

THIRD BIENNIAL REPORT

OF THE

STATE BOARD OF HEALTH

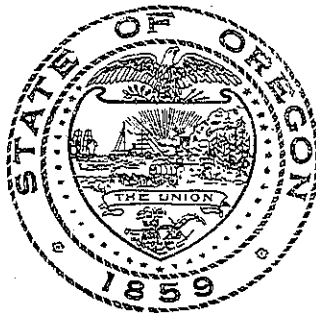
TO THE

GOVERNOR OF OREGON

AND THE

TWENTY-FIFTH LEGISLATIVE ASSEMBLY  
REGULAR SESSION

1909



SALEM, OREGON  
WILLIS S. DUNIWAY, STATE PRINTER  
1909

# REPORT

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SALEM, Oregon, January 1, 1909.

*To the Honorable the Governor of the State of Oregon,  
and the Legislative Assembly of the State of Oregon.*

GENTLEMEN: We beg to submit the following biennial report of the State Board of Health for the biennial period ending September 30, 1908, being the third biennial report since the organization of the board. The personnel of the board has remained unchanged during this time, consisting of Dr. Alfred Kinney, Astoria; Dr. Andrew C. Smith, Portland; Dr. C. J. Smith, Pendleton; Dr. E. B. Pickel, Medford; Dr. E. A. Pierce, Portland; Dr. W. B. Morse, Salem; Dr. R. C. Yenney, secretary, Portland.

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## ORGANIZATION OF COUNTY AND CITY BOARDS OF HEALTH.

We desire to call your attention to the more complete organization of boards of health in counties and cities, resulting in far more efficient work in matters pertaining to public health throughout the State. In conformity with our State laws, every county in the State has a county health officer, with the single exception of Curry County, in which no available physician could be found. Besides this, nearly every incorporated city in the State has a regularly appointed city health officer, subordinate in his work to the county and State boards.

We believe that this plan, as made by our State Board of Health act, a most valuable one, and one which will eventually lead to work of the most efficient kind in every county throughout the State. It gives to each county, subject to such control by the State Board as to secure uniformity in action, full control of local affairs pertaining to the health and sanitary regulation of its people, and failure on the part of any county can be attributed to no other cause than negligence on the part of the county judge and county commissioners in not availing themselves of the provisions of the law and working for the best interests of their citizens. The county

judge and county commissioners appoint the county health officer, and if he is inefficient and fails to perform the work belonging to his office, they themselves are responsible to the people for such acts.

#### VITAL STATISTICS.

The board desires to call attention to the importance of this branch of its work, not only as it applies to matters strictly of public health, but also as a protection to the individual, his family and relations, from a purely financial standpoint.

Every child is entitled to have, for its own future protection, the fact of its birth recorded, with such data concerning parentage as are necessary to establish its identity beyond question of doubt, and a parent who does not insist on this fails in one of his important duties as a parent in safeguarding his child and his child's future interests.

The same argument applies to the proper registration of deaths. Health officers, so far as they themselves are concerned, would be satisfied with the cause of death and a few supplementary facts as to age, sex, occupation, etc. For the State, the family and other relatives, they serve a wider and often a more significant purpose. A death certificate is often the only means available to prove the identity of the individual and that frequently when property interests of magnitude are involved. To the State it is necessary to know not only that some individual of a certain sex, age and occupation died, but who he was, when and where he died, what disposal was made of his remains, and where. A complete chain of facts, such as to establish beyond peradventure of doubt, the identity of the individual is what is demanded by the State and is shown absolutely by a properly made out death certificate.

The board desires to call especial attention to the decided improvement of this work for the biennial period ending September 30, 1908, as compared with the biennial period ending September 30, 1906, demonstrating as it does that our present method is rapidly meeting our expectations and will lead in a few years to practically complete returns of births and deaths.

Thus, for the biennial period ending September 30, 1906, 10,068 births and 6,893 deaths were reported. For the biennial period ending September 30, 1908, 19,161 births and 13,139 deaths were reported; i. e., almost double the number of the previous biennial period.

Detailed reports of births, deaths, contagious diseases and marriages are furnished in the annual reports of the board,

and but two, the most dangerous of the infectious diseases, viz., tuberculosis and typhoid fever, will be referred to, and this only to call attention to the financial loss to the State by these two preventable diseases.

During the biennial period ending September 30, 1908, 246 deaths occurred from typhoid fever. Estimating the probable death rate of typhoid fever at, say, ten per cent (a low estimate) would give 2,460 cases in this State during the past two years. The actual monetary loss for every person so afflicted, in wages, physician, nurse and hospital fees for two months' illness at the least possible estimate would be \$200, making a loss for all of practically \$500,000, or \$250,000 a year paid out by the people for typhoid fever alone.

If, as under the statute of this State, each death is reckoned at \$7,500, the loss to the State from 246 deaths would be \$1,845,000 for the past two years, over \$900,000 for each year. We believe this represents an actual loss to the State, not overestimated, from the fact that typhoid fever is essentially a disease of the young, robust and healthy, destroying its victims in the midst of their most productive earning capacity.

During this same period 807 deaths occurred from tuberculosis. The majority of these deaths have been among the comparatively young—nine-tenths, without doubt, under fifty years of age. The majority also have extended over a period of years, from three to ten. It is impossible to estimate in dollars and cents the actual loss to the State of this enormous number of deaths of individuals in the prime of life and wage-earning capacity, to say nothing of the expense that they themselves or their families have been compelled to meet.

Typhoid fever and tuberculosis are diseases of the masses. They are preventable diseases, but depend for their prevention on the same measures as are used to protect the masses from any scourge, viz., knowledge of the danger to be avoided, and what measures must be used to avoid it, which can only be secured by an efficient corps of competent instructors with power to act—in this case necessarily health officers.

The board would urge the most serious consideration of these two diseases, dangerous to the patient and to the community, with the end in view of supplying such measures as will reduce their prevalence to the minimum.

#### RAILWAY SANITATION.

The board has been working in conjunction with the State Railway Commission and believes that in due course of time the railroads in this State will install such appliances as are

needed for proper protection of the traveling public and such car disinfection enforced as will insure the destruction of pathogenic organisms dangerous to the health of passengers through contagion.

The board obtained through its county and city health officers for the State Railway Commission a report on the sanitary conditions of all railway depots throughout the State, and through the Railway Commission has secured marked improvement in the general sanitary conditions of railway depots, as well as more comfortable surroundings for the traveling public.

The board submitted the following set of rules to the Railway Commission regarding railway sanitation and it is hoped that something along these lines can be secured for the better protection of the traveling public.

REGULATIONS CONCERNING SANITATION OF RAILROAD STATIONS,  
TERMINALS AND PASSENGER CARS.

1. Sanitary Condition of Railroad Stations.
2. Sanitary Conditions of Railroad Terminals, Including Care in Handling and Disposition of Food Stuffs, Ice, etc., used on cars.
3. Proper Equipment and Care of Passenger Coaches.
4. Proper Equipment and Care of Sleeping Cars.
5. Cleaning of Cars: What Constitutes Cleaning.
6. Disinfection of Cars: (1) Sleeping Cars; (2) Day Coaches.

SANITARY CONDITION OF RAILROAD STATIONS.

1. All railroad stations should be kept clean, warm and well ventilated and lighted, and supplied with cuspidors suitable to the needs of the traveling public, which cuspidors should be cleaned daily by first filling with suitable disinfectant solution and then washing.

2. Toilets where possible should be flushed toilets, connected with the regular city sewer system. If ordinary pits or privies, they should be disinfected daily with dry earth or chloride of lime, sufficient of either to cover and disinfect contents. These should also be so placed as to render contamination of any well, spring or water supply impossible. Toilet rooms should be swept daily and cleansed with disinfectant solution.

3. If water tanks are used they should be filled with clean, pure water, and should be thoroughly scoured each

week with soap and brush or alkaline powder and rinsed with boiling water. Ice used in coolers should not be placed upon platform, but should be handled with tongs and washed in pure water before being placed in the cooler.

#### TERMINALS.

1. Ample toilet facilities easily accessible to be provided for employees and cared for as above.

2. Rubbish of whatever nature to be collected in covered receptacles and disposed of in such a manner as to effectually destroy the same. If within the city limits, the city ordinance regarding the disposal of garbage should be observed.

3. The vacant cars must not be used as toilets, nor should the passenger coaches while standing in the yards.

4. Ample provision should be made to carry off whatever waste of water is used in cleaning cars and all cuspidors should be filled with disinfectant solution and allowed to stand at least one half an hour before further cleansing with water.

5. Food stuffs of whatever nature should not be exposed to contamination while being placed in dining cars. Ice to be handled with tongs, not allowed to fall or be placed on platforms, and to be thoroughly washed in wholesome water before being placed in refrigerator or cooler. Cars should not be swept or cushions dusted in close proximity to dining cars during process of loading supplies. All containers of water for drinking purposes should be thoroughly washed with soap and water and rinsed with boiling water at the end of each run, and at least every forty-eight hours.

#### PROPER EQUIPMENT AND CARE OF PASSENGER COACHES.

1. Each day-coach used for passengers must be provided with at least six cuspidors; cuspidors to be emptied and cleansed thoroughly at the end of each trip, or every twenty-four hours.

This rule should not apply to parlor cars, except that cuspidors must be provided for the smoking compartment and cleaned as above.

2. The floors of all cars may be swept in transit, provided that they are first thoroughly sprinkled with damp sawdust to prevent raising dust. If it be desired to remove rubbish or trash with broom and dust pan from portions of the car while in transit sprinkling will not be necessary. Dusting of cars with a brush is prohibited, but it may be removed from walls and seats with a cloth.

3. Containers of water for drinking in cars must be emptied and thoroughly cleansed at the end of each trip.
4. Ice, which is used in water coolers in cars, must not be dumped on floors, sidewalks or car platforms where people have trod and expectorated. It should be handled with ice tongs to place it in the coolers.
5. All persons are prohibited from spitting upon the floors of cars.
6. All persons must be prohibited from washing their teeth over or expectorating in the basins which are used for bathing face and hands in passenger coaches. Large cuspidors should be provided for such purposes.

#### PROPER EQUIPMENT AND CARE OF SLEEPING CARS.

1. Each sleeping car used for passengers must be provided with at least one cuspidor for each section or compartment; cuspidors to be emptied and cleansed thoroughly at the end of each trip, or every twenty-four hours.
2. Containers of water for drinking in cars must be emptied and thoroughly cleansed at the end of each trip.
3. Ice, which is used in water coolers in cars, must not be dumped on floors, sidewalks, or car platforms where people have trod and expectorated. It should be handled with ice tongs to place it in the coolers.
4. All persons are prohibited from spitting upon the floors of cars.
5. All sleeping cars must be thoroughly cleansed at the end of each trip.
6. All persons must be prohibited from washing their teeth over or expectorating in the basins which are used for bathing face and hands in sleeping cars. Large cuspidors should be provided for such purposes.

#### CLEANING OF CARS—WHAT CONSTITUTES CLEANING.

1. Day coaches shall be thoroughly cleaned at the end of each trip, and in no instance shall a day coach go uncleaned longer than two days. The thorough cleansing of day coaches shall consist as follows: (a) Windows and doors shall first be opened and the aisle strip, if there be any, removed from the car; (b) all upholstery dusted and brushed; (c) floor mopped or swept after it has been sprinkled with water, to which may be added an approved disinfectant; (5) after cleansing, as in (c), the floor should be scrubbed with soap and water, to which soda ash or like cleansing agent may be added, and

after scrubbing, the floor should be mopped with a solution of formaldehyde of 1 or 2 per cent strength or with a solution of other approved disinfectant; (e) all arms of seats, panels between windows, window ledges, windows, doors and door-knobs shall be washed with soap and water, to which a cleansing agent may be added, and after washing, should be wiped off with an efficient disinfecting solution; (f) closet floors and walls shall be cleansed by sweeping and washing and wiping with a disinfecting solution, and urinals and hoppers thoroughly cleaned and disinfected; (g) water coolers should be frequently emptied, rinsed and scalded, and shall be filled with potable drinking water when in service; (h) plush seats and backs shall be removed when possible, and dusted by air blast.

#### DISINFECTION OF CARS.

*Sleeping Cars.*—All sleeping cars must be disinfected in a manner hereinafter stated at the end of each third round trip, where the cars do not leave the State of Oregon. Sleeping cars leaving the state are to be fumigated every second trip, where the trips are of not more than four days duration, and every trip if of longer than four days duration, and every third trip if only one night run. All carpets, curtains, blankets and bedding, except linen, to be disinfected with care. Provided, that when any sleeping car is known to carry a case of infectious or communicable disease, it must be fumigated at the end of that trip, or it may be disconnected from train and fumigated at any station if required by this department.

*Day-Coaches.*—Day-coaches used by passengers must be fumigated whenever the necessity exists, at some point in this State acceptable to this department, at least every sixty days. If a car becomes infected by being occupied by a person having a contagious disease, it must be disinfected immediately at end of run.

#### METHOD OF DISINFECTING SLEEPING CARS AND DAY-COACHES.

Everything in the car shall be disinfected excepting the linen. Open all berths and arrange the bedding and mattresses as loosely as possible. Close all windows and transoms. Then for each 1,000 cubic feet of space use one pint of best formalin (40 per cent solution) to six and three-fourths ounces of permanganate of potash as follows: Place the permanganate of potash in a large galvanized iron or tin bucket and quickly pour the formalin on this, leaving the car immediately, as the gas is very rapidly generated. Leave the car closed for two hours. In the summer time the floor of the car should



be thoroughly sprinkled with water before beginning disinfection, as humidity increases the killing power of the gas on bacteria.

#### DISINFECTANT SOLUTION.

The following solutions are recommended for use in disinfecting cuspidors, urinals, toilets, etc.:

1. Dissolve chloride of lime of the best quality in water, in proportion of six ounces of lime to one gallon of water.
1. Dissolve carbolic acid in water in proportion of six and one-half ounces of carbolic acid to one gallon of water..

#### FARM AND ORCHARD SANITATION.

A careful examination into the cases of typhoid fever arising each year about and just following harvest time led the board to investigate this particular phase of the spread of the disease, with the result that many cases of typhoid fever were found directly traceable to conditions incident to harvesting.

In Eastern Oregon especially, during the harvest, the water supply in many cases is limited to the actual needs of the men. Besides, it is frequently obtained from the most questionable sources and very little care exercised in its handling. Gastro-intestinal diseases are common among harvesters and typhoid fever not an uncommon disease, and from its insidious onset is very apt to be distributed when an employee becomes infected.

Conditions in fruit, berry, and hop yards during the picking season have been found to be on the whole unsanitary, scarcely any attention being given to water supply or disposal of body waste. This, together with the fact that typhoid convalescents frequently plan on the fruit or hop picking season as a semi-vacation period in which to recuperate, accentuates the necessity for proper sanitation in those places.

With this end in view, the board prepared the following bulletin, believing that if its directions are carried out many cases of typhoid fever will be prevented:

#### Bulletin No. 7.

Issued by the Oregon State Board of Health Regarding Sanitation of Hop Yards, Wheat Fields and Fruit Orchards, and for the Mutual Benefit of Growers and Employees.

- (1) Camps for employees should be on high ground and in the open, and not contiguous to swamps or sloughs. Willamette Valley weather during fruit and hop-picking season is very apt to be wet, and inasmuch as the pickers are out of their camps in the daytime, only occupying them at night, they should be so situated as to thoroughly dry out whenever the weather will permit.

(2) The water supply should be abundant for all purposes, including baths, and from springs or driven wells. An abundant supply of water is particularly necessary in Eastern Oregon and other sections of the State where grain-raising is the principal industry. The health of employees in these sections would be greatly conserved could they have access to an abundant supply of water, which in many of these sections is not now the case. Surface water where so many people are congregated is sure to be contaminated.

(3) Camp garbage should be placed in boxes or barrels with tight lids and hauled away and burned or buried at least every other day.

(4) For the disposal of body waste there should be numerous vaults dug not less than three feet deep with suitable buildings, which should fit tight to the ground, thus cutting off the excursions of flies. For use in the fields, light, portable buildings on skids can be constructed, the new vaults to be dug and old ones covered at once on moving. Each of these buildings should contain a box of dry earth, a small quantity to be sprinkled in the vault by each individual who visits the place; plainly written notices to this effect being conspicuously posted.

(5) It should be the business of some one person to visit all employees reported ill, and should any case give rise to suspicion that it may be contagious, the county health officer or some other physician should be summoned at once. Should the disease prove contagious, the patient should be removed at once from the premises and the same disinfected as thoroughly as possible. Especial attention should be given to persons with cough, sore throat, intestinal trouble or eruption of the skin.

(6) All employees should be made to know that flies are great carriers of disease, and that everything possible should be done to discourage their presence in camp.

(7) Where a stationary or movable cook-house is in use, the same should be well ventilated, and all food supplies carefully screened to prevent contamination from dust and flies. No slops should be thrown on the ground near the cook-houses, but should be placed in a pit to be covered with earth.

(8) In those occupations where large quantities of dust are present, the eyes should be protected with screens and smoked glasses and care taken at night to cleanse the same thoroughly.

(9) It shall be the duty of every physician visiting the sick in situations covered by this bulletin to report any unsanitary conditions, and especially those covered by the foregoing paragraphs, to the proper authorities for investigation and correction.

(10) Do not employ people who habitually cough. There is a strong probability that such persons are tuberculous, and tuberculosis being contagious, makes it very dangerous for their associates.

These suggestions apply equally well to all cases where people gather to work, and if carried out will amply repay the owners by diminished sickness, which under past conditions has not only kept many employees idle, but has discouraged considerable numbers from going to the fields for fear of illness.

#### WATERWAYS.

The board has endeavored as far as possible to take every means at its disposal to preserve the purity of the water courses in this State. There is probably no other State in the Union so favored naturally with such an abundant supply of

pure water, and one of the chief efforts of the people of the State should be to preserve this wholesome condition.

There is a general impression that streams are to be used chiefly as sewers to carry off waste products, and for this reason contamination of streams is almost universal. This condition is becoming more and more serious each year as the State becomes more densely populated, and unless some definite decided action is taken there will scarcely remain a single unpolluted stream in the State.

It is of especial importance that the smaller streams and the beginning of water courses should be protected. An erroneous idea prevails that swift-running streams quickly purify themselves, and a false feeling of security is thus given to those securing water below the point of contamination.

From the fact that serious stream pollution is carried chiefly by sewerage from cities and towns, the question of proper disposal of such sewerage becomes at once a matter of greatest moment, and if streams are to be kept pure this sewerage must be destroyed or rendered inert before being discharged into any stream. This can be done, and in all smaller cities and towns should be done at the earliest date possible. Where cities or towns are compelled to get their water from a polluted stream an expensive filter plant must be installed to render it fit for use. It is a matter of far greater justice, and probably not more expensive, to compel the city polluting the water to destroy its sewerage and leave the stream into which it is discharged pure for the use of all.

#### IRRIGATED DISTRICTS.

We have in Oregon large areas of irrigated lands, and each year more acreage is being added. These districts comprise the most productive lands in the State and will eventually support a large and ever-increasing population. In most of these sections water for domestic use will have to be taken directly from the irrigating ditches, or indirectly from them through wells, except in those places that have a sufficient rainfall to supply cisterns.

The State should employ every means possible and at once to protect these ditches, and the people in these districts. The board confidently believes that special action must and should be taken by the State, and that it is worse than folly to leave this matter to the districts themselves, in which conflicting business interests are apt to destroy all attempts at proper sanitation.

In this connection the board believes that it would be eminently proper on the part of the State to aid in a substan-

tial manner any local move toward securing artesian water for those districts for domestic use. When this can be done the water problem is solved at once, and an assured protection against water-borne diseases secured.

#### CITY WATER SUPPLIES.

The installation of a water system is the most important event in the history of any city or town, and depends for its success upon a great many conditions, financial as well as sanitary. In order to be efficient it must be in sufficient amounts and pure; and in order to be pure the source must be protected absolutely, which, if a mountain stream, must include the entire watershed.

The board would strongly urge that some provision be made whereby plans of water systems for cities and towns should be submitted to the State Board of Health for approval before being installed. The board believes that a plan of this kind would result not only in more adequate water systems, but also in the end prove cheaper by preventing the installation of improper or inadequate systems. The same should also be done in regard to sewer systems and sewerage disposal.

Along this same line this board recommends that every city and town in the State should submit its ordinances relative to sanitary conditions to the State Board for approval in order to secure as far as possible uniformity in the salient features of city sanitation. There is no doubt that many cities are more hindered in their work of sanitation from improper ordinances than from lack of ordinances. Or, what would amount to practically the same thing, certain measures regarding sanitation approved and issued by the board, could be incorporated in the laws of every city and uniformity of action thus secured.

#### MEDICAL INSPECTION OF SCHOOLS.

The beneficial results of medical school inspection have been demonstrated wherever tried and results in the city of Portland have so far fully justified the employment of physicians as school inspectors. The highest aim of medical science is to preserve the health of the people by overcoming as far as possible those conditions giving rise to disease, and there is no wider or worthier field for this work than our common schools.

Besides the immediate gain to the pupils in the way of prevention of disease, the educational feature to both pupils and teachers is of greatest value. The attention of both teacher and pupil, and indirectly that of the parent, is called

to conditions about which in many cases neither teacher, pupil nor parent has had the slightest idea that there was anything especially abnormal, or if a diseased condition was discovered, believed to be some transitory affection which would correct itself in due course of time.

Medical inspection is of value in many ways. (1) Attention is given to the general hygiene of the school room, its heating, lighting, ventilation, sewerage, and water supply. (2) Contagious diseases will in most cases be detected in their incipiency, the child isolated, his belongings disinfected and spread of disease checked. (3) Many conditions which are not only productive of discomfort, but frequently of absolute serious disease to the pupil, are detected and the remedy suggested. These include such conditions as adenoids, discharge from the ears, defective vision, defective teeth, tendency to tuberculosis as manifested by enlarged lymph glands or defective chest development, deformities, especially spinal, etc. (4) The personal hygiene of the pupil will be improved. (5) The teacher, from actual instruction by the medical inspector, becomes more and more proficient in this branch of school work and more able to properly protect those placed under his care.

The board would recommend the enactment of an efficient State law providing for the annual examination by physicians of all school children for the detection of non-contagious physical defects, and the maintenance of a competent inspection of all schools and school children for contagious diseases, sanitation, etc., at frequent intervals.

#### TUBERCULOSIS.

During the past two years considerable attention has been paid to this disease through the press, by numerous societies, the various boards of health and the people at large, with the ultimate end in view of eradicating this dreadful scourge, the cause of at least one out of every seven deaths from all causes.

The fight against tuberculosis presents many and varied difficulties. As a rule it is a disease of long—generally years—duration, thus effectually barring its victim from gaining a livelihood for a long time, and in most cases eating up his resources before the cure, in favorable cases, can be secured. Again, it is an expensive disease to treat, requiring the best of foods and the most sanitary surroundings. Also, from its generally recognized contagiousness, those suffering are prohibited from working alongside their fellows, so that those who could in part support themselves are usually forced from employment.

Considering also that it is in the vast majority of cases a poverty disease, the necessity for aid of the most substantial kind becomes at once an apparent fact, and there is a crying need in this State for immediate systematic action to secure results. Tuberculosis is so widespread, its dangers of infection are so great, afflicting as it does both men and animals, especially cattle and hogs—staple food products—that nothing short of united effort can combat it.

Science has demonstrated the cause of consumption, its method of transmission and a successful manner of treatment in a vast majority of cases—early cases; statisticians have laid bare the history in detail of its terrible onslaughts, and have demonstrated the serious actual loss in dollars and cents, not only to the State but to the Nation. It remains only for the people to supply the needed assistance to carry this work to a successful extermination of the disease, and the board urgently recommends a most liberal policy on the part of the State to carry out those already well developed plans.

#### BUBONIC PLAGUE.

Considerable alarm was felt throughout the State on account of the presence of this disease in San Francisco and Seattle during the past year, but fortunately no cases were found in this State, either in human beings or rats.

The city of Portland, being most exposed and most likely to acquire the infection, early took active measures toward its protection. Vessels were required to fend off and use rat funnels, and when necessary were fumigated; a rat laboratory was established under the direction of Dr. Ralph C. Matson, bacteriologist to the State Board of Health, and rats examined.

Our seaport towns, however, will be constantly exposed to the danger of this disease and others from the far East, as trade develops, and will require sanitary regulations far in excess of those now employed. A city such as Portland should have a well-constructed water-front wall and the entire space beneath the docks filled up and made rat-proof. In fact, all buildings should be so constructed. Without this it will be practically impossible to eliminate the plague, should it secure a foothold. With these sanitary arrangements the problem of the destruction of rats, the carriers of the disease, will be greatly simplified.

### STATE INSTITUTIONS.

The board through some of its members has inspected every State institution and recommended such changes as were thought necessary at the time, so far as sanitary conditions were concerned. For the most part defects noted have been of minor importance, and in general were under course of suitable correction by those in charge.

The board desires to especially commend the work of Dr. R. E. Lee Steiner in connection with the State Insane Asylum, relative to the segregation and isolation of tubercular patients. As is well known, tuberculosis is especially prevalent among the insane and exceedingly difficult to treat and to prevent spread of contagion. Four open-air pavilions have been constructed for the tubercular patients, each accommodating ten, where isolation can be maintained and the open-air treatment employed. There has been heretofore a crying need for some such provision for the tubercular insane, for their own good and for the protection of other patients as well as attendants, and further appropriation for this work should be supplied as needed. Moreover, any State institution compelled to house tubercular inmates should have at least similar facilities for their care. Thirty-seven patients, twenty-two males and fifteen females, died of tuberculosis at the asylum for the biennial period ending September 30, 1908.

### LABORATORY.

The laboratory has continued under the direction of Dr. Ralph C. Matson, and necessary apparatus has been added from time to time as needed until at present the equipment is sufficient for the work done. Laboratory work is done free of charge to physicians or others throughout the State and has been of great use, especially to those so situated as to be deprived of the facilities of a laboratory.

During the biennial period ending September 30, 1906, there were examinations made in the laboratory as follows: Water, 114; Diphtheria, 227; Sputum, 618; Blood, 228; Miscellaneous, 341; making a total of 1,528. During the biennial period ending September 30, 1908, the following examinations were made: Water, 346; Diphtheria, 1,782; Sputum, 1,329; Blood, 494; Rats for bubonic plague, 500; Miscellaneous, 255; a total of 4,506, or practically three times as many during this biennial period as during the period ending September 30, 1906.

**FINANCIAL.**

For the financial statement of the board, we respectfully refer to the report of the Honorable Secretary of State.

**PUBLICATIONS.**

During 1907 the board issued a monthly bulletin, dealing among other things with the following: Collection of Vital Statistics; Quarantine; Disinfection; Tuberculosis; Typhoid Fever; Duties of Health Officers; Discharges from Nose and Throat; Prevention of Plague; Influenza, or La Grippe; Typhoid Fever Arising from Milk (two local epidemics); Vaccination and Use of Anti-toxin; The Common Towel and Public Schools.

During 1908 a bi-monthly bulletin has been issued, treating in part the following: Improper Causes of Death in Death Reports; Reports on Sanitary Conditions of Railway Stations Throughout the State, by County Health Officers; Dangers from Infected Milk and Butter; Practical Application of Vital Statistics; Precautions to be Taken to Avoid Typhoid Fever; Directions for Collecting Specimens and Interpretation of Laboratory Diagnosis; Suggestions to Dairymen and Milk Dealers; Some Phases of School Hygiene; Water Supply to Cities and Typhoid Fever; Bacillus Carriers; Tuberculosis in Rural Districts; Tuberculosis and the Family Cow; Contradictory Advice to Consumptives; Duties of Undertakers in Making Death Returns.

A special bulletin on sanitation of hop yards, wheat fields, and fruit orchards was also issued.