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THIRD ANNUAL REPORT  
OF THE  
STATE BOARD OF HEALTH  
OF  
MINNESOTA.

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JANUARY, 1875.



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STATE OF MINNESOTA,  
OFFICE STATE BOARD OF HEALTH, }  
December 15, 1874.

*To His Excellency, C. K. Davis, Governor:*

SIR: I have the honor herewith to transmit the third annual report of the State Board of Health and Vital Statistics.

Yours respectfully,

CHARLES N. HEWITT,  
Secretary State Board of Health.

## MEMBERS OF THE BOARD.

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D. W. HAND, M. D., St. Paul, *Chairman.*

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V. SMITH, M. D., Duluth.

G. D. WINCH, M. D., Blue Earth City.

FRANKLIN STAPLES, M. D., Winona.

A. E. SENKLER, M. D., St. Cloud.

CHARLES N. HEWITT, M. D., Red Wing, *Secretary.*

## GENERAL REPORT.

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The work of the Board during the year has been as follows :

### EDUCATIONAL.

At the request of the Regents the Secretary of this Board is serving as Professor of Public Health at the University. By a resolution of the faculty the study of Hygiene is obligatory during one term of the senior year of the collegiate course. A special course of lectures on *Foods*, their sources, modes of preparation, impurities and adulterations, will be given to all the students during the next term. The regular course of lectures on Public Health will be given at another time.

At the request of the Principal, Dr. A. E. Senkler, of this Board gave lectures on Hygiene to the students of the St. Cloud Normal School last winter. By request, he will repeat the lectures this winter. It would aid greatly in this department of our work if the other Normal Schools would imitate the one at St. Cloud, by securing the services of a physician familiar with the subject of Public Health, who could, by the fruits of his experience and reading, make the regular course of study such as to fit the students for the duties of teachers of Hygiene in our public schools.

The Secretary of this Board, by instruction, addressed the State Teachers' Institute on this subject, and will, during the winter, assist in the organization of courses of instruction

in Hygiene in several of the colleges and higher schools of the State.

#### ORIGINAL INVESTIGATIONS.

In accordance with the conditions of the act establishing this Board, we have entered upon a series of investigations of causes directly affecting the health, and the disease and death rate of the population of the State.

The subjects selected, and the progress made, are as follows :

I. *The influences of the climate of Minnesota on diseases of the Air Passages.*

“The importance of this subject is already recognized by the people as well as by the physicians of the State. It has been partially considered by committees of the *American Medical Association* and of the *State Medical Society*. The attention of the country for many years has been directed to Minnesota because of the reputed healthfulness of its climate. Questions have arisen as to how far this reputation is merited, and as to what climatic conditions and influences this comparative healthfulness is due. It is the duty of the State, not only for the information and benefit of its own citizens, but in response to a public inquiry of vast importance, to answer questions relating to this subject as soon as intelligent and reliable answers can be made.”

A committee of the Board, of which Dr. Franklin Staples of Winona is chairman, have been at work on this subject during the year past. The inquiry involves patient investigation and a careful collection and collation of facts. Much valuable matter has already been gotten together. About fifty replies have been received to the circular of the committee. The study will be steadily pursued during the coming year, and the conclusions reached will rest upon a solid foundation of fact.

II. *The peculiarities of the climate of Minnesota, with especial reference to its dryness, and the presence and operation of Ozone.*

This investigation is closely related to the preceding one, but involves peculiar methods of study, and the co-operation of observers in different parts of the State. It has been entrusted to Dr. A. E. Senkler, of St. Cloud. The plan of the work has been carefully arranged and investigations begun.

III. *The most economical and practical methods of ventilating and warming private dwellings with especial reference to the necessities of people of moderate means.*

The object of this inquiry is to make plain the principles involved, and to reduce the means to be used to the simplest and least expensive form, consistent with efficiency. The importance of the subject it is difficult to overrate, when it is remembered that the infant mortality of our State is about forty per cent. of its total death rate, and that the diseases of infancy are closely related to the sanitary condition of the house which is its home.

IV. *The Foods of the people of the State: their sources, processes of manufacture and domestic preparations; their impurities and adulterations.*

This inquiry includes the water supply of our population, its natural and artificial impurities. This work is already begun by the Secretary of the Board, Dr. C. N. Hewitt, Red Wing. The study will be made, as respects waters, by an analysis, with reference to their influence—on health and disease, in town and country—as to Foods by a chemical and microscopic examination of Flours of the groceries; of Teas, Coffees, Sugars and Syrups, Vinegars and Spices, and of the Salts in domestic use as Baking Powders, Cream Tartar, Soda, etc.; the various modes of manufacture and

the methods of adulteration. The effort will be made to work out methods by which impurities and adulterations can be discovered and recognized by persons of ordinary intelligence with sufficient accuracy for ordinary purposes.

Work has already begun in water analysis, and is sufficiently advanced to give promise of valuable results, and has been brought to bear upon the study of the sanitary condition of the public institutions.

V. *Kerosene—The cause of accidents from its use, and the mode of preventing them.*

By order of the Board the Secretary has begun an examination of this question. The work has sufficiently advanced to justify the following statement and recommendation: The kerosene in ordinary use by our population is that known as "110° fire test." An examination of many samples proves that this article will give off an explosive gas at 78° F., and will take fire at a little below 110° F. When it is known that the temperature of an ordinary lamp in operation often reaches and exceeds 78° F.—as for that matter does the temperature of many a living room in winter—and that it takes but a moment of time to raise the temperature of a small quantity of this oil from 78° to 110°, when it readily takes fire, the causes of the frequent dangerous and fatal accidents from its use will be no mystery. It is more dangerous than gunpowder. Another article of kerosene known as "Head-light Oil," is furnished at from twenty-five to thirty cents a gallon. The samples of this oil examined gave off an explosive gas at 128° F., and took fire at about 165° F. This oil is safe in any ordinary lamp. The difference in expense is trifling; the difference in safety is incalculable. We repeat the recommendation of our last report, that the Legislature attach a sufficient penalty to the sale of kerosene with a *flashing test below 115° F.*, to prevent its sale.

The apparatus necessary for a test is inexpensive, and the method of its use is easy and safe. Other States have

enacted such laws, and the necessity is as great in Minnesota as elsewhere.

The inspection of the public institutions to enable this Board to act intelligently as the advisor of the State in all hygienic and medical matters relating to them, has been thoroughly done. The following statements exhibit their condition in these respects, and the recommendations which we respectfully make with reference to them :

THE HOSPITAL FOR THE INSANE AT ST. PETER.

There were in this institution September 1st, 1874, 370 inmates, 203 males, 167 females, and the Superintendent estimates that there are 130 more insane persons in the State not in the asylum.

The new wing, at the date of inspection, was not complete but soon to be. When done and occupied, the present building will accommodate 450 patients and will have cost nearly \$500,000. It is believed that the old hospital can be abandoned within a year. At that time the new hospital will be filled.

The proportion of incurables at present in the hospital is 80 per cent. of the whole number of patients. The Superintendent estimates that twenty per cent. are able to leave within two years after admission, cured. The number "discharged cured" in 1872 and 1873 was 16 per cent. It is thus apparent that a very large proportion of the population of the asylum are permanent residents, and that the number of this class must increase with the present method of admission. Friends do not send patients till recovery at home is despaired of, and the Superintendent is often compelled, *for want of room*, to delay admissions.

Was the Asylum able to do its whole duty the statistics above quoted would be impossible. The Superintendent estimates that *75 per cent. of recent cases are curable*, i. e., those insane for the first time, and submitted to hospital treatment within six months of first attack.

It is very evident therefore that the truest economy on

the part of the State, and the interest of this most unfortunate class require that ample provision be made for hospital treatment at the earliest practicable moment after attack. It is, we believe, the opinion of the Superintendent and the Board of Trustees of the Hospital, as it is ours, that the present building should not be enlarged, but that other provision be made for those who cannot now be accommodated here. We respectfully recommend that the Legislature takes this subject into immediate consideration and provide for a thorough study of the most approved methods of hospital construction, before any further steps are taken. We can hardly avoid the conviction that a radical change in our present methods of providing for the insane is necessary, in their own interest and that of the State. The end in view in levying and using the large tax, necessary for this work, is to incur the largest proportion of recoveries, at the least expense, and the proper care of them, when recovery seems beyond hope.

#### THE STATE PRISON AT STILLWATER.

There are at present in the State Prison 134 male convicts and one female. Total 135. The capacity of the Prison is 154 cells for males, four cells for females. Total 158 cells. Excluding sick cells and dungeons, there is room for 150 males and eight females. There is therefore accommodation but for 16 males and 7 females remaining.

Among the present prisoners there are

14 men convicted of murder in the 1st degree.

3 men convicted of murder in the second degree.

Total 17, or 11 per cent. of the whole number, of whom 15 are imprisoned for life. Of the remainder, there are 22 whose term of sentence is for more than five years; and 96, or over 70 per cent. of the whole number, are sentenced for less than five years.

The sanitary condition of the Prison is still unsatisfac-

tory, and it seems imperative to bring it up to the standard which it ought to reach.

*The ventilation of the cells* is irregular and not sufficient. The defect is one of original construction. Just what the design was is not known, as the plans are lost.

*The warming of the cell-room* is by stoves burning wood. They are placed on the ground floor, one on each side of the room. It is found impossible to regulate the temperature so as to warm the cells alike.

*The water supply* is bad and insufficient. Springs are abundant all over the yard, and even under the cell room, in which is one used for drinking purposes. This water has been examined in our office. It is hardly fit for drinking purposes and is too hard for washing clothes or for bathing.

*The bathing facilities* are of the most primitive character—a bucket of water in the cell.

*The laundry* is in an old shanty with no proper facilities.

*The drainage* is still insufficient.

*The out houses* are unmitigated nuisances.

*The health of the prisoners* is fair. The mortality for 1874 has been less than 2 per cent.

The number reported sick for the year ending Nov. 30th, 1874, is 459, and the daily average at sick call, not included in the above, was 13.

The prevailing sicknesses are affected by the unhealthy condition in which the men live.

*The kitchen* is in the center of the building on the ground floor, and not adapted to the economical preparation and distribution of the food.

*The food* of the prisoners is of the first quality, great variety, and abundant in quantity. There are few tables among the laboring classes so well supplied.

We are decidedly of the opinion that the abundant diet, with such sanitary care as the Surgeon and Warden are able to give them, alone prevent a much larger sick and death rate.

The location of the Prison is bad. In a ravine or cooley, with higher land on three sides and high walls on all sides,

with a soil of clay full of living springs, difficult of drainage and with as many buildings as the available space ought to contain, this Board respectfully recommend that the capacity of the prison be not increased.

There is another reason which it is our duty to mention and one which has been forced upon us by repeated inspection.

As will be seen by reference to the statistics quoted, and more fully in the Warden's report, 70 per cent. of the prisoners have short terms of imprisonment (less than five years). It is plainly the object of the State and the interest of the law to make the prison not merely a *punative* but a *reformatory* institution, where, while the way of the transgressor is hard, it shall be made to offer him any proper inducement to go out, after his discipline is over, prepared and disposed to lead a better life.

This does not apply to those confined for life, of whom there are fifteen, all murderers. Yet at present the discipline of all is the same. The only intercourse permitted among the prisoners is when at work, and out of the direct control of the Warden or his keepers. The only classifications among them are those which grow out of their mechanical capacity, and are determined by the convenience of those who hire their labor of the State.

The result we find to be, that the leading and controlling is that of the worst class, and the effect must be to bring all to the moral level of the lowest, for the most desperate and abandoned criminals are subjected to no other discipline than is necessary to restrain them or secure their proportion of work. The influence of this state of affairs on prison discipline is apparent in the recent conspiracies and escapes, and in the morals and discipline of the younger and less advanced the effect is reported by the Warden to be as a rule bad. We believe it to be always bad. The Warden further reports, "We are not able to classify the prisoners so as to be able to prevent these evil influences for we have not full control over them at all times."

For all the reasons stated we urge upon the Legislature

the necessity of a new prison on a new site, constructed upon a plan fully up to the necessities of such an institution. The present prison can then be used for the most abandoned and life convicts, and the new one should be so arranged that the Warden can be held accountable not only for the safe keeping of prisoners, but for their discipline and work, and so be given opportunity to make imprisonment not only a punishment but a discipline and incentive to a better life.

THE INSTITUTION FOR THE DEAF AND DUMB, AND BLIND AT  
FARIBAULT.

During the year there have been in attendance at this institution:

Deaf Mutes, males 69, females 35, total, 104	
Blind, " 13, " 9, " 22	
	—
Total of both classes, -	126

*Health of the Pupils.*—There have been cases of Diphtheria, Scarlet Fever and Typhoid Fever during the year. The statistics called for have not been furnished by the physician at the date of this report. The changes advised by this Board for sanitary reasons have been carried out, as follows: Extension and covering of the outlet of the main sewer. Four large ventilators, two on the roof of each wing. Closure of communication between the air space of the walls and the ventilating shafts at the registers. Extension of partition between chimnies and ventilating flues to the top of the stacks. Independent ventilation of the water closets in the dormitories. The new building for the Blind was not in use at the last inspection. It is now reported occupied. The separation of the classes, now for the first time possible, will be a benefit to both, and give greatly increased facilities for their care and training.

The larger boys (Deaf Mutes) are taught the Cooper's,

Shoemaker's or Tailor's trades, to the number of about 90. The work hours are from 1 to 4:30 o'clock P. M., except on Saturday. The girls are taught household work, plain sewing and dressmaking, and to a limited extent, fancy sewing. Four of the girls are learning the Tailors' trade.

The Superintendent reports the Deaf Mute Asylum full, and that the managers will ask for \$25,000 to complete the foundation of the centre building.

The complaint referred to this Board for investigation against this Institute, and our action thereon, will be understood from the special report to the Governor, of September 24th, 1874.

#### THE REFORM SCHOOL AT ST. PAUL.

There are now in this school, boys 110, girls 3; total 113.

The furnaces in use in the old building at the last inspection have been abandoned, and it is now heated by steam, and *direct* radiation. The steam pipes extend around the walls of the rooms at the floor, and in addition there are three stacks of pipes in the basement. Cold air is introduced from the outside to each of them, heated and thrown into the building. Though an improvement, this work is not well done, nor is it sufficient. The foul air registers are not large enough, nor is proper attention paid to their management. The committee gave instructions as to their use. This steam apparatus was put in by Wilson & Rogers, of St. Paul. The new building, containing school rooms and dormitory, and the detached building, also new, used for work shops, are heated by another steam apparatus, put in by Woolsey & Co., St. Paul.

All the rooms in these buildings are heated by radiating stacks, without any attempt to introduce fresh air. The foul air ducts are not sufficient, and without air supply cannot work well. All the evils of the old capitol heating apparatus are here reproduced in a way positively reprehensible.

The plumbing in the old building is as at last report, and in fact, since it was introduced, useless. No attempt is made to use it.

The drainage is, as at last report, into a sink 40 feet to the rear of the building, which overflows into another 20 feet nearer the barns, and further away from the house. Both are well closed and trapped. The privy is near the barns, and in the same filthy condition as at last report.

The water supply during the last summer has been from a drive well 35 feet deep, near the barn and 60 feet from nearest sink. No marked sickness occurred till August 29th, when a boy came down with typhoid fever. Other cases followed during September, till at date there have been 22 cases and three deaths. A sample of the water from the well above referred to was examined by the Secretary of the Board, and found contaminated with sewerage. The use of the water was stopped, and the older well, 500 feet east of the buildings and 60 feet deep, was again used. That water has also been examined. The following memorandum of the analysis will explain:

	Well 35 ft. deep—near barn.	Well 60 feet deep.
Solid residue to the gallon,	50 grs.	17 grains.
Chlorides,	- - - In large amount.	A trace.
Ammonia,	- - - In large amount.	Slight.
Sulphates,	- - - About 3 grs. to gal.	3 grs. to gal.

There is scarce a doubt that the water in use when the fever broke out contained a considerable amount of organic matter, sufficient to render it entirely unfit for use. The water of the deeper well, judged by the sample examined, is a fair water, sufficiently pure for drinking and domestic use. But one case of fever remains, who is convalescent.

The health of the pupils is at present good.

The general condition of kitchen, school-rooms and dormitories is fair.