Sixty-Third Legislature.

HOUSE. No. 245.

STATE OF MAINE.

To the Honorable Chairmen and members of the Legislative Joint Committee on Railroads:

The following order was received February 14:

"STATE OF MAINE.

HOUSE OF REPRESENTATIVES,
February 10, 1887.

Ordered, That the Railroad Commissioners of the State of Maine are hereby instructed to make an immediate investigation of the methods of heating passenger cars in this State, with a view to the better protection of the lives of passengers, and for that purpose are directed to visit any State or city where improved safety appliances are in use, or are proposed to be introduced, and the result of such investigation shall be rendered to the Committee on Railroads, before the final adjournment of the Legislature."

In compliance with the foregoing order the State Railroad Commissioners have made an investigation of the existing methods of heating passenger cars in this State and find in use the ordinary wood and coal stoves, also the Baker and Johnson heaters for generating steam, hot water and hot air within the passenger cars to be radiated from pipes placed along the sides and under the seats.

The Board also found, in quite successful operation, upon one train of the Maine Central Railroad the Sewall system of steam heating, by which live steam is carried from the locomotive boiler by pipes throughout the cars which radiate a most agreeable heat that is under complete control.

While great improvements have been made in passenger cars in other respects no material change has been made in the mode of heating them. The wood and coal stoves of a quarter of a century or more ago are still to be found on trains in this State, though some of the wealthier corporations use the Baker and Johnson heaters. The use of them is intended to contribute more to the comfort than the safety of passengers.

This Board visited other States, and in Massachusetts examined the "Martin Anti-Fire Car Heater" as applied to passenger cars upon the Boston & Albany Railroad, where this system is in use as also it is upon the Cleveland, Columbus, Cincinnati & Indianapolis, the Chicago, Milwaukee & St. Paul, the Long Island & the Lake Shore & Michigan Southern Railroads, and on the Dunkirk, Alleghany Valley & Pittsburg Railroads where it has been in operation for about four years.

At Springfield the Board examined "the Emerson System of Car Heating" which has been for nearly five years in use upon the Connecticut River Railroad and with such success that twenty trains each way daily are so heated, including all the trains to Greenfield a distance of thirty-six miles.

The Board also examined "the Gold System of Heating and Ventilating Cars" as applied to trains of the Manhattan Railroad in New York, by which steam from the locomotive boiler carries heat into reservoirs of salt water where it is stored for use. It was evident to the Board that, when steam was admitted, the heating of the cars, and of the reservoirs would commence simultaneously and be continued until the steam was shut off, that then the heat radiating from the reservoirs must for a considerable time maintain a comfortable temperature in the apartment.

For heating horse cars by this system it is claimed that a small stationary boiler at one end of the trip (when that does not exceed two and a half hours duration) is all that is required; the cylinder reservoirs are placed under the seats thus saving the space occupied by a stove, and diffusing the heat more equally through the car.

The Gold system of car heating has been adopted by the elevated railroads in New York, by the Staten Island Rapid Transit Road, Suburban Rapid Transit Railway, connecting Harlem with Jerome Park and other parts of Westchester County, and is now on trial in the cars of the North Hudson County Horse Railroad Company, Hoboken, New Jersey. Besides the above-named systems that have been examined by the Board, the attention of its members has been called to several others, as for example, one by Messrs. Barrows and Company, No. 64 and 66 Broadway, New York, which is to use hot air from the locomotive; another by Mr. Joseph Shackelton, 41 Cortland Street, New York, for combined steam and hot air, the latter claiming to have "an automatic communication between the cars." Mr. Shackelton also proposes a plan for heating and lighting cars by electricity, using one of the axles of each car while in motion to drive a dynamo. The electricity thus generated is conducted into what is known as a storage battery, from which wires are taken to develop heat, applied to the heating of a small boiler fed from a tank above and circulated through the car in pipes similar to the arrangement now in use. The same reservoir also charges the wires for lighting. The action of the dynamos, while the train is in motion, keeps the storage battery in each car filled with a supply, which will continue the heating and lighting for several hours, when the car is not in motion. Being fully charged when a train, for instance, has reached its destination, the battery holds a supply which is retained until the car is to be heated ready for use again.

By invitation of the Massachusetts Railroad Commissioners this Board witnessed several experimental tests of the "Smith & Owen Hot Water Heater" in the presence of many repre-

sentative New England railroad men. This heater made of riveted boiler iron contained, besides the coal furnace, a steam coil so constructed as, in case of considerable concussion, to give way and deluge the fire. It was placed upright on a flat car and enveloped in shavings saturated with kerosene oil, then by the collision of another flat car driven by a locomotive, it was thrown violently off, the test being made in the yard of the Fitchburg Railroad Company in Boston. The fire therein was extinguished, and although the heater took on a rather comical expression from the indentations made in it by the banging about that it received, it proved strong enough to withstand very abusive treatment and emitted no fire to ignite the shavings.

From the careful examinations made as above mentioned; from proved statements of interested parties having experimental knowledge of these various devices, and from the testimony of all who have given the subject consideration, the members of the Maine Board of Railroad Commissioners feel constrained to say, with the utmost confidence, that the use of inside stoves or furnaces should be universally discarded for heating railroad cars while in motion, although they may be properly retained a while longer for temporary use in cases of accidental delay or obstruction to the operation of whatever may be selected to replace them. In all probability some one of these several good and practically efficient systems for procuring heat from without the passenger cars to warm them comfortably will very soon stand out so prominently from the others, in the manifest possession of all desirable as well as indispensable qualities, that no order or even suggestion respecting its adoption by anybody in authority will be required to secure it to the public use.

While from the limited time given to this examination of the several new methods of heating cars, and for acquiring knowledge as to which is, all things considered, superior, where all show such great merit and value, this Board could not determine which one to recommend or select as best. While the best minds among railroad men all over this country

and Europe are earnestly striving to develop the best and safest, any premature decision might seriously prejudice the most promising efforts in a right course. It is therefore respectfully submitted as the opinion of this Board that the several railroad companies of this State should be by law required to discard the stoves and adopt some one of the new processes for providing heat from outside *within a reasonable time.*

While the Legislative order did not refer to the lighting of cars the great danger to be apprehended from the general use of the highly inflammable coal oil is so great that the members of this Board feel constrained to utter a warning note respecting its use, and recommend the passage of an act similar to that in the general laws of Massachusetts, Sec. 172 of Chap. 112, requiring that "no passenger car on a railroad shall be lighted by naphtha, nor by an illuminating oil or fluid made in part of naphtha, or which will ignite at a temperature of less than three hundred degrees Fahrenheit."

During the progress of their examination, the Maine Railroad Commissioners received great aid and very courteous treatment from the officials of the several railroads visited, who manifested great interest in not only conveying a complete knowledge of the device specially favored by their company, but in directing attention to others in use elsewhere.

Very respectfully submitted.

JOHN F. ANDERSON,
A. W. WILDES,
D. N. MORTLAND,
Maine State Railroad Commissioners.

STATE OF MAINE.

HOUSE OF REPRESENTATIVES, March 9, 1887.

Tabled, and ordered printed on motion of Mr. RANDALL of Augusta.

NICHOLAS FESSENDEN, *Clerk.*