FORTY-NINTH LEGISLATURE.

SENATE. No. 1.

REPORT

OF THE

RAILROAD COMMISSIONERS

FOR THE YEAR

1869.

REPORT.

To the Governor:

The Railroad Commissioners respectfully submit their annual report.

Portland, Saco and Portsmouth Railroad.

This road extends from Portland to Portsmouth—52 miles. It is under lease to the Eastern and the Boston and Maine roads—the latter furnishing the passenger cars, and the Portland, Saco and Portsmouth road furnishing locomotives to haul them and freight cars. Much work has been done on this road during the season, greatly improving it. About 1,500 tons of new rails have been laid and 25,860 sleepers, 13 miles of track has been newly graveled and raised, some ditching has been done, and other general work of a gravel train all along the length of the road.

The company have 17 engines, (1 of which has been added this year); 81 long box cars, (5 of them added this year); 81 long flat cars; 3 freight saloon cars; 1 passenger baggage car; 1 smoking car; 2 eight wheeled cars, for exclusive use of Eastern Express Company.

It is an excellent road, with fine equipment and under good management. Francis Chase, Esq., is Superintendent, practical, sound and experienced.

Androscoggin Railroad.

The road of this company extends from Brunswick to Leeds Junction, 26 miles, with a branch track to Lewiston, 4½ miles. It has taken a lease of the Leeds and Farmington road, 38 miles, for fifty years, from December 1, 1865.

The present equipment of the road consists of 7 locomotives; 8 passenger cars; 3 baggage cars; 2 saloon cars; 53 box cars; 54 platform cars; 8 cattle cars; 12 hand cars; 12 shove cars; 4 snow plows.

The gross earnings of the road for the year ending June 30, 1869, were	$195,477 48
Expenses of operation were	106,367 42
Net earnings	$89,110 06

The increase of passengers over the preceding year was 7,577; the increase in freight 5,944.71 tons, and in net earnings $10,251.45. There is thus indicated a healthy and improving condition of the traffic of the road.

Sabattis bridge, to which we called the attention of the company last year, has been thoroughly repaired, and the road bed from Wilton to Farmington—about 5 miles—was early in the season put in excellent condition by ditching and ballasting anew, and raising the track.

The road was badly washed in places and several of its bridges were carried away, in part, by the gale and freshet of 4th October. But repairs were at once made so far as practicable this season, and the disasters of the freshet mastered by the officers of the road with a judgment and promptitude illustrating their fitness for their places, and entitling them to the commendation of the corporation.

It may be a little out of place to remark, that as the storm increased, the Superintendent stationed himself at Lewiston, as the point best to be in telegraphic communication with different parts of the road, and there he received from Mr. Wagg, the Roadmaster, at Farmington, at twenty minutes past 8 P. M., advices that the railroad bridge at that place was carried away, with dimensions of the timbers needed to rebuild it, and that within less than an hour after the bridge went out, the memorandum for new timber was in the hands of the millman at Lewiston.

The road appears to us now to be in a better state than ever before. It may be properly said of it, we think, that like some other roads in the State, it was originally too cheaply built, whether the fault of the contractors or the want of funds of the company, we have not enquired; but it is fast outgrowing any constitutional weakness derived from its parentage, and under the efficient presidency of Oliver Moses, Esq., of Bath, and the intelligent supervision of Arthur Brown, Esq., with its other attentive and competent officers, it has greatly improved in its condition and capacity, and is gaining, as it deserves, in popular favor.

Portland and Oxford Central Railroad.

This road, that had been in hospital for some time past, resumed business the past season. It is now completed to Hartford Centre, 20½ miles from its starting point at junction with the Grand Trunk at Mechanic Falls, and its extension to Canton, 5 miles, is partly graded and the iron purchased.

Its rolling stock consists of 2 engines, 1 passenger car, 4 box cars, 16 wood cars, 1 snow plow.

If the business of the road shall increase as its officers anticipate, a new and better equipment will soon become necessary. The road bed is in a fair state, and the rails are of good quality and in good condition, particularly the old U iron. The road requires fencing.

At our first examination of the road this season, we found the bridges at Buckfield and Sumner defective, and Pottle bridge near Mechanic Falls we were apprehensive might not be perfectly safe. We examined them all. Mr. Valkenburgh was then at work in erecting a new bridge at Buckfield, which he has since completed. It is a permanent and good structure. He also has repaired the Sumner bridge. But upon our second examination we found that nothing had been done upon Pottle bridge, to which we had called the attention of the superintendent. We gave therefore the statute notice of unsafety, and required immediate repairs. And the bridge has since been strengthened and put in a condition of safety, we think, and we are assured by the President, F. B. Smith, Esq., that a new and permanent bridge will be erected early another spring in its stead.

A brighter future is soon to dawn we trust, through a more settled and uniform management, upon this little enterprise, to make it more remunerative to its stockholders and more beneficial to the community through which it passes.

Great Falls and Conway Railroad.

A little over three miles only of this road is within the State of Maine. It commences at Brock's Crossing, upon the Portland, Saco and Portsmouth road in South Berwick, and crosses the Boston and Maine road at Salmon Falls into New Hampshire. It is largely owned by the Eastern Railroad Company, that control and manage it. The track has been graveled and raised, and is in excellent condition. A. A. Perkins, Esq., is its careful and intelligent Superintendent.

Boston and Maine Railroad.

This favorite road extends only about 2½ miles into Maine. Its rolling stock is adequate to its large business, and the excellent order of its track and bridges have been kept up in their usual good condition. William Merrit, Esq., is the efficient and experienced Superintendent.

Bangor, Oldtown and Milford Railroad.

This road extends from Bangor to Milford, about 12½ miles. The Company have relaid the past season about 60 tons of iron; have put down 3300 sleepers; rebuilt all the open culverts; strengthened bridges, and distributed a large quantity of ballast on the line. The two long and expensive bridges at Stillwater and Oldtown were very carefully examined in September. They were originally constructed of the very best timber, and they are strong and safe. The track of the road is in good condition.

The Company has added to its rolling stock, 1 saloon car, 1 box car, 2 platform cars, and new-tired 2 of its locomotives. The equipment of the road is sufficient for the business, and the engines appear without defect. The road is carefully and judiciously managed by its enterprising owners.*

Dexter and Newport Railroad.

This road extends from Newport to Dexter, 14 miles. It was opened in the fall of 1857, and has been in succesful operation since, with increasing business. The road has been well kept up in its track and equipment. It is operated by the Maine Central, under a lease for 30 years. Charles Shaw, Esq., an enterprising citizen of Dexter, is President, and Mr. Josiah Owen is its accommodating conductor and local agent.

Dexter is a beautiful village, nestling between hills, and is building up from the improvement of its water power. Its railroad facilities afford convenience to its citizens, and will induce the employment of all its local advantages for its growth and prosperity.

Bangor and Piscataquis Railroad.

This road extends from Oldtown to Dover, 40 miles. Ground was broken in its construction in July, 1868, and it was opened for passengers December 14, 1869.

* Since writing the above, this road has been sold to Messrs. Woods & Jewett of the European & North American Railway, and the track we understand is to be taken up.

The road from Piscataquis river to Dover has not been ballasted, and portions of the road below have been only partially so—the eight miles particularly next above Lagrange has been about half graveled. The track has not been brought up to grade in some places, and through two cuts it has not been brought down to grade; in other places it has not been laid in the true location of the road, but has been allowed temporarily to diverge to accommodate the trains to the gravel pits. But the road will be surfaced and placed in line as early as practicable another season.

The character of the ditching in many portions, the sleepers, and somewhat the road bed, we could not properly examine, by reason of the snow that had fallen within a day or two.

The masonry is strong, the stone work well done. The bridges are the Howe-truss, and since the very serious accident during the construction, occasioned by defective floor timbers upon the bridge at Black island, and by which several lives were lost, they have been strengthened by the placing in more and stronger timbers, and are now, we think, strong and safe and permanent structures.

The rolling stock consists of 4 engines, 3 of them new, 2 passenger cars, 1 baggage car, 38 platform cars, 2 box cars, and 10 more are under contract, soon to be delivered; 1 snow plow.

Hon. Isaiah Stetson of Bangor, an able merchant, is President of the road. Col. A. W. Wildes is chief engineer, and L. H. Eaton, Esq., who was resident engineer in the construction of the road, is Superintendent.

The prospects of this road are rather in the future than at the present. It will give development to the county of Piscataquis, and add largely, we think, within a few years to its population. It will then receive back in the freight of slate and iron, and lumber and merchandise, a remunerative traffic, that will show, we hope, the wise forecast of its projectors. In reference to the slate, as we said last year, "a dormant wealth may be awakened that, loosed from the stony embrace that holds it to the earth, shall give employment and profit to a great influx of people, and add business and growth to the communities that have favored an enterprise, one of the earliest fruits of which may be this developement." And in reference to the lumber at the foot of Moosehead lake and upon the branches of the Piscataquis, why may not the water power of the county be turned to account in manufacturing it, and the railroad transport it to market cheaper, safer and quicker than the present mode of running the logs down the

Piscataquis river and thence into the main boom, and subject to boomage, to the mills on the Penobscot? If so, we have not the data to calculate the advantage of this road in the future, but it will certainly be very great.

Portland and Kennebec and Somerset and Kennebec Railroads.

The extent of railroad operated by the Portland and Kennebec Railway Company, including the branch to Bath, is 109 miles.

The company the past season has laid 800 tons of new rails, put down 40,000 sleepers, have built many new culverts, repaired and strengthened the principal bridges, laid at the different stations new turn-outs, and built new store houses and platforms for accommodation of freight. The track and bridges and equipment of the road are in good condition.

The rolling stock consists of 18 locomotives; 286 freight cars; 10 passenger cars; 4 smoking cars; 4 mail cars; 4 passenger saloons for freight trains.

Two new locomotives are contracted for with the Portland Company, to be delivered in January and February, and more passenger cars are to be received the first of January.

This road has the preponderating advantage of the narrow gauge connection at Portland with the Boston roads. Its freight business has greatly increased, and the Superintendent informs us that he needs 100 more freight cars and 4 more passenger cars to do properly the business that presses upon him. And its enterprising managers anticipate a still larger traffic as the carrying functions of their road are augmented, and increasing travel as the pleasantness of their route is appreciated.

Judge Rice continues in the able Presidency of the road, and L. L. Lincoln, Esq., has been Superintendent since the retirement of Mr. Hatch, and is giving to it his effective personal attention.

Portland and Rochester Railroad.

The new portion of this road from Saco river to Alfred, 14 miles, was opened in the fall of 1868, and is in most excellent condition. The old portion from Portland to Saco river, 18 miles, is much worn, and when the road becomes a competing route for western travel, will require a very considerable expenditure upon it to place it in a condition of fitness and safety, adequate to greater travel and greater speed.

The Company have in use, 3 locomotives, 9 passenger cars, 2 baggage cars, 7 box cars, 33 platform cars, 6 hand cars, 2 snow plows.

The Hon. John Lynch has recently been chosen President of the Company, and Thomas Quimby, Esq., is Superintendent. Mr. Quimby is giving to the road his personal attention, and the President will be able to do so by and by, we hope, that the road and its enterprising stockholders may have the advantage of his eminent ability.

The extension of this road from Alfred to Rochester, 19 miles, was put under contract in September, 1869. The contractors have a large force at work, and the Directors expect the road will be opened by November, 1870, through to Rochester, 51 miles from Portland. It will then bring a large and new business to Portland. And at our last examination of this road we were happy to learn that negotiations were on foot proposing a connection at Rochester, between the Portland and Rochester road, and the Rochester and Nashua, and Rochester and Concord roads. The Portland and Rochester road would thereby become a part of a direct and important route between Portland and the South and West.

Maine Central Railroad.

From Bangor to Danville Junction, 110 miles. The Company the past season have laid some 1,100 tons of new rails, relaid some 400 of old ones, have put down about 40,000 new sleepers, new surfaced about ten miles of track, and replaced the old pile bridge over the Souradabscook by a new framed bridge upon stone abutments, and have at all times kept up their road in its customary first rate condition.

About 30 cars have been added to the stock in the merchandize department; one smoking car, two new passenger cars, and one new engine. And the rolling stock was never in a more effective state.

In all respects, therefore, in track and equipment, the Maine Central is a first class road, well managed and increasing in its business, safe, and entitled to the confidence of the public.

Mr. Dunn is President of the road, and interests himself much in its success. Hon. Edwin Noyes continues in the superintendency. Mr. Noyes is at home in all departments of railroading, and is giving to the Maine Central the advantage of his unremitted attention and large experience.

Atlantic and St. Lawrence Railroad.

This road extends to Island Pond, 149 miles. The portion of it within this State is 82 miles. It was on 5th August, 1855, leased to the Grand Trunk road of Canada for 999 years, and is more generally spoken of as the "Grand Trunk," as if it were technically a part, as it is practically of the Canadian road.

The stock assigned to the Portland and Island Pond division of the Grand Trunk consists of 17 passenger cars, 7 baggage cars, 2 smoking cars, 43 engines, 7 snow plows. Freight cars upon the Grand Trunk are not assigned to special sections. Most of the passenger cars have had monitor tops put on them, and several have had new seats, and been newly upholstered. Seven of the engines are new; from the Portland Company's Works, and of the largest size.

This road has been materially improved the past season. The short pieces of rails referred to in our Report of last year have been taken out, and the rails now are generally secured at joints, and spiked. Thirteen miles of rails within the State of Maine have been relaid; 30,000 ties put down, and the track lifted, surfaced, and ditched. Yet it requires much more new iron; some new sleepers, and new ballasting. The bridges are of the best material and best workmanship, and kept in most excellent condition.

And the public will be glad to be assured by the Hon. Richard Potter of London, President of the Grand Trunk, and by C. J. Brydges, Esq., Managing Director of the road in this country, that the policy has been agreed upon by the Directors, to greatly improve the road another year, and to increase its carrying functions. It is said 5000 tons of steel rails are to be laid in the spring at points where the traffic is heaviest; that 600 new freight cars are to be placed on the road, and 300 to be added to the changeable gauge; freight equipment, and corresponding improvements in other respects be made.

The Grand Trunk has added business and commercial importance to Portland, its ocean terminus, and is the cheapest and most direct route from Maine to the West for travel or freight. Maine will therefore look forward with interest to the fulfillment of the assurances of improvement given by the President of the road in his recent visit to the State, and will be disappointed, if these expectations, demanded alike by the business of the State, and the interest of the road, are not realized.

European and North American Railway.

This road is completed to Mattawamkeag, a distance of 58 miles. About 56 miles more will extend it to the boundary. It will there connect with the western extension of the European and North American Railway of the Provinces already opened—88 miles—to the city of St. John. The distance thence to Halifax is 262 miles, and this eastern extension is also completed, with the exception of the link between Dorchester and Truro, a distance of about 65 miles, and that is under contract. So that by the summer of 1871, the public may be assured of continuous railway communication between Halifax and Bangor. Thus Halifax and San Francisco will be connected by rail, and Maine, with this thoroughfare of continental travel and traffic through her borders, be brought in nearer proximity to commercial centres. She will thereby, too, become less provincial in her social and business relations, and may reasonably anticipate a new growth to her industries and an enhanced value to her real estate. The road so far as opened has been well made. It is a first-class railroad; and the business upon it already assures its success. Its equipment will require enlargement as its traffic increases.

Its present rolling stock consists of 6 locomotives; 7 passenger cars; 4 baggage cars; 75 platform cars; 28 box cars; 2 snow plows.

The road is under able management. G. K. Jewett, Esq., of Bangor, is President, and Hon. Noah Woods is Treasurer and President of the construction company. J. M. Lunt, Esq., is Superintendent. Mr. Lunt brings to the discharge of his duties the advantage of much familiarity with the workings of Western railroads, and when this road to the boundary and its complement to Halifax are opened, he will have a field international in its business and broad enough in its extent for his largest experience.

We hope the general government will give early consideration to the claim of the European and North American Railway Company, as assignees of the debt due from it to Massachusetts and Maine for monies advanced in the war of 1812. The commercial advantages of the road may constitute no claim upon an exhausted treasury, but this road is as much a link in the trans-continental highway as is the Union Pacific, and is upon precedent and policy alike as much entitled to governmental favor. But if it limits its claim to the payment of the balance of a debt long overdue, it

certainly will deserve no disfavor at the hands of the guardians of the treasury if it asks so much less than others.

The Calais and Baring and Lewy's Island Railroad

It is not our duty to examine. One of our Board, however, had the pleasure of passing over it in October. Mr. Porter, of St. Stephens, a gentleman of rare business capacity, is President, and Mr. Sawyer of Calais, is the obliging and experienced Superintendent.

There are several other roads under construction in the State.

The Belfast and Moosehead Road, that starts at Belfast and connects with the Maine Central at Burnham, has had a large force upon it during the season. It will be opened another season.

The Somerset Road has had much work done upon it during the year. It connects with the Maine Central at West Waterville.

The Knox and Lincoln Road is under good progress. It has encountered some deep cuts and expensive bridges in its course, that have delayed its completion. It passes through rich and populous towns, and when opened will be remunerative to its enterprising projectors.

The Portland and Ogdensburg Road has been commenced, and is being pushed forward by its able President and engineer with energy and progress. This road when opened will become a great thoroughfare of travel and freight to and from Portland. It is a railroad development that evidences the enterprise and wealth of the citizens of Portland, and gives assurance of growth to the State.

Other routes have been examined and other roads projected, for which charters may be asked at the coming session of the Legislature.

Accidents.

Several accidents have occurred upon the railroads within the State during the year.

Saturday, July 31.—John Gannon, an old gentleman, nearly eighty years of age, was run over by the 7.10 A. M. train from Portland, about two miles below Danville Junction. He was sitting, probably asleep, on the track. The engine-man supposed him to be one of the station men doing something to the fish-plate, but instantly upon discovering his mistake, did all in his power to prevent the casualty. The man was carried to Auburn for medical aid, but died.

Daniel Pulling of Lisbon, August 2d, 1½ P. M., was on the down train at Yarmouth for Portland. He left the train for some purpose and passed over the main track, and another train approaching immediately afterwards, it is supposed he mistook it for his train, and attempted to catch hold of the engine, or that he attempted to jump across the main track to the siding where he left the car. He was thrown violently backward upon the track, and died of his injuries the same afternoon. A jury of inquest entirely exonerated the employès of the road from blame.

J. Finnegan, a deaf and dumb man, was killed on Front Street, Bangor, on track of the European and North American Railway. No blame was attached to the engine-driver that we can learn.

Saturday, June 5th, below New Gloucester station, George Curtis, a deaf and dumb man, while walking on the track was struck by engine No. 165. One arm and one leg were broken, and he was otherwise injured, and died. The coroners jury acquitted the engine-driver of all blame.

Charles C. Brown, telegraph operator at Lewiston, in jumping from the car at West Waterville, Monday afternoon, August 17, 1869, broke one of his legs below the knee joint.

Shepherd Brann, an employee of the Maine Central, was killed in attempting to pass between the platform and a freight car.

A very serious accident occurred to the passenger and mail train of the Portland, Saco and Portsmouth Railroad that left Portland at 8.45 A. M., May 12th, as it was approaching Hayes' crossing, about one mile this side of South Berwick Junction. The engine-driver discovered there was something wrong in the rails a short distance ahead. He reversed his engine and sounded the alarm; "but the brakemen had hardly made one turn of their brakes, before the engine ran off the track, the baggage car, mail car, smoking car and two passenger cars following it. The engine ran along some little distance, until it came to a culvert, when it went up and over, smashing it badly." Mr. Freeman Lamphrey, baggage master on the Eastern Railroad, was terribly injured and lived only about one hour. Albert Dodge, the engine-driver, was badly scalded. Joseph Reed and Charles Cram, brakemen, were badly injured. Mrs. E. A. Stevens of Saco suffered a fracture of both bones below the knee. One gentleman had his leg broken, and several others received bruises. Two causes of the accident are assigned. One, that the rails had been tampered with. "The spikes in the chairs of two of the rails were found drawn and

thrown aside, and the rails appeared to have been moved." The other, that the extreme heat of the day before and that morning had so expanded the rails as to throw them out of line. It is an important fact bearing upon the cause of the disaster, that the 6.15 A. M. train from Portland had passed over the road the same morning in safety. Mr. Corser, of our Board, who examined the track the next morning, and for a long distance on each side of the place of accident, and made all enquiry about it that he could, found the rails so closely jointed, that he was of opinion that expansion was the true cause.

Wednesday, April 7, at 2 P. M., locomotive 140 on the Grand Trunk exploded at Danville Junction. The engine at the moment of explosion was detached from the freight train that it had just brought from Portland, and was in charge of the fireman, Mr. M. Latham, the engineer having just stepped into the station. The boiler exploded, completely demolishing the locomotive. The fireman, Mr. Doyle, was badly scalded. Mr. George Cummings of St. Johnsbury, Vt., and Mr. Charles Robinson were badly injured by flying fragments of iron, and others received less serious bruises. It is wonderful that the explosion under the circumstances did not prove fatal to many lives. As is usual in such casualties, various causes are assigned for the disaster. The manner of the explosion, —the entire destruction of the boiler—tends to show that it was not due to local defect, nor "to general weakness, else the boiler would not have withstood such immense power as was evidently expended." The cause of the explosion may have been, that the engine had been standing some little time without any expenditure of steam, with the water low in the boiler, and the fire still continued in the fire-box, thereby rapidly generating steam to a greater pressure than the boiler could bear.

Mr. Needham, brakeman on freight train of Grand Trunk, 19th of November, in attempting at Gilead, while the train was in motion, to pass from the tender of the engine to car, fell between tender and car. The cars run over him, causing death instantly.

September 20th, John McCarty of Lewiston, as he was stepping from the main track at South Paris to the siding, to get out of the way of a passenger train, got in front of an engine coming out of the engine house, and was hit and so seriously injured that he died the same day.

December 23d, Michael Brannan, belonging in Boston, in attempting to get on to the train at Kennebec station at Portland, after

the cars had started, slipped and fell beside the track, his right arm falling across it. The wheels of the train stripped off all the flesh from the elbow to the wrist, but broke no bones. Other less serious accidents have occurred.

Chapter 51, sec. 48 of revised statutes provides, to avoid collisions at railroad crossings, that "when a railroad crosses another railroad on the same grade, every engineman on both, when approaching the point of intersection with an engine, with or without a train, shall stop his engine within 500 feet of such point, and before reaching it, and shall not pass it at a rate exceeding eight miles an hour," &c.

The distance of 500 feet is so great, that it would be quite practicable for an engine driver to get up, within the 500 feet, and before reaching the point of intersection, a greater speed than eight miles an hour, and it is so great too, that in the night or in a fog he might not be able to see far enough beyond the intersection either upon his own road or the crossing one, to discover whether an engine was approaching or not.

If the engine driver were required to stop within 150 feet of the crossing, he could not well get up a speed beyond four or six miles an hour at the point of intersection, and the chances of his being able to see an approaching train or an engine resting beyond, would be so much greater.

Whether this amendment would not be well therefore, may be worthy the consideration of the railroad committee of the legislature, and whether at crossings often passed, it would not be a wise precaution, also, to require signals to be given *before* the starting of said stopping trains, by flag or board or other distinct sign by day, and by lights at night.

We still think, as advised in our report last year, that there should be vested somewhere a power of interference, more effective and summary than the railroad commissioners now have, to stop the running of passenger trains over a road that by defective construction or sudden disaster or long use without adequate repairs, has become dangerous to pass over, until such road shall be put in in a condition of safety.

The Legislature at its last session passed the following resolve:

"That the railroad commissioners are hereby authorized and requested to investigate the railroad system of gauges in this state, and to examine into the propriety, expediency, feasibility and expense of providing by law or otherwise, for a uniformity of

same on all roads constructed or to be constructed in this state, and to make such suggestions and recommendations in relation thereto as the public welfare may appear to demand, and report to the next legislature."

We have been in doubt about the duty imposed by this resolve, and thought at one time of visiting the different roads of the country, with a view of obtaining all the information that could be had upon the practical workings of different gauges, and of then submitting to the Legislature a report as exhaustive as we were enabled to make it of the subject matter of the resolve. But this would have taken much time and been attended with very considerable expense, and we have inclined, therefore, to wait more distinct legislative instructions before incurring expenses for the State, that may not have been contemplated in the passage of the resolve.

It is certainly to be regretted that we have more than one gauge in the State. And if early in our railroad legislation there had been passed a law requiring the same gauge upon all roads in the State, much expense of equipment would already have been saved to the roads and greater dispatch, convenience and facility in the moving of freight have been secured to the public. Uniformity of gauge would afford convenience to manufacturers of railroad equipment. It would enable shippers of freight to land it any where in the State reached by railroads, without the inconvenience of unloading and reshipping. It would in case of disaster, sometimes, and in case of pressure of freight and travel, always, upon any given road, enable another road to afford relief and assistance, and if we may regard the contingencies that our border position may in the long future, possibly, give rise to, it would enable, in case of emergency, the concentration of all the motive power of all the railroads in the State upon any given road destined toward any given point of attack or defence.

Now oneness of guage, whether the broad or the narrow guage were adopted, would give us these advantages as within the State. But it is the narrow guage that would connect us with the other States of New England, and with the South and the West. It would have therefore this advantage to Maine, that by it the shipper of freight here could send his merchandise through by rail to New York and St. Louis, and San Francisco, without the breaking of bulk—an advantage every day hereafter to be appreciated, but to be more valued than now, perhaps, by and by, when the develop-

ment and improvement of our great natural resources shall have added so largely as we feel sure they will to our artisans and manufacturers, and millions of dollars, certainly, to our products. It should be stated however, that it is the broad guage that connects us with the Provinces, our commercial relations with which are already very great, and which a closer alliance, quite often of late foreshadowed, would greatly augment.

But it is not for us now to advise the adoption of the one or the other guage. There are great difficulties in the way. Legislative wisdom will decide whether it is now practicable without too great a sacrifice, or if not, whether legislative coercion or voluntary corporate action induced by private interest, with proper legislative aid, may not bring about the desired end with less disturbance of private and public rights.

And yet in reference to roads hereafter to be built, it should be observed that the narrow guage is cheaper—cheaper in construction and in equipment than the broad guage. The difference in the construction of the track is something, but in the equipment it is very considerable—say 10 to 15 per cent. And in capacity there is quite as much advantage of the narrow over the broad guage as there is in the equipment. An engine of a given capacity will haul over a narrow guage road, other things being equal, 10 to 15 per cent. more of freight, than an engine of the same capacity will haul over a broad guage.

Upon the Ohio and Mississippi road a guage of 6 feet, and on the Indiana and Cincinnati road with a guage of 4.10, the late very able Superintendent, after long and great experience in running the two roads, became satisfied that there was 20 per cent. difference in favor of the 4 feet 10 inches guage over the 6 feet, in capacity of locomotives, and in cost of equipment. The difference of guage was there 14 inches—our difference is 9½ inches. If therefore, the advantage would continue rateably, the difference in favor of the narrow here would be 13 4-7 per cent. And there would be, we think, about the same difference in favor of the narrow guage, in the friction of rails, and in wear and tear of locomotives and cars, as there is in the motive power and equipment. These are considerations certainly of much weight, and if we were beginning our railroad system, might be decisive in our option of guages.

The expense of changing the gauge upon our roads would be about $150 per mile. And the expense of conforming the rolling

stock to the gauge would, of course, depend upon the amount of equipment. It would not be very considerable in passenger and freight cars, but might be $1,500 to $2,000 to an engine, even if always practicable at all.

The broad gauge of this State is 5 ft. 6 in., and the narrow gauge is 4 ft. 8½ in. And the two gauges are not very unequal in number of miles in this State. It may be well for us to give the details upon this point.

	Gauge.	Miles.
Portland, Saco and Portsmouth Railroad	4 ft. 8½ in.	52
Great Falls and Conway	" "	3½
Boston and Maine	" "	2½
Portland and Rochester	" "	32
Portland and Kennebec	" "	100
Bath Branch	" "	9
Androscoggin	" "	64
Lewiston Branch	" "	5
Bangor and Oldtown	" "	14
Calais, Baring and Lewy's Island	" "	22
		304
Lincoln and Knox (building)	" "	45 miles.
Portland and Rochester (building)	" "	16 "
Portland and Ogdensburg (building)	" "	50 "
		111
		415
Grand Trunk Railroad	5 ft. 6 in.	82
Maine Central	" "	110
Newport and Dexter	" "	14
European and North American	" "	57½
Bangor and Piscataquis	" "	40
Portland and Oxford Central	" "	22
		325½
Portland and Oxford Central (building)	" "	5 miles.
Belfast and Moosehead (building)	" "	33 "
European and North American (building)	" "	22 "
Somerset (building)	" "	34 "
		94
		419½

This difficulty of difference of gauges has been attempted to be remedied by placing down a third rail, and also by the use of an

adjustable axle. The third rail has been used on the Great Western Railway of Canada successfully, and the superintendent finds no "practical difficulty in working the mixed gauge of 5 feet 6 inches and 4 feet 8½ inches, as laid down in the Great Western Railway, and which has now been in operation since January, 1866. In my opinion," he says, "it is a far more economical and practical plan than any device for changing the gauge of cars. In our case, when we have laid down the third rail to be in keeping and uniformity with the New York Central and Michigan Central Railways, and other connecting lines East and West of us, our road is thrown open to the reception of the entire car stock possessed by those roads, which, if we adhered to the broad gauge and had not laid down the narrow gauge rail, and constructed cars the gauge of which could be adjusted to either the broad or narrow gauge, we could only receive from and hand to these the special kind of car of adjustable gauge, the number of which would be very limited in comparison with the aggregate car stock of all our connecting railroads. We can work narrow gauge and broad gauge cars together on the same train, and neither in the summer nor in the winter have we experienced the least difficulty in our running arrangements."

Other roads, however, have experienced difficulties from the use of the third rail, particularly at crossings and turn-outs and depots. And it can hardly be otherwise than a serious objection, however practicable its use may be, that the draft is not at the centre of motion, but is one side of the centre of the rails upon which the cars are hauled.

The expense of laying the third rail would be the cost of the iron—say $4,000 per mile, and $100 per mile for laying, and about $180 per mile for frogs, switches, spikes, plates and bolts.

The Grand Trunk road of Canada "has found the changeable gauge cars exceedingly well adapted to the purpose for which they were constructed, and we are daily running our freight from Chicago to Boston, and we find no trouble or difficulty worth mentioning; the slight defects which are incidental to all new machinery are rapidly disappearing, and the next lot of cars (which will soon be built) are expected to be quite perfect. The Grand Trunk is largely benefitted by these cars—we have direct access to the best paying freight, from which we were entirely cut off, and can compete on equal terms with any railroad or any combinations both as to speed and safety of transit, and cost of transportation. We

have an apparatus applied to some of the changeable gauge cars by means of which the change of gauge is effected without having to stop the cars." The Boston and Lowell and Nashua roads have tried the changeable axle, and approve of its use.

So, though the third rail and the changeable gauge have both been tried successfully under favoring circumstances, they have not yet, we think, been sufficiently used, and under conditions sufficiently varying to justify us in recommending the legislature to enforce the adoption of the one or the other as a remedy of the evil of two gauges.

A. W. WILDES,
S. H. BLAKE,
S. T. CORSER.

BANGOR, December 31, 1869.

STATE OF MAINE.

IN SENATE, January 7, 1870.

On motion of Mr. LINDSEY, laid on the table, and one thousand copies ordered to be printed.

SAMUEL W. LANE, *Secretary.*