafayette Co.	74			
10/24	Oxford, " "	120			
11/6	Hernando, DeSoto Co.	150			
11/9	Senatobia, Tate Co.	90			
11/10	Olive Branch, DeSoto Co.	75			
11/13	Abbeville, Lafayette "	90			
11/14	Potts Camp, Marshall "	150			
11/14	Byhalia, " "	150			
11/16	Holly Springs, " "	105			
	Total Pupils Present	2579			
	Total Number Lectures	25			

<u>Date</u>	<u>School</u>	<u>Place</u>	<u>Pupils Present</u>
2/20	Greenville Military Academy	Washington County	75

WHITE

Consolidated School			Pupils		Common Schools			Pupils	
Date	Place		Present		Date	Place		Present	
2/8	Leland, Washington Co.		383		3/6	N. Greenwood, Leflore Co.		90	
2/9	Avon	" "	75		3/6	Race Track	" Co.	28	
2/9	Glen Allan	" "	70		4/22	Sharborough, Yazoo Co.		17	
2/15	Chatham,	" "	111		10/12	Flora, Madison Co.		46	
2/16	Arcola,	" "	166		10/23	Live Oak, Lafayette	"	35	
3/3	Itta Bena, Leflore	" "	90		10/23	Pleasant Ridge	" "	24	
3/7	Minter City,	" "	70		10/23	Palestine, Yalobusha	"	35	
3/7	Slaughter,	" "	74		10/24	Delay, Lafayette,	"	25	
3/8	Sidon	" "	24		10/24	Cornish,	" "	45	
4/21	Benton, Yazoo County		78		11/9	Senatobia, Tate County		200	
4/27	Fugates	" "	138		11/13	Waterford, Marshall	"	18	
4/30	Deasonville"	" "	100		11/14	Cornersville	" "	70	
	Brownsville, Hinds County		66						
	Byram,	" "	90			Total Pupils Present		633	
	Bolton,	" "	60			Total Number Lectures		12	
	Clinton,	" "	70						
	Forrest Hill,	" "	70						
	Raymond,	" "	105						
	Tinnin,	" "	76						
10/24	Burgess, Lafayette County		65						
10/24	Orwood,	" "	45						
10/24	Union, Newton,	" "	65						
10/25	Camp Ground, Lafayette Co.		120						
10/26	Taylor,	" "	110						
11/8	Eudora, DeSoto County		210						
11/8	Horn Lake,	" "	190						
11/9	Senatobia, Tate	" "	160						
11/15	Red Bank, Marshall	" "	85						
11/20	Itta Bena, Leflore	" "	230						
11/24	Jefferson Davis,								
	Yalobusha Co.		105						
11/27	Otucolofa,	" "	120						
	Total Pupils Present		3421						
	Total Number Lectures		31						

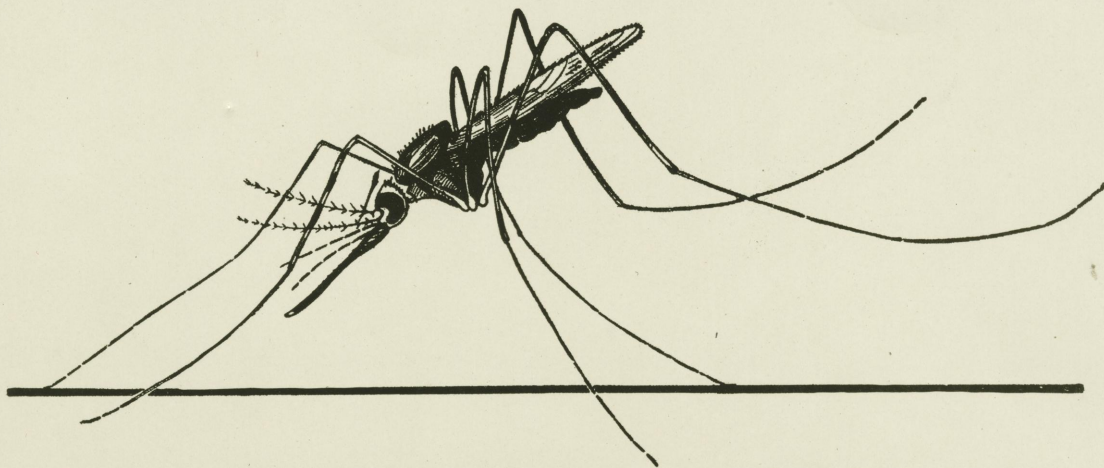
Grand Total White and Colored Pupils Present 11,903

Grand Total Lectures to White and Colored 118

Section	Number of Counties	Population	Average Cases per year for Seven Year Period	Cases per 100,000 Population	Section Area Square Miles	Cases for 11 mos. 1922
North- East Section	25	504,172	23,342	4,629	13,025	20,380
North- Central Section	13	315,167	19,156	6,078	7,967	13,946
Southern Section	30	515,153	27,508	5,340	17,106	15,283
Delta Section	14	456,126	60,150	13,187	8,284	52,182
Total	82	1790,618	130,156	7.3085	46,382	101,791

Complete statistical reports on malaria from the various counties cannot be obtained before January 20th. This chart shows comparative report for 11 months of 1922 as compared with the average for the last 7 years.

MALARIA



CURED BY QUININE

**TAKE THE STANDARD
TREATMENT**

SEE YOUR PHYSICIAN

MISS. STATE BOARD OF HEALTH