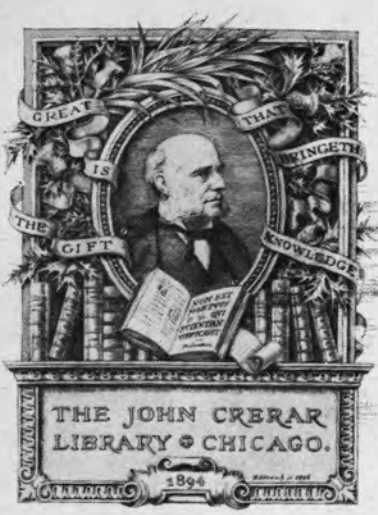

# REPORT OF THE ENGINEER

ON THE

# ROUTE SURVEYED

FOR THE

# NORTHERN RAILROAD.

# REPORT OF THE ENGINEER

ON THE

## ROUTE SURVEYED,

FOR

# THE NORTHERN RAILROAD,

BETWEEN

## CONCORD, FRANKLIN AND THE CONNECTICUT RIVER

AT

## LEBANON, NEW-HAMPSHIRE,

## 1844.

MANCHESTER:
WETMORE & WALLACE, PRINTERS.
No. 6 Union Building, Elm St.

1844.

# Railroad Meeting.

At a Railroad Meeting at Lebanon, N. H., held October 10, 1843, chose

Hon. ELIJAH BLAISDELL, of Lebanon, President.

William Kenrick, Esq., of Lebanon, } Secretaries.
William H. Duncan, Esq., of Hanover, }

*Resolved*, That a Committee of one from each Town on the Route, be appointed to procure a survey of the Railroad Route from Franklin to Lebanon, of sufficient accuracy to ascertain the distance, grade and probable expense of building the Road; also to assist the Engineer in procuring such statistical information as he may require to make out a report to be published as soon as practicable, after making the survey.

*Resolved*, That a suitable person be selected to go through the whole Route from Concord to Lebanon, and an assistant appointed in each Town through which the Road may pass, to accompany him through such Town, to procure of each landholder through whose land the Road may have been surveyed under his own signature, his price for the land required for said Road, or his consent in writing to have the land appraised by fair and intelligent men to be agreed upon by the parties; and that the Committee appointed under the first resolution, be the assistants mentioned in this resolution.

*Voted*, That Elisha P. Liscomb of Lebanon, Caleb Merrill of Franklin, Joseph C. Thompson of Andover, James Smith of Danbury Jesse Cass of Grafton, Zenas Whittier of Orange, Sylvester Gould of Canaan, James Willis of Enfield, be the Committee and Assistants mentioned in the first and second resolutions.

*Voted*, That Col. Colbee C. Benton, be appointed to go through the whole Route, with the Engineer, and procure the terms of the Landholders.

# REPORT.

MANCHESTER, JANUARY 20, 1844.

*To the Committee for a survey of the Route for a Railroad from Franklin to Lebanon.*

GENTLEMEN:

In obedience to your directions, I have surveyed the route for the proposed NORTHERN RAILROAD, from Concord to Connecticut River, and now have the honor to submit a Report and Estimate of the same.

In submitting this for your consideration, it may be well to premise the description of the line surveyed, by a few remarks upon those features, of the intermediate country, which must influence, in a great degree, the character of the route, which connects these two points. It is evident from their situation,—one in the valley of the Merrimack, the other on the Connecticut river, that the route must necessarily continue in the valley of their tributaries, in order to attain the height of land or summit, dividing the sources of those rivers, on the most feasible ground. It will be seen by an inspection of the map of the country, that several lines present themselves, some of which have been heretofore examined and surveyed, for a communication between these places. Perhaps it would be proper here to mention them, as it is probable that, some of these at least, would be more mi-

nutely examined or surveyed, in order to decide upon their comparative merits, previous to a final *location* of the proposed Railroad.

The southern line passing in the vallies of the Contoocook and Warner rivers to Sunapee lake, then by Sugar river to the Connecticut at Claremont, or from the Sunapee lake to Enfield pond, then down the Mascomy to Lebanon. The northern continuing up the Merrimack to Plymouth, then by Baker's river and the Oliverian to Haverhill. The middle by the valley of the Contoocook, Blackwater and Smith's rivers, then by the Mascomy to the Connecticut. The route surveyed continues in the valley of the Merrimack to Franklin, then by Mill Brook to Andover and in the valley of the Blackwater passing through Wilmot and Danbury to Smith's river, then following its course through Grafton to the summit in Orange, then down the Indian river to Canaan, then by the Mascomy to Enfield and to the Connecticut at Lebanon. The topographical features of the country, through which this route passes, are such that, it must follow nearly the course of the rivers, which necessarily makes the route in its general course meandering and circuitous, in order to select the most favorable ground for construction. It is not presumed or to be expected that, in a preliminary survey through a country like the one described, the line first selected is in all instances the best that could be found, but that it could be much improved upon a resurvey or location.

I will now proceed to give a brief and more particular description of the line surveyed. It may be proper here to state, that a Plan and Profile of the route on a large scale is in progress but not yet completed, upon which is deliniated the line and also exhibiting the general topographical features of the country in the vicinity of the route, and will hereafter be laid before you. Annexed to this Report is a lithographic map showing the general course of the route and the towns through which it passes, also the comparative grades on the line.

That portion of the line between Concord and Franklin was surveyed in October, 1842, and between Connecticut river and Franklin in October and November, 1843. The survey commenced at the Concord Railroad Depot in Concord, and passing easterly of Main street, on the edge of the high land and crossing Horseshoe pond, then continuing on the intervale, which will require an embankment above the freshets which occasionally overflow them, to where the line in a very direct and level course approaches the Merrimack river. At this point, it will be necessary to protect the embankment by a rubble wall.

Thence along the intervale, crossing the brook from Penacook lake, and on favorable ground to Varnum's eddy immediately below Sewall's Falls. Here the line crosses a point of the high ground and near the river in its course, and will require a river wall for a short distance to prevent the action of the water. From this point the line turns and passes easterly of a direct course, and along the valley of the river, to where it twice crosses the present course of the river. At this place the river makes a very short turn—the west bank being high, it is constantly liable to the action of the current of the river, which causes it to slide, and would render it difficult to construct a road bed without great expense. Therefore it is proposed to change the course of the stream, by cutting a new channel easterly of the line where the intervale is very narrow, and through which the river will soon find its way without aid, as frequent freshets remove the banks there and deposit it in other places. I will here state that another route has been examined which avoids this turn in the river. The line would be more direct by keeping westerly of the one surveyed and on higher ground near the West Village in Concord and crossing the Contoocook river near the Factory Village in Boscawen, which will require a less expensive bridge than the crossing at the mouth of the river, and would also better accommodate the business in that vicinity. The line as surveyed continues on the

intervale near Rolfe's house and crossing Contoocook river at its entrance into the Merrimack. The most favorable crossing at this place is upon the Dustan island and will require 400 feet of bridging. This place for crossing is more expensive than the one before mentioned, as it will require a longer bridge and a foundation prepared by piling, while at the other crossing there is solid rock foundation, which is desirable upon a river of this magnitude.

Then the line by a succession of excavations and embankments continues to where it again passes near the river, and at which point the other line mentioned would intersect it. The route then is on the edge of the plain east of Boscawen Village, and on broken ground it crosses the brook and intervale by an embankment averaging 15 ft. in height. From this place the line continues higher above the river and near its bank, and after passing Plumer brook and on very favorable ground, the line approaches the road near Gerish's house. The route is more direct here to keep west of his house, but may be on equally good ground easterly and not interfering with it.

Thence crossing Stirrupiron brook by a bridge 40 feet in length. From here the route is between the road and river, and in some places it may be necessary to change the location of the road as now travelled.

Then the line continues near the river to opposite Burley's house. The route the entire distance from Concord to this point is very level, the grade not exceeding 15.84 feet per mile, and requiring comparatively light excavation and embankment.

Thence we cross the Concord road and in a straight line keeping westerly of the same to near the house owned by Hon. Daniel Webster, when it again crosses the same road, then the line is very near the river and road for some distance, and the ground is generally higher near the river than the line below this point. From this place we take advantage of the rising ground in order to attain the height of Mill brook, by which

the route leaves the valley of the Merrimack, and in the course crosses the road about half a mile below Franklin Village, keeping on the slope of the hill westerly of the village.

The most favorable ground for a depot and for the convenience of the business, seems to be in rear of the Academy or between that and the road below, which however would depend upon the quantity and terms of the land procured for that purpose. The route thus described is very feasible for the construction of the road, the soil consisting mostly of sand is very suitable for the road bed, and all the necessary materials for construction are abundant and can be obtained at very reasonable prices.

From Franklin the route takes a more westerly direction and passing from the Merrimack and pursuing the course of Mill brook and along the westerly side of Chance pond. Here the country presents a different aspect, the hills being more abrupt, it will require a greater inclination than the line generally.

It will be necessary here to assume the maximum grade on the line of 52.80 ft. per mile for about five miles to overcome the summit between the Merrimack and Blackwater. The line in its course crosses the stream six times between Franklin and East Andover.

Thence taking a more southerly direction to pass the south point of the Ragged mountain, we cross a neck of Loon pond and the plain southerly to the summit near Cilley's house. From here we descend to the valley of the Blackwater, which is remarkably level, the difference of grade being only 45 feet in a distance of seven miles, and most of it a perfect level.

The route crosses to the westerly side of the 4th N. H. Turnpike near Clough's tavern and continuing on the plain west of Andover Village, and by a succession of excavation and embankment, which will be required in consequence of the broken nature of the ground in order to reduce it to a uniform and level grade. Thence the line crosses the Blackwater river twice

near Joseph C. Thompson, Esq's., which cannot well be avoided, as the river here takes a very short turn. Thence passing near the Potter House and continuing westerly of the turnpike to Edson's. From this point the line takes a more westerly direction, crossing the 4th N. H. Turnpike near the junction of the Grafton turnpike and keeping westerly of the latter and passing near the east shore of Eagle pond in Wilmot.

Near this three streams unite, forming the Blackwater, and the line continues westerly of the turnpike and about half a mile easterly of the main stream, and then pursues the valley of the North Branch. In ascending from this point the line crosses the stream three times and passes to the east side of the turnpike near the Gulf, so called, where the stream makes a sudden turn and falls very rapidly. It will require the maximum grade of 52.80 ft. for about two miles to attain the summit in Danbury.

The passage from the Blackwater to Smith's river is rendered very easy by a remarkable depression or gap, and a summit may be avoided by an embankment of an average height of 15 feet across the valley of Smith's river and continuing a level grade for more than three miles.

The line continues very level, crossing the river twice in its course through Grafton, with a difference of grade of only 20 feet in about seven miles. The line was surveyed near Grafton Centre. I would say that there is a route that was examined keeping east through a valley which would shorten the distance about a mile, but would not be so level as the present route. Then the line continues near the course of the stream to about a mile below Tewksbury's Mills. Then the rise is more rapid, passing near the mills mentioned and on the easterly side of the pond by crossing the stream and a cove in the pond near the turnpike, thence to the Orange summit.

In approaching the summit from Tewksbury pond, the route is more rugged, and will encounter some

rock excavation and a high embankment in crossing the ravine immediately above the pond, to reduce the grade to the maximum of 52.80 per mile. The height of the summit according to the survey is 778 feet above the track of the Concord Railroad at Concord, and 682 feet above the Connecticut River on the day of the survey. The most favorable passage of the summit is near the Grafton turnpike and will require a cut of 30 ft, mostly of rock, about 1200 ft. in length. There is a bog or swamp on the summit, which from appearance may extend in depth nearly to the grade and will reduce the amount of rock excavation.

Having crossed the summit the route enters the valley of Indian river and pursues it downward, passing westerly of Mud pond to the Mascomy, which it crosses near the turnpike, then again crossing the river, we approach a more rapid descent in the river at Welch's mill's; which may be overcome by a grade of 52.80 ft. per mile and by an embankment below the mills where the line crosses the river. The line might be on the north side of the river at this place, but not so straight as the one surveyed. From thence we arrive at the extensive meadows in Canaan and passing in a very straight and level course, by an embankment sufficiently above the surface to keep clear of the water, which occasionally overflows them. After crossing the meadow, the river is more rapid near Campbell's mill's, also crooked immediately below; the line would be more direct to keep on the north side of the river after passing those mills and crossing it again, and continuing south of the river, until we arrive at Enfield line.

Here the line crosses the river passing through a point of high land, and then enters upon another extensive meadow similar to those above, which it traverses in a straight and level course to near Currier's mill—then we descend more rapidly to the Shaker mills at North Enfield. Passing on the west side we cross the river below the mills and arrive on the north shore of Enfield pond at Beaver point.

Here several lines were measured by triangulation, crossing the pond—the shortest being 700 feet, and the average depth of water was 28 feet. It will require here a pile bridge about 300 feet in length, and the remaining distance may be embankment with rubbling upon the sides to protect it from the action of the water. Then the line is along the south shore of the pond to East Lebanon. A route may be selected around Beaver point and on the north margin of the pond, which avoids the crossing of the pond, and would improve the line by keeping on the north side of the river near Willis' mills, but it would not be so direct as the one surveyed.

From the outlet of the pond the river falls more rapidly, the valley being contracted, its direction serpentine, and the banks at a few narrow passes are very abrupt, consequently it will be more difficult of construction. The course of the river may be turned in some places and thereby dispense with the frequent crossings that would otherwise occur by a direct course. In some instances a bank wall will be indispensable where the line is immediately on the shore of the river. The line in its course between the pond and Lebanon plain, crosses the river four times and will require bridges of about 60 feet span. Lebanon Village can be approached by different routes and the location of the line would depend much upon the comparative expense of construction, damage to estates, and terms of land to be procured sufficient for a depot.

A route may be selected passing on the north side of the river, and thereby save two bridges. Also passing over the plain through the south part of the Village and crossing the river below the falls, or the one surveyed keeping near the south side of the river and crossing it near the upper bridge in the Village. As before stated, the adoption of the line here, would be influenced in a great degree by the accommodation of the great amount of business which must from its situation be concentrated here, and other circumstances which would be considered previous to a final location.

The line from here gradually curves around the brow of the hill on the northerly side of the river through the Village, crossing the turnpike pursues a course on the most favorable ground, in order to make the descent as easy as possible. From the rapid and circuitous course of the river, and the surface of the country being much broken by protruding hills and deep ravines, the line will necessarily be much curved with steep grades and more expensive to the Connecticut river than other portions of the route. Yet it appears more favorable than was anticipated, and the line could be much improved in the location, particularly where it crosses the plain near Potter's; also at the Cambridge mills, by keeping nearer the river—and reducing the amount of excavation at this place. In approaching the valley of the Connecticut the Mascomy descends more rapidly, and instead of following it to its entrance to the Connecticut, the route leaves its vicinity and pursues a more northerly course through the Basin, so called, and which from its appearance, was formerly the bed of the Mascomy. In passing from this, we encounter a high sand bluff and arrive immediately upon the east bank of the Connecticut river.

There are two points for crossing Connecticut river; one below the mouth of White river, and the other immediately above Lyman's bridge. At the former it will require a bridge of 500 feet, and at the latter point one of 400 feet in length. The location of the bridge will depend upon which side of White river, the "VERMONT CENTRAL RAILROAD" is located, in order to connect with it; should the upper crossing be adopted, the ground is more favorable to pass to the east side of the main road, and recross it near the hotel, which would make the distance about half a mile more than the lower line. A route was examined crossing the Connecticut near Hanover, by leaving the line about a mile easterly of Lebanon village and passing in the valley of Mink brook. The ground is very favorable on this line and the bridge at the Connecticut would be less expensive than below; but it

would increase the distance of the Road, should it be extended up the White river;—there are, however, other routes in connection with this which are said to be feasible, but it was not deemed necessary for present purposes to survey them. The entire distance surveyed, from Concord to Connecticut river, is 70 miles. The route as before mentioned by the Blackwater, through Boscawen and Salisbury to Andover, would diminish the distance about five miles and the grades would be less inclined; but the business of this route would not be so extensive, as on the one by Franklin; which would be more convenient for Meredith, Plymouth and other places in that vicinity.

The route is much more favorable for the location of a Railroad, than would be generally supposed, from the appearance of the country; and in many places the valleys and depressions among the hills appear as though purposely formed for the construction of this road. The materials for graduation are of easy access, and the comparative small quantity of rock excavation, except at the summit, renders the expense of grading less than was anticipated. Good rift granite for masonry, and also inexhaustible supplies of the different kinds of lumber, suitable for the superstructure, bridges, &c., may be found in the vicinity of the line, all of which can be procured at low rates. The curves may be limited to those adopted upon other roads in operation.

Having thus given a description of the location and character of the route, I will now proceed to state the manner and cost of construction. In the following estimate for grading, the computations are made for a road bed for one track, 20 ft. wide in excavation in order to drain the road, and 15 ft. wide on the embankment, with the usual slope of 1 1-2 to 1—and 1 to 5 in rock cutting. Where the material is not suitable for the road bed, one must be prepared by excavating to a sufficient depth, and filling it with sand or gravel. The estimate for the superstructure, is based upon the most approved rail of the I pattern, 18 ft. in length and

weighing 56 lbs. per linear yard, with cast iron chairs fitting closely to the rail at the joints, and weighing 15 lbs. each, the rails and chairs at the joints to be firmly spiked to sleepers 7 ft. long and 6 in. thick, placed upon longitudinal sills 3 by 8 ins. laid upon the road bed.

TABLE, showing the divisions, distances and estimated cost of construction.

| Division. | From | To | Length in miles. | Grading. | Masonry | Bridging. | Superstructure and Turnouts. | Depots, fixtures, and fencing. | Total. |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Concord | Franklin | 19.00 | 65 642 | 8 925 | 25 200 | 137 000 | 15 500 | 244 267 |
| 2 | Franklin | Andover | 10.00 | 94 650 | 6 370 | 675 | 71 000 | 4 000 | 176 696 |
| 3 | Andover | Orange | 20.85 | 61 546 | 8 625 | 2 250 | 151 200 | 9 700 | 233 321 |
| 4 | Orange | Lebanon | 16.05 | 74 276 | 10 950 | 5 395 | 117 530 | 15 600 | 223 751 |
| 5 | Lebanon | C. River | 4.11 | 42 225 | 8 830 | 35 800 | 32 270 | 3 115 | 122 240 |
| Total amount of each. | | | 70.00 | 329 339 | 43 700 | 70 320 | 509 000 | 47 915 | $1 000 274 |

| *Cost of one mile of Superstructure.* | |
|---|---|
| Longitudinal sills—25,000 ft. at $9.00 per M., | $225 00 |
| Sleepers—1760 at 12 1-2 cents each, | 220 00 |
| Iron Rails—88 tons, at $65.00 per ton, | 5720 00 |
| Chairs—586, at 45 cents each, | 263 70 |
| Spikes—3520 lbs. at 5 cents, | 176 00 |
| Distributing materials, | 75 30 |
| Laying superstructure, | 320 00 |
| TOTAL, | $7000 00 |

| *Estimate for furnishing the Road.* | |
|---|---|
| 6 Locomotives, at $5000, | $30 000 |
| 6 Passenger Cars, at $1800, | 10 800 |
| 2 Baggage Cars, at $500, | 1 000 |
| 50 Freight Cars, at $300, | 15 000 |
| 50 Freight Cars, at $500, | 25 000 |
| 12 Hand Cars and Tools, at $100, | 1 200 |
| 2 Snow Ploughs and Fixtures at $250, | 500 |
| Repair Shop, Machinery and Tools, | 5 000 |
| TOTAL, | $88 500 |

TABLE OF GRADES.

| Grade per mile in ft. | level. | 5 28 | 9 05 | 10 56 | 15 84 | 21 12 | 26 40 | 30 00 | 31 68 | 36 96 | 42 24 | 47 52 | 52 80 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Planes. | 19 | 3 | 1 | 4 | 12 | 4 | 2 | 1 | 2 | 2 | 1 | 1 | 10 |
| Distance in Miles. | 25 45 | 3 01 | 1 32 | 3 97 | 7 51 | 1 70 | 2 00 | 1 92 | 1 70 | 2 08 | 132 | 2 27 | 15 75 |

## TOTAL COST OF CONSTRUCTION.

| | |
|---|---|
| Graduation, Superstructure, &c., as per table, | $1 000 274 |
| Agencies, Engineering and Incidental Expenses, | 30 000 |
| For contingencies, add about 10 per cent, | 100 000 |
| TOTAL AMOUNT OF ESTIMATES, | $1 130 274 |

The whole cost will probably not exceed $20.000 per mile. It will be seen that the above estimate does not include the cost of right of way; it is difficult now to estimate that item, as it will depend on the provisions of the charter, in relation to that subject. I am informed by Col. C. C. Benton, who accompanied me upon the survey, for the purpose of procuring the terms of the landholders, that the result of these inquiries will hereafter be presented.

I am much indebted to Mr. Geo. Stark, for efficient aid on the surveys, plans and estimate; also to Messrs. Pearsons, Dewey and Allen, for the service rendered. I am also under obligations to the Gentlemen of the Committee, and the citizens on the line, for their assistance and hospitality.

In conclusion, and in compliance with your request, I herewith present some statistical information and suggestions, in relation to the business and advantages of the road.

It is unnecessary and the limits of a report will not permit a detailed comparison of the advantages of the road. It is evident from the great and increasing business on other roads connecting with the one proposed, that the extension of those roads upon this route would prove a profitable investment. During the past year there have been transported on the Concord Railroad, 66000 passengers and 26000 tons of merchandise.

This however, includes but a small portion of the freight from the north part of the State and Vermont, which is carried in other ways. There are large quantities of copperas and other mineral resources, together with the lumber, live stock, wool, starch, and other agricultural products, which at the diminished cost of transportation would furnish a large addition to the business of this road. It should not be limited to this State alone, as it is probable, from the interest now manifested, and a liberal charter having been granted through Vermont, that this Railroad will ultimately be extended to Lake Champlain and thence to Ogdensburgh, N. Y., and Canada, thereby forming a very important communication between those places and Boston, and will open a section of country abundant in agricultural and mineral resources.

It is now definitely settled that Boston will continue to be the port for the arrival and departure of the Royal Mail Steam Ships, which together with a Railroad passing through the Capitals of New Hampshire and Vermont, and by the Railroads already in operation on the line, from their permanent manner of construction, economical management and great local business, are enabled to transport on reasonable terms, thereby forms a very direct, rapid and cheap means of transportation between England and Canada.

Such is the obvious connection of trade and commerce with agriculture and the arts, that they seek those channels which afford the greatest facilities. Industry and enterprise will find employment where it is most sure of an adequate return. Such is the progress of improvement at the present day, that New Hampshire cannot afford to be without this work. Its accomplishment is identified with her present well being and her future prosperity. It is now seven years since this enterprise was conceived and a charter granted, which has now become void by not complying with its provisions. In the mean time, import-

ant improvements in the construction and use of railroads have been made, until they have become all but essential, to the profitable prosecution of the business of the country; and the extent to which they have been adopted and are in progress of construction, leaves it no longer doubtful whether they can be dispensed with, by any community, whose prosperity depends upon agriculture, manufactures, and the mechanic arts.

The present is emphatically an age of improvement: and the community that folds its arms and stands still, amidst the general progress of improvements that pervade the world, will soon be left behind to regret that want of energy and foresight, that impelled their successful competitors to wealth and prosperity.

Without some improvement of this kind, it is evident from the present increasing facilities for transportation enjoyed by those in other sections of the country, that unless we also avail ourselves of these same facilities, they will compete with us in all the principal products of the State. Works like the one under consideration, must be constructed to preserve our prosperity; and what is more, they must keep pace with those of other States, or a diversion of our trade from its accustomed channel, may, and must eventually be the consequence. There are parts of the State where the population must remain stationary, and where labor is expended to very little profit. Also, different kind of manufactures are carried on by enterprising people, the profits of which are almost entirely exhausted in the cost of transportation. It would be taking much too narrow a view of the advantages of this Railroad, to consider only the accommodation which it would afford to the present amount of business. It needs no argument to show, that many articles of the produce of the country would be transported upon it, which are not now carried to market, because the cost of transportation exceeds their saleable value when at market. The interior of the State might send ship timber, various qualities of lumber, wood, bark, charcoal; also, beef, pork, hay, potatoes, apples, and many other agricultural products which command a high price. So also the quantity of imported articles would be increased; the heavy productions of the sea coast and of foreign countries, would be carried to the interior in much larger quantities. Plaster, salt, iron, oil, fish, flour, molasses, and many other heavy articles, would be furnished to the consumer cheaper by this mode of conveyance; and as the advantages of trade and the exchange of the productions of the interior for those of foreign countries are enjoyed, the quantities of each would be augmented, in some measure, in proportion to the diminished cost of transportation.

For these reasons, it is important for the commercial interests of Boston to extend, and open those channels of communication, as will secure to her the trade of those portions of the country at least, which have contributed to her present growth and wealth. It is not only the increase of trade from which Boston would derive a benefit, but also from the facilities she would then possess, for obtaining supplies in greater abundance, variety and *unsurpassed quality*, by a cheap and rapid communication with the fertile valley of the Connecticut and Vermont. The large manufacturing towns on the route, would possess the advantage for procuring wool, starch and various other products wanted, and thereby afford a market for the interior.

There is another topic connected with this subject which deserves consideration. The industry of the people of this State, is becoming every year more devoted to manufacturing employments. It is this exercise of the labor and skill of our population, which must hereafter constitute our chief means of wealth.

The extensive water powers in the State yet unoccupied, and the advantages which we possess for manufacturing pursuits compared with other parts of the country, will lead to a great extension of these branches of industry, if they are encouraged; and thereby investing a great amount of capital in the State, and furnishing a home market for the products, in which others cannot compete. And perhaps nothing is of more importance to the success of these pursuits, than a rapid and cheap mode of transportation. In these advantages the neighboring towns will participate; for it is manifest, that whatever tends to increase the population and wealth of the metropolis, will be felt by the towns in the vicinity. But the effect of this improvement in adding value to property, would be by no means limited. On the contrary, the ratio of benefit and increase of the value of land, lumber and other property, would probably be greatest to those parts of the country through which the route passes, and other places in the vicinity who would avail themselves of the facilities thus afforded.

All experience has shown that as fast as the cheap means of transportation, are extended into the interior of a country, commercial and manufacturing establishments spring up along the line, capital comes in, and competition in trade, the life of business, is excited. The producer then finds a ready market comparatively at his own door for his surplus produce, and at as high a price as he would obtain at the city, deducting the cost of transportation. He thus avoids the loss of time, and escapes the risk and vexation of seeking a foreign market. He is enabled thereby to concentrate his energies and attention, to his domestic concerns, and avoids the derangement of affairs incident to being withdrawn from home. Under these and numerous other considerations that might be adduced, it cannot be doubted that the interests of the agricultural community would be promoted either directly or indirectly; and there is every just reason to believe that Railroads will be resorted to for transporting the great mass of the exports as well as the imports of the country.

Those who at first were disposed to be credulous as to the expediency and benefits to result from the introduction of Railroads into our State, already begin to doubt the correctness of the conclusions to which they had arrived, and are yielding a more cheerful support to a measure which is calculated greatly to promote the public welfare, and exert an extensive influence, by opening new channels to the currents of traffic.

The large amount of capital uninvested, the low rates of labor, materials and provisions, at the present time, affords a very favorable opportunity for the completion of this enterprise: indeed, there appears no obstacle, should a suitable charter be granted with such provisions as shall equally protect the interests of all. Therefore, it remains only for the citizens of this State to decide whether the present opportunity shall be improved or suffered to pass and thereby the final accomplishment of this object be defeated. Few at the present period are so blinded by prejudice as to be ignorant of the advantages derived from Railroads; none will deny that they enlarge the resources of the country and extend the facilities for social intercourse. They also bind together the interests of society, and develope new opportunities for the exercise of enterprise, by furnishing sure rewards for the toils of the husbandmen.

Very respectfully,

Your obed't servant,

T. J. CARTER, *Engineer.*

VERMONT.

Turnpike.

55 Miles.

HA

Mud Pond

Dartmouth College

Mink

ENFIELD

N.H. Turnpike.

Connecticut River.

West Lebanon

10 Miles.

White River

Mascomy River

SCA

Connecticut River

Lower Franklin

70 m.

6