ELEVENTH BIENNIAL REPORT

OF THE

MONTANA

State Board of Health

FOR THE YEARS

1921-1922

ELEVENTH BIENNIAL REPORT

OF THE

MONTANA

State Board of Health

FOR THE YEARS

1921-1922

STATE OF MONTANA
DEPARTMENT OF PUBLIC HEALTH

B. L. PAMPEL, M. D., President ..... Livingston
D. J. DONOHUE, M. D., Vice-President ..... Butte
L. H. Fligman, M. D. ..... Helena
E. G. Balsam, M. D. ..... Billings
E. M. Porter, M. D. ..... Great Falls
W. F. Cogswell, M. D. Secretary and Executive Officer ..... Helena

DIVISION OF VITAL STATISTICS.

W. F. COGSWELL, M. D., State Registrar ..... Helena
Lucien L. Benepe, Assistant State Registrar ..... Helena

HYGIENIC LABORATORY AND COMMUNICABLE DISEASE.

F. A. COWARD, M. D., Director ..... Helena
R. M. JOHNSON, Bacteriologist ..... Helena

DIVISION OF SOCIAL HYGIENE.

F. J. O'DONNELL, Director ..... Helena

DIVISION OF FOOD AND DRUGS.

H. M. SHEA, Director ..... Helena
W. M. COBLEIGH, Director of Laboratory ..... Bozeman
E. J. QUINN, Analyst ..... Bozeman

DIVISION OF WATER AND SEWAGE.

W. M. COBLEIGH, Director ..... Bozeman
H. B. FOOTE, Bacteriologist ..... Bozeman

DIVISION OF CHILD WELFARE.

JOHN J. SIPPY, Director ..... Helena

DEPARTMENT OF PUBLIC HEALTH OF THE STATE OF MONTANA

Office of the Secretary.
Helena, December 1, 1922.

Hon. Joseph M. Dixon, Governor,
Helena, Montana.

Sir:—

In compliance with Section 2447, Revised Codes of Montana, 1921, I herewith hand you the eleventh biennial report of the State Board of Health. In doing so I wish to thank you most heartily for your active support in all public health work.

Respectfully submitted,

W. F. COGSWELL,

Secretary.

REPORT OF

DEPARTMENT OF PUBLIC HEALTH
STATE OF MONTANA

VITAL STATISTICS.

During the years 1920 and 1921 Montana had the lowest death rate of any state in the United States Registration Area. This is a matter for congratulation. While we recognize the fact that Montana has a healthful climate, yet it was not until these years that she was placed in the lowest death rate column. This probably was due to the fact that intense interest in public health work has been displayed by the people of this state, as evidenced in increased appropriations for public health work.

The crude death rate for 1920 was 9.5 and for 1921, 8.2. The rate for the first ten months of 1922 is 8.35. The highest death rate in United States Registration Area in 1920 was 15.7. In 1921 it was 14.

The activities of the division of vital statistics is reflected in the fact that the United States Census Bureau, after a two months' test made in the state, was able to show that over 90 per cent of the births in the state were being properly recorded, and on this account Montana was admitted to the Registration Area of the United States Census Bureau. This gives proper recognition of the fact that Montana's birth records are reliable.

COMMUNICABLE DISEASES.

No serious epidemics have occurred during the past biennium. A marked increase in Rocky Mountain spotted fever during the spring months of 1922 is a matter for serious consideration. Fifty-seven cases of this disease were reported during these months, with a death rate of about 25 per cent and some of the cases occurred in areas where it was never reported before. On account of the death of several prominent people in the western part of the state due to this disease, intense interest was displayed by the several civic organizations in Missoula, and at a public meeting a resolution was passed requesting the State Board of Examiners to send the Secretary of the State Board of Health to Washington, D. C., to secure if possible Federal funds for investigational work. As a result of this action the United States Public Health Service decided to establish a laboratory at Hamilton, Montana, for the special purpose of investigating Rocky Mountain spotted fever. The people of Missoula County and Ravalli County, by popular subscription, raised twenty-eight hundred dollars to aid in the establishment of this laboratory. The laboratory has a force of skilled workers and the results of their investigations will be looked forward to with intense interest. As the Rocky Mountain spotted fever control work is in the hands of the Board of Entomology, which consists of the Secretary of the State Board of Health, the State Entomologist and the State Veterinary Surgeon, a separate report will be made by this board. While the number of deaths from Rocky Mountain spotted fever is not large as compared with some of our other infectious diseases, yet on account of the extreme virulence of the disease in certain portions of the state, and on account of the apparent spread of the disease to new areas, it must give us serious concern.

The energetic manner in which the United States Public Health Service, State Board of Entomology and the State Board of Health have tackled the problem of the source and control of this disease, must be productive of good results.

HYGIENIC LABORATORY.

The work of this laboratory has markedly increased during the last two years. It is very gratifying to know that the doctors in the outlying districts are taking advantage of the free service of this laboratory in in creasing numbers, thus giving to the people the service they could not otherwise obtain. The laboratory is of special help to the health officers in locating "carriers," particularly those of diphtheria and typhoid fever.

In addition to the ordinary routine work of the laboratory, the director, Dr. F. A. Coward, has made some investigations along the line of food poisonings. These investigations have not been completed but certain experiments that have been carried on in the laboratory indicate that possibly botulism may be communicated by wound infection.

Considerable extra work has been put upon the director, by action of the State Board of Health in October, 1921, when the work of the epidemiologist was divided between the director of the laboratory and the Secretary of the State Board of Health. Under this arrangement the field work is done by the secretary and the statistical work assigned to the director of the laboratory.

DIVISION OF WATER AND SEWAGE.

The law places all public water supplies under the supervision of the State Board of Health. There are 110 of these supplies. A complete sanitary survey has been made and periodical analyses of the water from these supplies is made at the State Board of Health laboratory at Bozeman. Thirty treatment plants have been installed. The State Board of Health has on hand two emergency liquid chlorine plants, which are available for use in any town whose plant breaks down at any time. A portable laboratory is also equipped and is used for the purpose of testing our treatment plants in the various towns where such plants have been installed.

In addition to examining public water supplies, the water laboratory stands ready to examine school supplies and supplies from private wells when such examination is recommended or requested by the local or county health officer.

The low typhoid fever death rate is, in a large measure, due to the activities of the water and sewage division. In 1910 the death rate from typhoid fever in Montana was 39.9 per 100,000 people. In 1920 it was 4.8 and in 1921 it was 3.5. Had the typhoid fever death rate of 1910 prevailed in 1921 there would have been 230 deaths from typhoid fever instead of twenty, which actually occurred. From a financial standpoint this is a saving to the people of the state of at least $670,000, if you take into consideration the loss of time, cost of sickness, doctors' fees, nurses' fees and funeral expenses. This would be sufficient money to support the State Board of Health with the present appropriation up until the year 1934.

The purity of the water used on all passenger coaches in this state must be certified to twice a year by the State Board of Health. This of itself, involves a great deal of work. During the past year, the State Board of Health has received from the United States Public Health Service two hundred dollars to help defray the traveling expenses of the inspector for this work.

The director of the International Health Board of the Rockefeller Foundation made an investgiations of the work of the State Board of Health during the summer of 1922 and on the request of the secretary granted our inspector a fellowship, whereby this inspector is enabled, free of charge, to take special training at the Boston Institute of Technology, to better prepare him for the work in Montana.

All plans for water supplies and sewerage systems must be approved by the State Board of Health. In order to do this properly it is necessary to have a trained man for the work.

FOOD AND DRUG DIVISION.

In addition to the ordinary routine work of investigating sanitary conditions of all places where food products are handled, with the exception of dairies, creameries and slaughter houses; and enforcing the law against the adulteration and misbranding of foods, this division makes investigations of all cases of suspected food poisonings. Three outbreaks of botulism have been reported, but in only one instance was the disease proven by full investigation and laboratory reports to be that of botulism. This case occurred in a school teacher who had eaten some home canned corn and was really the first case of botulism reported as having been caused by a Montana product, home canned.

A more detailed report of the work of this division will be found elsewhere in this report.

CHILD WELFARE DIVISION.

With improvement in birth reporting in the past few years it is possible for Montana to arrive at very accurate rates of infant and maternal mortality. While we have good reason to feel gratified on our death rates in general, the deaths of mothers from causes attendant to childbirth is a distinct shock to our self-complacency. Comparisons for 1921 are lacking, but in 1919 Montana with a death rate of 118 mothers per 10,000 living births exceeded any other state in the United States Registration Area. In 1920 the rate of 99 per 10,000 births was exceeded only by two states. The rates for the entire United States Registration Area for 1919 was 74 and in 1920 80 per 10,000 live births.

The infant mortality rate (i. e., deaths of infants under one year of age per 1,000 live births) for 1919 was 79, and in 1920 71, as compared with the average of the United States Registration Area (87 in 1919; 86 in 1920). This seems favorable, but as compared with other states in the area west of the Mississippi River we cannot congratulate ourselves, for in 1919 Montana had the highest rate in these states and in 1920 was slightly exceeded by only two of them. With a climate conducive to infant health there is no reason why Montana should continue to suffer this loss.

An intimate study of infant and maternal deaths discloses that the chief causes of both is lack of information on the part of the mothers in the hygiene of childbearing and childrearing. The work of the child welfare division is now chiefly devoted to a state-wide campaign of education to spread information on these points.

An intensive campaign of education was rendered possible by the money obtained from the Federal Government under the provisions of the Sheppard-Towner Act. A committee from the Federated Woman's Clubs and from the Montana Medical Association met with the State Board of Health and outlined a program for child welfare work in Montana. These committees waited upon the Governor and requested that he, in the name of the state, accept the provisions of this Act for Montana. This the Governor did. The State Board of Health set aside from its appropriation $8,701.91 to meet a like amount

from the Federal Government. This, with the $5,000.00 granted outright to the different states by the Federal Government, gives Montana $22,403.82 per year for child welfare work.

That there is an urgent need for a campaign for the prevention of infant and maternal mortality in Montana is indicated by our death rates. Whether or not the program as has been adopted is the best possible, time alone will tell. As a state-wide campaign this is practically pioneer work and, no doubt, many changes will have to be made to suit conditions as they arise. It will take several years before the results of the work of this division, even if successful, will be manifest in our maternal and infant death rates.

SUPERVISION OF SCHOOL PLANS.

Since November 1, 1920, (date of last report) in collaboration with the office of the State Superintendent of Public Instruction, 129 plans for the construction of new school buildings have been inspected and approved. Of these 109 were new buildings and twenty were for additions or alterations. Of the first group 55 were one-room buildings, 14 two to four rooms, 14 five to ten rooms, 17 eleven to thirty-six rooms, one dormitory (53 rooms) and eight teacherages. Of the second group three were one-room additions, 10 two to four rooms, 6 five to twelve rooms and one alteration.

During the vacation months, which are utilized for the erection of new school buildings, this inspection entails a considerable amount of time and correspondence. But through it, school boards have been saved from many serious errors of architecture, which would have cost unnecessary expenditures and produced much defective heating, lighting, ventilation, plumbing and other insanitary conditions menacing the health of school children.

County superintendents and health officers have given much cooperation looking toward desirable styles of school buildings and correction of insanitary conditions. Particularly worthy of mention are Dr. D. B. Healy, Health Officer Of Daniels County; Dr. W. A. Russell, Health Officer of Big Horn County, and Dr. S. E. Leard, Health Officer of Park County. These officers have annually conducted systematic sanitary inspections of all school buildings in their jurisdictions and have made written reports of their findings to all parties concerned. Valuable advice has been given to school boards by way of correction of insanitary defects and undoubtedly the improvements made will be reflected in the future health of school children in these counties.

A report from the directors of the different divisions will be found elsewhere in this report.

DIVISION OF VITAL STATISTICS.

According to the Federal census as of January 1st, 1920, the population of Montana was 548,889, an increase from 1910 of 172,836 or 40 per cent. Based on the same rate of increase the estimated population of July 1st, 1920, was 557,531, and on July 1st, 1921, 575,594. Calculations of rates are made of these estimates at the mid-year period.

The total number of deaths (excluding stillbirths) occurring in 1920 and 1921 are shown in the following table:

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1920	448	737	533	414	461	354	355	385	397	363	419	423	5,289
1921	439	378	427	459	421	370	355	379	331	371	378	342	4,650*

* The U. S. Census Bureau records approximately 70 more deaths than this. The discrepancy probably occurs through the recording of deaths of Indians with the Bureau of Indian Affairs and failure of Indian agencies to file copies with this Division.

By way of comparison the crude death rates per 1,000 population for Montana are shown over a period of years:

1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921
10.1	9.8	11.6	10.7	10.8	11.9	13.1	17.3	10.7	9.5	8.1*

Montana had the lowest death rate of any state in the United States Registration Area in 1920, and, with only one exception, also the lowest rate in 1921. While Montana is blessed with a young population as compared with older eastern states and consequently should expect to have a lower death rate, yet this has not been so in past years. The records of the past two years are gratifying. The outstanding fact is that public health work results in greatly reduced sickness and death rates, and that by adequate appropriation for continuance of health education and protection, we should be able to maintain these records.

SPECIFIC DEATH RATES.

Tuberculosis death rates continue to decline. In 1920 deaths from all forms of this disease numbered 419, in 1921, 352. The rates for these years per 100,000 population were 75.1 in 1920 and 61.8 in 1921. It is interesting to note the number of deaths which would have occurred in 1921 had the rates of previous years been maintained:

Year	Tuberculosis Death Rates for the Year	Deaths Which Would Have Occurred in 1921 Under These Rates
1915	118.8	784
1916	113.4	653
1917	102.8	592
1918	90.9	523
1919	90.3	520
1920	75.1	432

The last report (1921) of the United States Census Bureau lists the states with the lowest death rates in the following order: Nebraska, 37.1; Utah, 39.9; Kansas, 42.3; Montana, 75.1.

The State Board of Health accords grateful acknowledgment of the cooperation of the Montana Tuberculosis Association in the campaign against this disease.

Typhoid Fever.—In 1910 Montana's typhoid death rate of 39.9 per 100,000 population was exceeded by only two states in the registration area. Had this rate prevailed in 1921, 230 deaths from this disease would have occurred. By contrast only 27 deaths actually occurred in 1920 and only 20 in 1921. The rate in 1920 was 4.8 and in 1921 3.5 per 100,000.

The 1920 Census Bureau report indicates the following states having lower rates: Massachusetts, 2.5; Wisconsin, 2.5; Rhode Island, 2.8; Minnesota, 3; New Jersey, 3.3; New York, 3.6; Connecticut, 4.1. Comparisons for 1921 are not available, but it is probable that the number of states having lower rates will be even less than in 1920. It will be noted that states having lower rates are those in which health supervision may be applied most intensively and which are supplied with well supported and well organized health departments, outstanding illustrations of the aphorism that "Public health is a purchasable commodity," and that states and communities may obtain just as much good health as they are willing to buy.

* The U. S. Census Bureau gives 8.2. See Note to preceding table.

Had the 1910 rate prevailed in 1921, Montana would have had approximately 2,300 cases of illness from typhoid fever. The economic loss through sickness expense, funeral bills and loss of earning power would have been $670,000 more than actually occurred. This saving amounted to more than ten times the entire expenditures of this department.

In accomplishing the reduction of typhoid fever much credit is due to the efficient service of the Water and Sewage Division and Laboratory in the protection of public water supplies.

Smallpox.—Deaths from smallpox in 1920 numbered 2, a rate of 0.4 per 100,000, and in 1921, 4, a rate of 0.7 per 100,000. Fortunately this disease continues in mild form and the percentage of deaths per 100 cases is very low. A steady inclination toward greater virulence in many other parts of the country indicates that vigilance in prevention and control of this disease should not be relaxed. The fact that a large number of persons in the state still refuse the most certain preventive—vaccination—is cause for apprehension should the virulence of the disease increase.

Diphtheria in 1920 caused 32 deaths, a rate of 5.7 per 100,000, and in 1921, 46 deaths, a rate of 8 per 100,000. The disease showed a tendency to recur in epidemic form throughout the entire central west in the fall of 1921. The wave has continued throughout the early part of 1922. On the whole, control of the disease becomes more and more certain with increased knowledge of treatment by antitoxin and immunization by toxin-antitoxin. A decade ago (1910) the death rate in Montana was 16.1 per 100,000, or more than double the rate of 1921, a year of more than usual prevalence.

Scarlet Fever deaths show continuous decline for the past five years as shown by the following rates per 100,000 population: 1917, 17.1; 1918, 13.8; 1919, 10.6; 1920, 3.9; 1921, 1.6. Deaths in 1920 numbered 22 and in 1921, 9.

Unfortunately deaths from the acute stages of this disease do not give a true index of its fatality. The grave danger from scarlet fever is in its sequelae, and it is impossible to compute the deaths in adult life from organic heart and kidney lesions resulting from scarlet fever in childhood.

Measles became epidemic in 1920 and during the early part of 1921, with a consequent increase in deaths. These numbered 27 in 1920, a rate of 4.8 per 100,000, and 32 in 1921, a rate of 5.5.

Whooping Cough also was unusually prevalent, causing 51 deaths in 1920, a rate of 9.1 per 100,000, and 61 deaths in 1921, a rate of 10.6 per 100,000. The failure of the public to appreciate the dangers of fatality in these last two diseases makes them difficult to control. Facilities for wide education are necessary if headway is to be made against them.

Cancer caused 282 deaths in 1920, a rate of 50.6 per 100,000, and 315 deaths in 1921, a rate of 54.7. The rate in 1910 was 41.4 and has increased year by year. The rate of 1921 was exceeded by the 1917 rate of 55.1 and the 1919 rate of 55.9. Since cancer is a disease common to those past middle life, it is to be expected that Montana with a preponderance of young adults in its population (only 18.4 per cent are over 44 years) would, as it does, rank among the four or five states having the lowest cancer death rates. It is hoped that the campaign to educate the public as to the necessity of early recognition and treatment of cancer may cause reduction of this disease as a cause of death during the years to come.

Other Causes of Death.—According to last available comparison (1920) with states in the United States Registration Area, Montana had the lowest death rate from **organic heart diseases** (76.7 per

100,000) and from **acute nephritis and Bright's disease** (48.9 per 100,000). Here, too, we have diseases which occur more frequently in those past middle life and in our comparatively young population we expect the death rates to be low. In later years we may expect an increase unless by continuous public health education we may be able to teach early recognition and prevention.- **Pneumonia** (all forms) continues to be the leading cause of death, although only seven states in 1920 had lower rates than that of Montana, which was 103.3 per 100,000.

Deaths from **causes attendant to pregnancy and childbirth** and **infant mortality** are discussed in the report on the Division of Child Welfare. Concerning these factors Montana has no cause for self-congratulation and it is to be hoped that by proper facilities we shall be able to improve these two records so that they may cease to reproach us.

BIRTHS.

The Vital Statistics Registration Act was passed in 1907. Montana was admitted to the United States Death Registration Area in 1910, having demonstrated that at least 90 per cent of deaths occurring in the state were being made a matter of proper record. The registration of births, however, was not so complete, and it was not until the latter part of 1921 were we able to prove that at least 90 per cent of births were being properly recorded. A birth check conducted by the United States Census Bureau in October and November, 1921, indicated returns of 93.4 per cent of births, and Montana was accordingly admitted as the twenty-fourth state in the United States Birth Registration Area on January 1st, 1922.

In 1920 there were reported 11,862 living births, a rate of 21.6 per 1,000 population. The excess of births over deaths in this year was 6,573. Males numbered 6,177, females 5,685. 11,454 were white, 337 Indian, 10 Negro, and 61 Yellow (i. e. Chinese or Japanese). Nativities of parents were:

	Father.	Mother.
Native born	9,115	9,657
Foreign born	2,747	2,205

Illegitimate births numbered 121. Total births included 154 pairs of twins and one set of triplets.

In addition there were reported 386 stillbirths.

In 1921 there were reported 12,127 living births, a rate of 21 per 1,000 population. The excess of births over deaths in the year was 7,477. Males numbered 6,210, females 5,917. Eleven thousand five hundred and thirty-one were white, 507 Indian, 20 Negro and 69 Yellow (i. e. Chinese or Japanese). Nativities of parents were:

	Father.	Mother.
Native born	9,363	9,913
Foreign born	2,764	2,214

Illegitimate births numbered 96. Total births included 134 pairs of twins and three sets of triplets.

In addition 398 stillbirths were recorded.

Births by months for the two years are shown in table:

	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1920	1,005	1,098	1,053	967	993	979	1,033	1,055	1,016	922	844	897	11,862
1921	1,003	848	1,043	967	1,025	1,083	1,119	1,149	1,007	1,031	958	894	12,127

CONCLUSION.

For the sake of brevity detailed tables have been omitted from this report, but the following table affords comparison with the average rates for the United States Birth and Death Registration Areas:

	Montana		U.S. Registration Area	
	1920	1921	1920	1921
Birth Rate (1)	21.6	21.	23.7	24.6
Death Rate (1)	9.5	8.1	13.1	11.4
Tuberculosis (2)	75.1	59.2	114.2	99.4
Typhoid Fever (2)	4.8	3.5	7.8	9.0
Smallpox (2)	0.4	0.7	0.6	0.7
Diphtheria (2)	5.7	8.0	15.3	17.7
Scarlet Fever (2)	3.9	1.6	4.6	5.3
Measles (2)	4.8	5.5	8.8	4.3
Whooping Cough (2)	9.1	10.6	12.5	9.1
Cancer (2)	50.6	54.7	83.4	86.0
Pneumonia (all forms) (2)	103.3	78.2	137.2	99.8
Organic Heart Disease (2)	76.7	78.0	141.9	147.0
Acute Nephritis and Bright's Disease (2)	48.9	50.9	89.4	85.4

(1) Rate per 1,000 population.
(2) Rate per 100,000 population.

DIVISION OF COMMUNICABLE DISEASE.

PREVALENCE OF DISEASE.

During the year 1920 there were reported to the State Board of Health 19,804 cases of notifiable disease. This included 7,308 cases of influenza which still prevailed in mild form as a part of the 1918-1919 wave. It also included 4,491 cases of measles, then epidemic over the entire country. In 1921 there were reported 9,837 cases of notifiable disease and in the first 10 months of 1922 5,778 cases. While the year 1921 was marked by a decrease in disease and death rates all over the United States, and which state of affairs has continued into 1922 and especially in Montana, yet it is felt that during the past year there has been a loss of interest in the matter of prompt reporting and that the number of cases listed for 1922 does not represent the true prevalence of disease. This loss of interest is apt to occur in the absence of epidemics which arouse public concern, but the unreported sporadic cases occurring all over the state would constitute a larger number than one would anticipate. It is from these isolated foci that our disease waves spread in outbreaks and epidemics. These outbreaks could be limited by control measures if prompt recognition and reporting could be secured in every isolated case.

"A little fire is quickly trodden out; which, being suffered, rivers cannot quench."

Attention is directed to the following table of cases and deaths of the seven principal communicable diseases:

	1920		1921		1st 10 Mos. 1922	
	Reported Cases	Deaths	Reported Cases	Deaths	Reported Cases	Deaths
Tuberculosis	863	419	568	342	296	320
Typhoid Fever	241	27	187	20	124	18
Smallpox	1,066	2	1,466	4	582	2
Diphtheria	269	32	412	46	342	53
Scarlet Fever	891	22	620	9	489	12
Measles	4,491	27	2,561	24	57	0
Whooping Cough	777	51	796	61	235	6

UNUSUAL OCCURRENCE OF DISEASE.

Diphtheria—As a part of a general wave sweeping from the east diphtheria has been somewhat unusually prevalent this year. Several portions of the state have become more or less endemic centers marked by an increase of cases and deaths. The presence of many "carriers" makes usual quarantine and isolation measures ineffective. The use of toxin-antitoxin to immunize children against the disease is our most effectual weapon under such conditions and has been urged. The health department of Great Falls and Cascade County has completed the immunization of approximately 3,300 school children and the immediate decline of diphtheria is a striking illustration of the value of this method of protection.

Measles reached the height of its periodical cycle in 1920, but the wave continued throughout the early part of 1921 and disappeared to a minimum in 1922.

Whooping Cough was generally prevalent in 1920 and 1921. Northern climates and severe winters are conducive to much indoor living and a high respiratory disease rate. The consequence is especially manifest in an increased death rate from the sequelae of acute infections such as whooping cough and measles. The disease was limited to a few communities in 1922 and a marked decline of cases and deaths is to be noted during the first ten months.

Epidemic Poliomyelitis (Infantile Paralysis) — While adjoining states reported rather an alarming increase of this disease in 1921 no increase above average was noted in Montana. Twenty-five cases were reported in 1920 and 25 in 1921. The only unusual center occurred in Ravalli County in 1920, where a total of nine frank cases were noted and where a large number of apparently abortive type cases appeared. The remaining cases for the two years were sporadic.

In July, 1922, the disease assumed epidemic appearance in Yellowstone County, six cases being reported. Twenty-six cases were reported in August and nine in September, a total of 41, of which 33 occurred in the City of Billings. One previous case had occurred in January. Flathead, Sweet Grass, Wheatland, Rosebud, Wibaux and Stillwater counties reported one case each, bringing the total number for the first ten months of 1922 to 48 cases. Seven deaths occurred. Of these four were in Yellowstone County, a fatality rate of 9.8 per cent. Since the average fatality rate in this disease is from 18 to 25 per cent, it would seem that the Yellowstone County outbreak was of a milder type than usually prevails.

OTHER DISEASES.

Typhoid Fever—No unusual outbreaks have occurred. Hydrographic distribution of the disease is a noticeable feature of prevalence in this state, a large proportion of cases occurring in valleys and irrigated areas where persons are prone to depend on streams and ditches for domestic water supply. Education of individuals as to avoidance or sterilization of these water supplies and immunization by typho-bacterins offer the only methods of prevention, since with an ever increasing population it is clearly impossible to prevent some sewage pollution of these streams and ditches.

Tuberculosis declined in 1921 to the lowest point since 1910. Records fo rthe first ten months of 1922 indicate a probable slight increase. There has been a distinct loss of interest in the reporting of cases.

Scarlet Fever rates have been constantly lowered. A disease generally feared is more easily and centainly controlled. Popular education has done much to assist in the eradication of this disease.

Distribution of Antitoxins, Vaccines and Serums—Between March 1st, 1921, and October 31st, 1922, from the special fund provided for this purpose, there has been distributed free of charge to indigents the following:

Anti-Diphtheritic Treatments

261	1,000 unit packages	196	10,000 unit packages
55	3,000 unit packages	332	10 cc vials Toxin-antitoxin
139	5,000 unit packages	49	Pkgs. Schick Tests

Typho-Bacterins

51	3 syringe packages	22	30 ampoule packages
2	3 ampoule packages	106	20 cc vials

Smallpox Vaccine

10	1 tube packages	169	5 tube packages
522	10 tube packages		

Anti-Meningitis Serum

2 2x15cc packages

Anti-Pertussic Vaccine

1 4 syringe package

Anti-Rabic Serum

1 Treatment

The total cost of these products to the State Board of Health was $1,907.75. At lowest prevailing retail prices the cost to individuals would have been $5,491.00. The saving to the people of the state through this policy of free distribution was $3,583.00.

Since, however, free biologicals were supplied only to persons unable to pay for them, it means that much sickness and many deaths were prevented in a group which was least able to afford it, and in which sickness and funerals would have meant hardship and privations and in a large number of cases a burden upon counties and local charities. Consequently the service rendered in supplying disease preventives does not tell the full story, for aside from the humanitarian viewpoint, no one can compute the cost which would have fallen upon local communities through the occurrence of unnecessary illness and deaths among the poor.

The number of persons served by this free distribution was as follows:

Treated for Diphtheria	239
Treated for Meningitis	1
Immunized against Diphtheria by antitoxin	261
Immunized against Diphtheria by toxin-antitoxin	1,104
Tested for immunity to Diphtheria	1,960
Immunized against Whooping Cough	2
Immunized against Smallpox	6,195
Immunized against Typhoid Fever	1,048
Immunized against Rabies	1
	10,810

The average cost per person served was 17.6 cents.

DISEASE PREVENTION EDUCATION.

Demand for literature on the prevention and control of communicable disease has increased markedly. Schools are using our pamphlets and bulletins in the teaching of hygiene to a large degree. Since education is in the long run the most certain method of eliminating the cost of the occurrence of disease, the need for continued appropriations for health publications is apparent.

HYGIENIC LABORATORY.

A study of parallel columns of work in the two contrasting periods, 1919-1920 and 1921-1922, will show the following:

First—A steady increase in requests for laboratory work.

Second—A better control of those communicable diseases in which the laboratory role is essential—e. g., in the year 1919 there were 65 positive typhoid tests out of a total of 375 performed. In the year 1921 the figures had risen to 145 positive out of a total of 407. For the year 1922 we can show only 45 positive tests (10 months), yet we have examined 333 specimens.

A study of the attached tables will show that the laboratory is not only self-supporting, but is giving to the citizens of Montana a substantial profit—a profit which can be proved in dollars as shown by the following figures:

During the year 1921 the Hygienic Laboratory examined 8,807 specimens. All of this work was performed for the patients of physicians in the state **free of charge.** Had these patients been compelled to pay for this work at private commercial laboratories at minimum rates the cost would have exceeded $40,000. No estimate can be placed upon the value of human life and the invalidism which was saved by thus affording early diagnosis and prompt treatment of illness. For the year 1922 the figure would be nearer $50,000, a sum which approaches the entire appropriation for all State Board of Health work.

Example—In no portion of the United States can there be obtained for less than $5.00 a Wasserman test, an examination of pathological tissue, the preparation of an autogenous vaccine or a complete analysis of the blood. These tesst are made without charge in our laboratory and represent, all told, to the taxpayers a fraction of one mill of taxes paid.

PROSPECTS.

The laboratory will continue to do the work now being done. It will expand the scope of work when such expansion seems desirable. It will be the desire and ambition of the director to cultivate and encourage the apparent desire for the continuance of this portion of the state health work, and to maintain the standard of that work where it now stands, in a position second to none in the country.

A tabulated statement of work done during the years 1921 complete and 1922, January to October inclusive, is appended:

	Wasserman Reaction		Widal		Diphtheria		Sputum T. B.		Urine Exam.	Smears Gonorrhea		Tissue Sectioning	Blood Counts	Blood Typing	Blood Sugar	Vaccines	Spinal Fluid	Faeces Exam.	Miscl. Exam.	Animal Inoculation	Containers Distributed
	Pos.	Total	Pos.	Total	Pos.	Total	Pos.	Total	Total	Pos.	Total	Total	Total	Total	Total	Pos.	Total	Total	Total	Total	Total
1921																					
January	84	476	6	16	19	139	13	65	26	4	23	13	29	1	0	8	3	0	10	4	524
February	74	408	4	16	20	128	7	57	28	19	43	19	47	0	0	3	7	3	15	7	737
March	127	542	5	23	10	63	11	88	31	13	38	14	43	0	1	3	14	2	17	9	455
April	111	513	3	24	5	15	8	55	28	13	46	30	43	0	0	6	3	4	13	8	554
May	96	437	6	26	10	35	7	59	28	3	30	33	31	0	0	3	1	3	19	8	429
June	85	432	7	37	5	19	18	69	60	17	47	39	33	0	4	9	6	2	8	5	407
July	93	393	57	73	2	11	12	83	94	15	33	27	26	0	0	1	3	2	8	2	456
August	105	480	40	78	0	8	9	45	18	4	25	26	15	0	3	2	5	2	8	3	497
September	83	371	8	36	5	25	5	36	15	15	38	15	27	0	0	3	10	7	10	1	412
October	98	452	2	42	7	28	13	66	30	21	50	37	29	2	3	3	7	4	13	2	534
November	74	399	5	23	7	45	4	34	13	26	44	23	26	5	1	1	6	1	13	0	464
December	82	425	2	13	9	52	4	37	19	21	48	37	11	0	0	2	5	4	10	0	510
Totals	1,112	5,328	145	407	99	538	111	694	390	171	465	313	360	8	12	44	70	34	144	49	5,979
1922																					
January	96	457	5	31	9	37	7	55	33	31	50	49	20	0	0	2	7	5	21	8	470
February	76	427	0	10	1	20	7	44	20	20	52	33	8	0	0	2	3	3	13	9	414
March	84	508	3	17	12	31	7	67	13	22	42	26	31	0	0	5	9	7	29	8	443
April	119	483	5	31	37	275	8	56	36	24	35	37	18	0	2	0	10	1	21	2	554
May	94	465	4	32	27	54	10	58	31	23	45	30	15	0	5	2	13	3	11	3	523
June	120	499	6	41	1	8	8	48	25	15	45	38	13	0	7	3	6	4	11	4	422
July	95	470	1	49	2	16	4	38	42	12	34	26	8	0	4	1	17	3	17	2	379
August	84	499	7	35	2	15	4	39	32	12	34	19	16	0	1	3	11	7	18	3	408
September	79	358	4	41	1	7	2	37	22	8	25	30	18	6	1	2	9	2	9	1	265
October	77	426	10	46	6	17	8	32	29	18	41	33	22	0	0	9	18	2	7	10	500
Totals	924	4,592	45	333	98	480	65	474	283	185	403	321	169	6	20	29	103	37	157	50	4,378

Specimens by years: 1919—3,432.
1920—7,019.
1921—8,856.
1922—7,457. (10 months only).

REPORT OF THE DIVISION OF WATER AND SEWAGE.

The work assigned to the division of water and sewage is outlined below:

1. Investigations of public water supplies.
   (a) Field investigations.
   (b) Laboratory examinations of properly collected water samples.
2. Efficiency tests of water purification plants.
3. Investigations of private water supplies. Limited to cases recommended by local health officers.
4. Investigations of public school water supplies. Limited to supplies under suspicion.
5. Problems relating to swimming pool sanitation.
6. Investigation of sewage treating plants.
   (a) Physical inspections.
   (b) Efficiency.
7. Studies of cases of stream pollution.
8. Examination of plans for proposed water works system, purification plants, sewerage systems and sewage treating plants.
9. Investigation of the effects of the alkali content of Montana underground waters conducted in cooperation with the department of chemistry, Montana State College.

SUMMARY OF INVESTIGATIONS.

The following detailed summary indicates to what extent the above outline of work was carried out during the biennial period ending November 30th, 1922:

I. Laboratory investigations of private and public water supplies:

	Number
1. Public water supplies	1,163
2. Private water supplies, including public school supplies	180
3. Ice	8
4. Swimming pools	14
5. Miscellaneous	5
Total	1,370

II. Field investigations and sanitary surveys:

1. Public water supplies	261
2. Private water supplies	11
3. Sewage systems and sewage treating plants	45
Total	317

III. Classification of water samples analyzed:

1. Bacteriological	4,358
2. Chemical	
(a) Sanitary	127
(b) Mineral	74
3. Ice samples	8
4. Miscellaneous	5
Total	4,572

IV. Examination of engineering plans for new installations and for extensions to water works systems and sewage disposal plants:

1. Water works	6
2. Sewage disposal systems	9

PUBLIC WATER SUPPLIES.

This division conducts periodic investigations of all public water supplies in the state. A complete investigation consists of a careful inspection of the physical environment of all parts of a given water system from the sanitary aspect and a study of the details of construction and operation. In addition a laboratory examination of a properly collected series of water samples is conducted. Complete investigations of this character are conducted periodically. More frequent laboratory examinations are made of water samples collected by local health officers and by water works officials who are instructed in proper methods of sampling by this division.

The division of water and sewage prepares complete reports on all field and laboratory investigations of public water supplies. In these reports each water system is given a definite classification on the basis of the facts brought out in the field investigation data and in the laboratory data. Each supply is classed as "approved" or "unapproved" in accordance with whether the supply meets all the requirements of a safe and sanitary water system.

In all cases where water systems are placed on the "unapproved" list definite recommendations are made relative to possible changes that should be made in the physical environment, the construction, the location or the operation of the water system. In other words a constructive policy has been adopted.

There were a total of 108 public water supplies under investgation by the division of water and sewage during this biennial period. Of this number 80 have been placed upon the "approved" list of public water supplies and 28 on the "unapproved" list. In some instances water systems that are classed as "unapproved" are at the present time delivering a safe water to the consumer, but there are some features in such cases regarding the construction or operation of the plants such that final approval cannot be given. In some cases water systems are on the "unapproved" list at the present time, but definite plans are under way for meeting the requirements of an "approved" water system. In a few cases supplies on the "unapproved" list are delivering water to the consumer which cannot be recommended for public consumption and in all such cases a special effort is being made to make such changes as will make it possible to deliver a safe water.

PRIVATELY OWNED WATER UTILITIES.

Company.	Location.
Anaconda Copper Mining Company	Anaconda
Alberton Water Works	Alberton
Bear Creek Water and Light Company	Bear Creek
Belgrade Water Company	Belgrade
Bridger Water and Light Company	Bridger
Butte Water Company	Butte
Mrs. J. A. Shaffer	Marysville
Big Elk Water Company	Two Dot
Conrad City Water Company	Conrad
Citizens Water Company	Deer Lodge
Gardiner Electric Light and Water Company	Gardiner
Libby Water Works, Electric Light and Power Company	Libby
Anaconda Copper Mining Company	Black Eagle
Monida Trust Company	Livingston
Mountain States Power Company	Big Fork
Mayo, Jos.	Deborgia
Missoula Light and Water Company	Hamilton
Missoula Light and Water Company	Missoula

Neihart Electric Light and Water Company	Neihart
Pony Water Company	Pony
Plains Water and Light Company	Plains
Riberdy, E. T.	St. Regis
Somers Lumber Company	Somers
South Deer Lodge Water Company	Deer Lodge
Superior Electric Light and Water Company	Superior
Saltese Electric Light and Water Company	Saltese
Talbott, J. A., Water Company	Columbia Falls
Thompson Falls Water Company	Thompson Falls
Three Forks Portland Cement Company	Trident
Virginia City Water Company	Virginia City
Valier Townsite Company	Valier
Glacier Park Hotel Company	Glacier Park

MUNICIPALLY OWNED WATER UTILITIES.

Big Timber	Glendive	Polson
Billings	Great Falls	Plentywood
Bozeman	Harlem	Poplar
Belt	Harlowton	Red Lodge
Baker	Havre	Roundup
Broadview	Helena	Ryegate
Big Sandy	Hardin	Ronan
Chinook	Hinsdale	Saco
Chester	Hysham	Scobey
Cut Bank	Joliet	Shelby
Choteau	Judith Gap	Sheridan
Clyde Park	Kalispell	Sidney
Culbertson	Lewistown	Stevensville
Cascade	Laurel	Townsend
Columbus	Manhattan	Twin Bridges
Denton	Miles City	Troy
Dillon	Moore	Three Forks
Dodson	Malta	Wibaux
Eureka	Medicine Lake	Whitefish
Forsyth	Melstone	White Sulphur Springs
Fort Benton	Musselshell	Whitehall
Fromberg	Livingston	Winnett
Geraldine	Phillipsburg	Wolf Point
Glasgow		

WATER UTILITIES OWNED BY RAILWAY COMPANIES.

Company.	Name.
Northern Pacific Railway	Paradise
Northern Pacific Railway	Laurel
Oregon Short Line Railway	Lima
Gilmore and Pittsburg Railway	Armstead
Great Northern Railway	Rexford
Oregon Short Line	West Yellowstone

WATER PURIFICATION PLANTS.

Water purfication plants have been installed according to the following list:

Purification Plants.

1. Slow sand filtration: Columbus.
2. Rapid sand filtration and disinfection with liquor chlorine: Billings, Chinook, Glendive, Great Falls, Hardin, Harlem, Livingston Municipal Supply, Miles City.

3. Disinfection with liquid chlorine: Anaconda, Butte (Moulton Supply), Butte (Big Hole Supply), Bozeman (Sour Dough Supply), Cut Bank, Deer Lodge (Citizens Water Co.), Deer Lodge (South Side Water Co.), Forsyth, Fort Benton, Gardiner, Hamilton, Helena (Ten Mile Supply), Joliet, Laurel (Municipal), Laurel (Northern Pacific Railway), Livingston (Monidah Trust Co.), Missoula, Somers, Ronan.

4. Disinfection with hypochlorite: Black Eagle, Melstone.

The division of water and sewage makes regular inspections of the above purification plants and conducts frequent laboratory examinations of water samples from all of these supplies. The laboratory data is used as a guide in operating the purification plants. Careful records are kept of the liquor chlorine dosage and special assistance is given in the matter of controlling the dosage so that a water of satisfactory sanitary and physical quality can be delivered to the consumer. A large proportion of the work of the division is concerned with the operation of these purification plants.

INVESTIGATION OF DRINKING WATER SUPPLIED TO THE PUBLIC BY COMMON CARRIERS.

All railroads in the state must conform to the provisions of the Amendment to Article 3 of the Interstate Quarantine Regulations, promulgated by the Secretary of the Treasury on January 3, 1913. This amendment requires that all water supplies used to furnish drinking water to the public by common carriers in interstate commerce must be approved by the State Board of Health. The water used for the above purpose must conform to a definite standard of purity promulgated by the Secretary of the Treasury on October 21, 1914.

In carrying out the provisions of the above regulations for Montana, the division of water and sewage conducts the investigations which form the basis for issuing certificates permitting water from certain supplies to be used on passenger trains for drinking. The Secretary of the State Board of Health issues certificates to the United States Public Health Service in accordance with the following list

Northern Pacific Railway: Billings, Butte, Glendive, Helena, Lewistown, Livingston, Logan, Missoula, Paradise, Philipsburg.

Oregon Short Line: Butte, Lima, West Yellowstone.

Butte, Anaconda and Pacific Railway: Anaconda, Butte.

Chicago, Burlington and Quincy Railway: Billings.

Gilmore and Pittsburg Railway: Armstead.

Gallatin Valley Railway: Bozeman.

White Sulphur Springs and Yellowstone Park Railway: White Sulphur Springs.

Great Northern Railway: Billings, Butte, Glacier Park, Great Falls, Havre, Kalispell, Lewistown, Rexford, Whitefish.

Chicago, Milwaukee and St. Paul Railway: Deer Lodge, Great Falls, Harlowton, Lewistown, Miles City.

Montana Western Railway: Valier.

DIVISION OF FOOD AND DRUGS.

The Food and Drug Division looks after the enforcement of the Pure Food and Drug Act of 1911. Samples representative of foods and drugs sold throughout the state are purchased each year and sent to the State Board of Health Food and Drug Laboratory for chemical analysis. Among the articles examined at the laboratory were the following: Aspirin, baking powder, bakery goods, beverages, cocoa, coffee, cotton seed oil, coloring materials, confectionery, butter,

buttermilk, cheese, cream, ice cream, milk, condensed milk, denatured alcohol, egg substitute, flour, flavors and extracts, formaldehyde fumigator, Jello, honey, human milk, hydrogen peroxide, ketchup, lard, meats, mince meat, olive oil, oysters, poisons, preserves and jams, preservatives, spirits of nitre, sugar, tincture of iodine, urine, vinegar, yeast food and miscellaneous articles such as unknown powders and liquids. Of the samples examined 21.5 per cent were classed as not passed for various reasons such as incomplete or improper labeling, adulteration, or on account of the fact that the articles failed to comply with established standards. Many examinations are made each year of articles of food that are submitted by citizens of the state who suspect the presence of poisonous substances. Information obtained from this source, together with market inspections, co-operative work with neighboring state departments and with the United States Department of Agriculture, make it possible for the Division of Food and Drugs to keep a close check on the quality of foods and drugs that are offered for sale in Montana.

Inspections are made of the sanitary condition of food establishments such as public eating places, meat markets, confectioneries, bakeries, bottling works, canneries, soda fountains, ice cream parlors, soft drink establishments and grocery stores. With the exception of grocery stores, all of these places are licensed by the State Board of Health under the provisions of Chapter 175, Session Laws of 1921. This law became effective January 1st, 1922. This work is done by the Food and Drug Division. The fee for each license is $2.00, and for the first ten months of the year 1922 the sum of $5,704 was collected in license fees and turned in to the State Treasurer to be placed to the credit of the general fund. The annual appropriation for the Food and Drug Division during the past two years has been $4,690. It is therefore evident that this division will be a self-supporting institution in the future through the license fee system.

The following table shows the number of sanitary inspection reports which have been received at this office from county and city health officers of the state, and also the number of sanitary inspections that have been made by the Food and Drug Division:

	1921	1st 10 Mos. 1922
No. of inspections by county and city health officers	9,458	7,923
No. of inspections by Food and Drug Division	1,773	1,342
Total	11,231	9,265
Total number of inspections for 1921 and 1st 10 months 1922		20,496

The following table shows the cases which have been instituted during the past two years, and their disposition:

Defendant	Residence	Offense	Disposition of Case
Chinese Restaurant	Helena	Insanitary Restaurant	Fined $25
Washington Market	Butte	Adulterated pork sausage	Case dismissed owing to fact that R. C. Sherwood, Analyst making analysis had left state.
Sam Lymber	Fromberg	Insanitary Restaurant	Fined $25
Frank Nishigaki	Malta	Insanitary Restaurant	License cancelled

Toy Louis	Miles City	Insanitary Restaurant	License cancelled 8–15–21. Continued business without license, fined $5 in October, 1921.
Wall & Ferlamann	Billings	Exposed bakery goods	Fined $25
Henry Meister	Billings	Insanitary Meat Market	License cancelled
Shaffer Bros.	Billings	Adulterated hamburger	Fined $25
W. C. Jenks	Livingston	Adulterated hamburger	Fined $25
National Market No. 1	Butte	Adulterated pork sausage	Case pending
National Market No. 1	Butte	Adulterated hamburger	Case pending
Washington Meat Market	Butte	Adulterated pork sausage	Case pending
Montana Meat Market	Dillon	Adulterated hamburger	Case pending
Montana Meat Market	Dillon	Adulterated pork sausage	Case pending
Stevens & Co.	Dillon	Adulterated hamburger	Case pending
Rufus Cundiff,	Fairview	Insanitary Restaurant	License cancelled
J. M. Johnson	Malta	Adulterated hamburger	Fined $25
H. Chauvet	Big Sandy	Adulterated hamburger	Fined $25
Benton Meat Co.	Fort Benton	Adulterated hamburger	Fined $25
L. A. Jourdanais	Great Falls	Insanitary manufacturing confectionery	License cancelled
Nick Karrass	Great Falls	Insanitary manufacturing confectionery	License cancelled
Lum Pow	Helena	Insanitary Cafe	License cancelled
Joe Schmidt	Helena	Insanitary lunch room	License cancelled
Gum B. Chong	Helena	Insanitary Noodle parlor	License cancelled
Harry DeRusha	Melstone	Insanitary Cafe	License cancelled
Mrs. F. B. Linhart	Coffee Creek	Insanitary Cafe	License cancelled
John Hemphill	Denton	Insanitary Cafe	License cancelled
Mrs. Eva Wright	White Sulphur Springs	Insanitary Cafe	License cancelled

DIVISION OF CHILD WELFARE.

Under the provisions of Chapter 121, Session Laws of 1917 (Sec. 2503-2510, Revised Codes 1921), this division is charged with instituting public education and all possible procedures for the protection of the health of children. For classifying the work to be performed, child life is divided into four periods:

1. Prenatal period, during which the care and education of the expectant mother determines the maturity and healthfulness of the infant at birth.
2. Nursing period (from birth to 2 years), during which knowledge of infant feeding and care is essential.
3. Pre-school period (2 to 6 years), which imposes watchfulness of dietetics and growth, and protection from communicable diseases so fatal to childhood.

4. School period (6 to 14 years), which includes supervision of development and adolescence.

According to this classification work of this division has been developed. Broadly it includes:

A. A campaign of education to acquaint every community, and especially the women of the community, with the purposes and extent of the child hygiene program.

B. Development of infant and maternity welfare instruction centers in all parts of the state, under competent medical and nursing supervision.

C. Correlation of state, county and local social service relief agencies to insure maternity and child care to the indigent and needy.

D. Co-operation, utilization and support of all other welfare and educational agencies.

E. Development of wide publicity and educational measures by the division office.

Accomplishments under each heading is briefly sketched:

A. Through co-operation of the Montana Federation of Women's Clubs, Montana Medical Association, Extension Service of the College of Agriculture, and other agencies many meetings have been held with federated clubs, societies, farm bureau institutes, summer camps for boys, girls and women, teachers' institutes, commercial and business organizations. When it has been impossible for the members of the division to respond to all calls, speakers have been furnished from other sources. The personal activities of the Director (Col. 1) and the Supervisor of Public Health Nursing (Col. 2) is shown in the following summary:

Table 1.

	(1)	(2)	Total
Field trips made	24	54	78
Number days in field	62	99	161
Places visited	28	57	85
Public talks given	22	69	91
Conferences with local nurses	—	34	34
Meetings with employing agencies	9	11	20
Clinics organized and attended	2	16	18
Conventions attended	2	5	7
Other meetings (clubs, institutes, etc.)	19	21	40

B. Realizing that the teaching of hygiene must be accomplished as largely as possible through personal contact, efforts have been devoted to development of "Mother and Baby Health Centers." Until the receipt of additional financial aid from federal sources, the division was obliged to rely upon local and county health departments and other local agencies for instituting these. Aid from this division was given wherever requested and possible, and as will be noted from the reports of public health nurses in appended tables many babies were given physical examinations and mothers informed and instructed in infant and child care.

The work initiated and carried on under the direct financing and supervision of this division from July 1st to November 15th is to be found in Table II. In all of this work the sponsorship of local organizations is sought, and the instruction work is carried on by local physicians and health officers with the aid of nurses furnished by the division. Demands for continuance of this work are many, and to meet all of them during the coming months will strain our resources.

Table 2.

No. Health Meetings conducted		103
Public talks given by nurses		151
On prenatal and maternity care	25	
On care of infants and pre-school age	36	
On care of school children	90	
Prenatal and maternity care		194
Cases given advice at centers	77	
Cases interviewed at office	38	
Cases visited at home	79	
Care of infancy and pre-school age		1,608
Babies under 1 year examined	898	
Children 1 to 6 years examined	715	
Office interviews with mothers	628	
Group conferences with mothers	84	
Home visits	224	
Care of school children		5,140
Children inspected, weighed and measured	5,140	
Consultations with parents at office and school	64	
Home visits and interviews	51	

C. Since the division has no funds for furnishing material aid to the needy, it has been unable to comply with the requests of many mothers for actual medical nursing care. However, without exception, it has been possible to refer all these requests to some agency which was in position to supply immediate assistance.

D. As mentioned under A the division has sought and offered co-operation with all other welfare and educational organizations. Especial mention is to be made of pleasant and sympathetic relationship with the Montana Tuberculosis Association and the Extension Service of the Montana Agricultural College. By mutual understanding and agreement all duplication of service has been eliminated and the field of effort of each is distinctly defined.

E. The development of educational and publicity facilities in the division office has included publication of an intimate statistical study of the hazards surroundng childbirth and infant life in Montana; the issuance of monthly letters and reviews of public health and child welfare activities to public health nurses and women's clubs; a correspondence study course of nine lessons in the hygiene of childbearing for expectant mothers; a correspondence study course of twelve lessons for those who attend cases of childbirth in the absence of a physician; a Montana Mothers' Manual, treating of prenatal and infant care; a variety of other pamphlets and booklets on child health; the development of a traveling health library system for use of remote rural communities; the preparation of exhibits, posters and slide lectures.

All of these are proving popular and are in demand.

In co-operation with women's clubs the division has encouraged many community child welfare surveys and furnished instructions and printed material for conduct of them. There has also been developed, for use of clubs, a study course covering a period of twelve weeks on child welfare topics.

The free distribution of silver nitrate solution in a convenient package for use of obstetricians in the prevention of infants' sore eyes (ophthalmia neo-natorum) has been continued.

DEVELOPMENT OF PUBLIC HEALTH NURSING.

In addition to other duties the division is charged with the general supervision of public health nursing throughout the state. Under this charge it encourages the employment of public health nurses by counties, cities, schools, industries and other organizations. A registry of eligible nurses is maintained so that application for nurses by communities may be promptly filled.

In the face of trying financial situations of public treasuries and the necessity of retrenchment in many lines of effort, public health nursing has suffered a decline during the biennium as will be noted by the following table:

Table 3.

PUBLIC HEALTH NURSES EMPLOYED

	1919	1920	1921	1922
By boards of education	18	20	16	16
By American Red Cross	9	6	2	2
By State Tuberculosis Association	6	3	3	4
By Butte Tuberculosis Association	2	2	1	1
By Counties	1	13	2	2
By Industries	2	9	5	4
By Billings Philanthropic Board (A Social Service Worker	1	1	1	1
By Child Welfare Division (Including Supervisor)	1	1	1	5
Total	40	55	31	35

On November 1st there remains of this number 8 school nurses, 1 A. R. C. nurse, 5 tuberculosis nurses, 1 county nurse, 4 industrial nurses ,3 Child Welfare Division nurses—total 22. Conviction of the value of the public health nurse is general; her return to many communities is delayed only by lack of supporting funds. That ways and means to employ her will eventually be found is certain and we may well believe that 1922 constitutes the low ebb of the public health nursing movement.

The work accomplished by these nurses may be found in Tables IV to IX appended to this report.

Table 4.

WORK ACCOMPLISHED BY COUNTY NURSES 1921–1922.

County	Nurses	Dates Employed	Monthly Reports Recd.	Children Inspected	Home Visits	Public Talks Personal Interviews	Clinics Held	Cases Com. Dis. Discovered and Children Excluded
Beaverhead	Landon–Bullock	1921	6	165	31	22		5
Custer	Hines	1921	5	330	141	44	8	8
Dawson	Regan	1921	9	999	389	114	36	217
Ravalli	Wellcome	1921	1	310	15	8		3
Roosevelt	Dahl	1921	1	15	2	4		6
Teton	Wood–Lian	1921–1922	20	988	718	203	8	24
Wheatland	Loyd	1921–1922	14	1,483	248	185		93
Yellowstone	Hausknecht	1921	3	679	125	66		
Totals				5,969	1,669	646	52	356

Table 5.

WORK ACCOMPLISHED BY SCHOOL NURSES 1921–1922

County	Nurses	Dates Employed	Mo. Reports Received	Children Inspected	Home Visits	Public Talks Personal Interviews	Clinics Held	Cases Com. Dis. Discovered and Children Excluded
1. Anaconda	Mulloy	1921–1922	16	3,563	280	366	5	171
2. Billings	Irish	1921–1922	16	4,100	1,318	203	1	693
3. Bozeman	McHugh–Harmon	1921–1922	15	1,971	1,054	88	.....	331
4. Bozeman...(High Schco')	Chapman	1921	7	466	204	.....	.....	.....
5. Browning	Parker	1921–1922	14	929	.....	.....	1	.....
6. Butte	Murphy	1921–1922	15	3,939	3,361	2,184	15	93
7. Deer Lodge	Wells	1921–1922	12	1,252	810	10	.....	12
8. Dillon	McGregor	1921–1922	18	1,166	1,049	216	2	197
9. Great Falls	Gonzy–Morris	1921–1922	18	1,465	2,559	106	.....	608
10. Havre	Butterfield	1921	6	1,217	563	30	.....	204
11. Helena	Morris–Miner	1921–1922	15	4,611	250	184	.....	486
12. Kalispell	McGregor–Rue–Cowgill	1921–1922	18	2,178	2,141	207	.....	233
13 Laurel	Harris–Sullivan	1921–1922	14	658	355	58	.....	46
14. Lewistown	Osterburg	1921–1922	13	3,006	955	139	4	175
15. Miles City	Thuman–Brye	1921–1922	10	1,374	200	299	.....	111
16. Roundup	Osborne–Vicars	1921–1922	15	1,251	197	467	.....	277
Totals			.....	33,146	15,296	4,557	28	2,937

Table 6.

WORK ACCOMPLISHED BY AMERICAN RED CROSS NURSES

County	Nurses	Dates Employed	Mo. Reports Received	Children Inspected	Home Visits	Public Talks Personal Interviews	Clinics	Cases Com. Dis. Discovered
1. Flathead	Bullock	1921	3	1,114	146	42	.....	.....
2. Golden Valley	Waring	1921–22	4	687	119	66	6	3
3. Judith Basin	Waring	1922	1	426	.....	10	.....	.....
4. Park	McGinn	1921	3	410	21	22	.....	2
5. Rosebud	Hower	1921	6	347	35	10	.....	10
6. Sheridan	Braden	1921–22	20	2,384	168	157	.....	19
Totals				5,368	489	307	6	34

Table 7.

WORK ACCOMPLISHED BY MONTANA TUBERCULOSIS ASSOCIATION NURSES 1921–1922

County	Nurses	Dates Employed	Mo. Reports Received	Children Inspected	Home Visits	Public Talks Personal Interviews	Clinics Held	Cases Com. Dis. Discovered and Children Excluded
1. Broadwater	Stucky	1921	1	203	45	6		6
2. Fergus	Bullock	1921	1	250	31	6		
3. Fergus & Judith Basin	Bullock	1921	2	644	43	19		
4. Gallatin	Crockett	1921–22	2	644	43	19		
5. Granite	Waring	1922	2	451		7		
6. Jefferson	Crockett	1922	2	116			1	
7. Lewis & Clark	Zogarts	1922	2	320	13	3	6	
8. McCone	Crockett	1922	1	695	97	1	1	8
9. Madison	Crockett	1921–22	3	1,379	61	4	3	22
10. Madison & Jefferson	Crockett	1922	2	459	19	6		14
11. Meagher	Crockett	1921	3	417	64	18		92
12. Missoula	Wellcome	1922	2	10				
13. Phillips & Lincoln	Richardson	1921	1	111	10	14		
14. Polson & Flathead	Stucky	1921	1	65	19	5		
15. Pondera	Richardson	1921–22	2	586	26	11	4	1
16. Powell	Waring	1922	1	97		4		
17. Sanders	Waring	1922	2	89		17	6	
18. Stillwater	Waring	1922	1	50	9	3		
19. Teton	Waring	1922	2			3	3	
20. Valley	Waring	1922	1		4			
Total				7,965	672	152	28	192

Missoula County—Beth Morgan, Nurse.

Cases Tuberculosis Investigated	Contacts Examined	Home Visits	Cases examined at Health Clinic	Home Visits	Home Visits	Examined Children
9	7	47	48	32	12	1,262

TUBERCULOSIS WORK

County	Nurses	Dates Employed	Mo. Report Received	No. Clinics Held	Patients Examined	Patients Found Positive	Home Visits
Cascade	Mecklenburg Woods Goettsch	1921–22	17	186	745	55	227

County	Nurses	Dates Employed	Mo. Report Received	No. Clinics Held	Babies and Children Inspected	Prenatal Interviews	Home Visits	Children Examined	Public Talks Personal Interviews
Cascade	Mecklenburg Woods Goettsch	1921–22	17	70	1,267	14	445	5,914	57

Table 8.

WORK ACCOMPLISHED BY BUTTE TUBERCULOSIS ASSOCIATION NURSES 1921–1922

Tuberculosis Work

City	Nurses	Dates Employed	Mo. Reports Received	Patients Examined	Attendance at Clinics	Nursing Visits	Home Visits
Butte	Peoples Bryce Kenney	1921–22	2	280	217	67	2,164

School Work

City	Nurses	Dates Employed	Mo. Reports Received	Children Examined	Public Talks	Home Nurses
Butte	People Bryce Kenney	1921–22	22	1,656	24	41

Table 9.

WORK ACCOMPLISHED BY INDUSTRIAL NURSES 1921–22

American Smelting & Refining Company

City	Nurses	Dates Employed	Mo. Reports Received	Children Inspected	Home Visits	Nursing Visits	Public Talks Personal Interviews	Cases Com. Dis. Discovered
East Helena	Zogarts Vollmer	1921–22	22	257	163	7,255	12	108

Western Union Telegraph Company

City	Nurse	Dates Employed	Mo. Reports Received	Nursing Visits	Instructive Visits	Letters	Phone Calls	Employees Referre to Physician
Helena	Friederichs	1921–22	21	201	51	18	109	9

Metropolitan Life Insurance Company

City	Nurses	Dates Employed	Mo. Reports Received	Nursing Visits	Instructive Visits	Medical	Cases Cared for: Surgical	Maternity	Prenatal
Butte	Alexander Rae Carkeek	1921–22	11	1,741	369	906	44	72	32
	Babies 26						Pre-School 239		

Anaconda Reduction Works

Nurse	City	Dates Employed	Mo. Reports Received	Cases Cared for: Medical	Surgical
Anaconda	McPherson	1921–22	21	32	4,778

SOCIAL HYGIENE DIVISION.

The efforts of the Social Hygiene Division during the past twenty-two months have been centered principally on the educational phase of the venereal disease control program.

While it is agreed that the law enforcement and treatment phases of the program are equally important, still the small appropriations from the state and practically the elimination of financial aid from the Federal Government and also the lack of funds in most of the counties necessitated the change.

It, therefore, seemed advisable to confine our efforts largely to educational activities, as it was thought much more effective work could be done and better results obtained with the limited funds available. The educational campaign was carried on principally through the churches, clubs, lodges and various other organizations. The Y. M. C. A. and the W. C. T. U. are deserving of special mention because of having assisted in the educational program by arranging for meetings at which our material, films, card exhibits, slides, etc., were used.

It should be understood, however, that law enforcement and treatment were not neglected. In all cases coming to the attention of this division, where quarantine or detention was indicated, or where the venereal disease law was being violated, the matter was promptly taken up with the proper officials and prosecution instituted where it seemed necessary.

Provision for treatment for indigent patients is usually arranged for with the county health officer or the county physician in the county in which the patient lives. In cases where the use of arsphenamine is indicated this product is furnished to the counties by this division free of charge. Much credit is due those physicians who treat their indigent patients free of charge when arsphenamine is furnished by the state. Many of these patients would otherwise have to be treated by the counties or would receive no treatment at all and would later become county charges.

The greatest handicap the venereal disease program now has to contend with is the lack of proper facilities for the care of patients. With one or two exceptions the counties have failed to make provision for care of cases arising within the county. As recommended in the last biennial report a state institution should be established particularly for women and girl sex offenders. Such an institution should include in its program not only methods of treatment, but provision should be made for education, rehabilitation and training.

In this connection it should be noted that the present venereal disease control law vests ample authority in the health officer to commit to or detain in quarantine any person whom he has reasonable grounds for believing is a menace to the community. This question was definitely settled by a case which was instituted in Missoula County against the county health officer and which was later appealed to the State Supreme Court. A copy of the findings of the higher court is hereto appended.

For the period January 1, 1921, to November 1, 1922, there were 926 cases of gonorrhea and 620 cases of syphillis, a total of 1,546 cases, reported to this division by physicians (exclusive of cases reported by drug stores). During this same period 172 cases were referred for treatment to county health officers or private physicians; 1,379 ampuls of arsphenamine and neoarsphenamine were distributed to the clinics and to physicians; 44,000 pamphlets were printed or purchased; 4,705 requests were received, and 31,404 pamphlets were mailed out in response to these requests; 62 lectures, slide, exhibit card and film showings were made with a total attendance of 4,818; 5 social hygiene films and 12 sets of exhibit cards have been purchased.

In addition to the film showings listed above, there were a number of social hygiene films shown through the commercial agencies and in some of the churches throughout the state.

No. 5004

STATE OF MONTANA

In the Supreme Court, December Term, 1921.

In the Matter of the Application of Mamie Caselli, for Writ of Habeas Corpus

At Chambers

Submitted: January 17, 1922
Decided: January 24, 1922

Filed: January 24, 1922
J. T. Carroll, Clerk

Opinion, by Chief Justice Brantly

The complainant herein is held by the sheriff of Missoula county under an order of the health officer of the city and county of Missoula made under the quarantine regulations established by the State Board of Health, under Chapter 106 of the Laws of the Sixteenth Legislative Assembly, on the ground that, according to the information of the health officer, she is affected with gonorrhea, a disease declared by the statute to be contagious, communicable, and, therefore, dangerous to the public health. She has applied to me for a writ of **habeas corpus** to obtain her release on the grounds (1) that she was not granted a judicial hearing prior to the time she was taken and detained by the sheriff, and (2) that the facts do not exist showing that she is affected with the disease, and so conducts herself as to be dangerous to the public health.

1. Counsel have presented briefs in support of their several contentions, but I shall not undertake to enter here upon an examination of the numerous decisions cited by them. There is, perhaps, no authority to be found at this late day which denies that the legislature, under its police power, may enact laws authorizing the establishment of quarantine regulations and requiring the detention of persons affected with contagious diseases dangerous to the public health without resort to a preliminary juridicial proceeding to determine the character of the disease and the facts constituting the danger to public health. Under the statute before us the proper health officer may issue his warrant directing the arrest, without notice, of any person reasonably suspected of having a communicable disease, and his detention for a time being and until the existence and character of the disease can be determined; and, in case his course of conduct or condition is such in the judgment of the health officer, as to render it necessary to protect the public health, to isolate such person until he recovers from the disease or until he may be released without further danger to the public. If, however, after his arrest, such person challenges the right of the authorities to continue his detention, he is entitled to have its legality inquired into upon **habeas corpus.** The existence of the power of the health officer to detain any one rests upon the existence of the facts making such detention necessary. The law does not deprive any citizen of the right to be heard on this question, but he is not entitled to a hearing in the first instance. "The detention of persons affected with or suspected of contagious disease in quarantine presents one of the cases where the police power is literally the law of self-defense—a paramount necessity." (Freund's Police Power, Sec. 446.) If the contention of counsel for the complainant should be upheld, this law of self-defense—necessity—would be rendered entirely inoperative

while the judicial proceeding would be in progress. In my opinion, the Fourteenth Amendment to the Constitution of the United States and Sections 6 and 2 of Article III of the Constitution of the State of Montana, relied on by complainant's counsel, have no application to this class of cases. I cannot conclude that the makers of the two constitutions ever contemplated a situation where a state would be rendered powerless to protect itself by prompt and speedy action from the spread of a contagion which by neglect might reach to and affect any considerable number of people in a community.

2. Counsel for the state insists that the finding of the county health officer in such a case, declaring that the detained citizen is afflicted with a contagious disease and is therefore dangerous to the public health, is conclusive and not subject to review by the courts. There is some conflict of authority on this subject, but the great weight of it supports the rule stated at the outset of the opinion, namely, that the law does not tolerate the arrest and detention of any citizen without the right to challenge the existence of the facts upon which he is held.

The facts introduced at the hearing established clearly that the complainant is affected with gonorrhea. This was ascertained by scientific means by the bacteriologist employed by the State Board of Health upon the application of the health officer of Missoula County. The only uncertainty I encounter upon the whole case is whether the complainant, in her present condition, would, in fact, be dangerous to the health of the community in which she lives if she were allowed to go at large. The testimony is not satisfactory but it does disclose circumstances which justify the inference that the complainant, within a comparatively short time prior to her arrest, had been plying her trade of prostitute; that at one time during the past year she was found by the police occupying the same bed with a man other than her husband at a place which bears ill repute; that she has been found in the same place at other times since; that she has been a constant associate of other prostitutes and that she has recently been found upon the streets of Missoula at all times of the night at places where women not engaged in prostitution would not under any circumstances be found. Upon this evidence I am constrained to the conclusion that the health officer was justified in directing her detention until she shall become cured or until she may be safely allowed to go at large.

I therefore discharge the writ and remand the complainant to the custody of the sheriff, to be held by him until she may be released according to law.

(Signed) THEODORE BRANTLY,
Chief Justice.