From the Raleigh Register.

NORTH CAROLINA RAIL ROAD.

The Directory of the North Carolina Rail Road convened in this city, on Monday last, and continued in session until Thursday—all the Directors present, with the exception of Gen. W. C. Means, of Cabarrus.

Full and elaborate reports from the Chief Engineer and his Assistants, were received. The unusual quantity of Work done by the Engineers, and the accuracy and skill with which they were enabled to lay before the board the various and numerous lines of survey, and estimates of the several sections, entitle them to all praise. Scarcely has a work of such magnitude in this country ever been executed with such satisfaction, efficiency and dispatch.—Their report, plats and maps show that the work has been in proper hands. Two hundred and twenty three miles of Rail Road most thoroughly surveyed and located in less than six months, at a cost of less than $25,000, all expenses of every description told and paid!!

The Directors have located the Road from one end to the other, starting from or near Goldsboro', on the Southern Route by Raleigh, by Hillsboro, Graham, Greensborough Jamestown, Lexington, Salisbury, Concord and Charlotte. They have ordered the President and the Chief Engineer to put the whole Road under contract before the 9th of July. A reasonable time allowed to commence the work.—Notice of the whole, and more detailed account of the proceedings, however, will appear in the published report of their proceedings.

We have the pleasure of presenting entire, below, the highly able Report of Maj. Gwynn, the accomplished Chief Engineer.

RALEIGH, May 5th, 1851.

To the President and Directors of the North Carolina Rail Road Company.

GENTLEMEN:—I have the honor to submit the following report of the progress and results of the surveys for the North Carolina Rail Road.

Acting under your instructions to me of July 13th, I proceeded to organize four parties of Engineers. To give efficiency these parties devolve due responsibility, and incite a laudible emulation, I gave to each party acting under instructions a separate and independent charge, and to this end the line was divided into four divisions.

The Frst Division commences at the Wilmington and Raleigh Rail Road and terminates six and a half miles West of Raleigh. The Second Division commencing at the last named point, extends to the Guilford County line. The third Division thence to Lexington to Charlotte. The duty of surveying and locating these divisions, was assigned respectively to Mr. Lewis, Mr. Prevost, Jr., Mr. John McRae, Mr. J. L. Gregg, and Mr. John McRee, with the rank of Principal Assistants. Each party was furnished with the necessary Assistants, Draftsmen, Rodmen, Chainmen, and Axemen.

Mr. Prevost was sent to the field on the 21st of August, Mr. John C. McRea on the 26th of the same month, Mr. Gregg on the 18th of September, and Mr. John McRea on the 27th of August.

The aggregate number of miles run by these parties, including the experimental surveys, the approximate and final location, amounts to 1494 miles. When it is remembered that the period of their employments embraced the inclement season of the late fall months, and the winter and early Spring months, the amount of labor they have performed cannot but prove satisfactory, and it fully attests the energy, industry and fidelity on the part of the heads of the respective parties.

The conditions imposed by the charter, make Raleigh and Salisbury intermediate points in the line of the road. By a resolution of the stockholders at their meeting held in Salisbury on the 12th of July, instructions were given to ascertain by actual survey whether a route passing near the Towns of Hillsboro', Graham, Greensboro', Lexington and Concord, all things considered, would not be the most practicable.

Keeping these instructions before me, regarding them however as imperative only so far as respects the requirements of the Charter, to construct a Rail Road from the Wilmington and Raleigh Rail Road *via* Raleigh and Salisbury to Charlotte, and only as absolute under the directions of the stockholder to ascertain the practicability in comparison with other routes, of a location through the towns of Hillsboro', Graham, Greensboro', Lexington and Concord, and not by any means as restricting the location to those towns. The line would occupy precisely the same ground which it does had no allusion to those towns been made in the proceedings of the stockholders. I explored or caused to be examined every route between the Wilmington and Raleigh Rail Road, and Charlotte *via* Raleigh and Salisbury, which I thought at all feasible, and surveyed every line that in my judgment was deemed necessary to the attainment of the most practicable route, and the results of those examinations it is now my purpose as briefly as may be to lay before you. But it may be pertinent before entering upon a description of the lines which were surveyed, to submit a few remarks upon the general features of the intermediate Country between Raleigh and Salisbury, and their influence upon the location. An inspection of the map of the State will show that a straight line between Raleigh and Salisbury is crossed by the waters of the Haw and Yadkin rivers, and by their almost innumerable tributaries, embracing among the most conspicuous, with *their* branches, New Hope, Rocky Deep and Uharie rivers. Any one who has travelled the direct road from Raleigh to Salisbury, by Pittsboro' and Ashboro', must have indelibly impressed on his mind the many "ups and downs" which he encounters, and it must have occurred to him when slowly climbing up the hills which ever and anon rise before, how much the road might be improved by winding around them through some of the numerous ravines which constantly present themselves on the one hand or the other. These hills which so much obstruct the common road, and the graduation of which to easy grades, would render it so serpentine and devious, and carry it so much out of the direct course, would affect in a much greater degree the route of a rail road; no line of any extent either level or of a given inclination to the horizon could be maintained, without resorting to a continued succession of heavy cuttings and fillings, and an infinite series of abrupt curves. In many places the ridges and hills that would be crossed are composed of gravel intermixed with stones and not unfrequently they are formed entirely of rock, which would add greatly to the expense of graduation.

The extent of these difficulties may be regarded as unlimited on the South towards which the water courses that are crossed flow; in search of a route, on the North, there is no medium short of the sources or nearly so of the principal tributaries above mentioned of the Haw and the Yadkin. Being satisfied, therefore, that no line could be obtained on the direct route without such frequent deflections, as would make it quite as long, that it would be more costly and objectionable both in grades and curvature, than the route around the heads of water courses before mentioned, that no intermediate route could be found, and that a survey of the direct route would be attended with no better results than loss of time and unnecessary expenditure, I determined to abandon it at once, and make the detour of the ridge, so plainly indicated by the topography of the Country as the route for the rail road, which I shall now proceed to describe under four separate heads, corresponding to the four divisions of the line heretofore defined.

FIRST DIVISION.

This Division unites the North Carolina Rail Road with the Wilmington and Raleigh Rail Road, thus forming a continuous line from the Seaboard through the heart of the State and reducing to realization the long deferred hopes of a Central Rail Road.

The Charter requires that the Rail Road shall connect with the Wilmington and Raleigh Rail Road, "where the same passes over the Neuse!" The bridge of the Wilmington and Raleigh Rail Road, over the Neuse, is united to the main land on each side by trestle work across extensive low grounds, subject to frequent inundation, which affords no secure site for a landing or suitable place for building. As this provision of the charter was evidently intended to unite the Rail Road, with steamboat Navigation on the Neuse, and thus extend its benefits and a participation of its advantages to the lower Neuse, I have on account of the objections above assigned to a strict compliance with the letter of the charter, directed the approach to the Wilmington and Raleigh R. Road, by the way of Waynesboro', which affords the nearest eligible site to the point, where the Wilmington and Raleigh Rail Road passes the Neuse, for a landing. Here the channel washes the base of a high bank which is rarely if ever overflowed, affording every necessary facility for transhipment. Making Waynesboro' therefore, a point in the location, three lines were run from station 228, four and a half miles West of Goldsboro', to the Wilmington and Raleigh Rail Road, one by the way of Goldsboro', and thence to Waynesboro', making Waynesboro' the terminus of the road. One by Waynesboro' to Goldsboro' *direct*, and one by Waynesboro', intersecting the Wilmington and Raleigh Rail Road, 1,08 miles South of Goldsboro'.

These lines are all laid down on the accompanying map in the order here referred to, lettered A, B, and C, and a comparison of their cost, length and grades will be found on a sheet hereto annexed, upon an examination of which it will be found, that the line passing through Waynesboro' and intersecting the Wilmington and Raleigh rail road 1,08 miles south of Goldsboro', designated as C, on the map, is 3,887 feet shorter and will cost $10,277 less than line A, which stands next in the comparison. Commencing at station 228, the point of divergence of routes above described, two lines were run to Mount Auburn, ten miles East of Raleigh, one crossing the Neuse river at Smithfield, the other crossing on the lands of Wm. Vinsons, four miles above Smithfield. The result shows 1 mile, 1720 feet in distance and $11,000 in cost in favor of the line by Vinsons; the rate of grade and length of a straight line, is also in favor of this route; it was therefore selected as the basis of the estimate and is designated on the map by the red line.

From Mount Auburn, after a most thorough examination and survey of the country, with the view of obtaining the best route through the City of Raleigh, three lines were selected for comparison which will be designated as the South, middle and North lines. The South line runs down wild Cat branch, crosses walnut creek, near Hollemans bridge and runs up rocky branch to its head, passing in the rear of the Governor's and Judge Cameron's residence, and thence in the vicinity of the Hillsboro' road to the end of this division, six and a half miles West of Raleigh. The middle line descends Poole's branch to its junction with Walnut creek, and after crossing Walnut creek near Mr. Hutchings', it ascends along the slope of the ridge between Walnut and Crabtree, to its summit in the race field, thence it follows nearly the course of the ridge, passes South of Mr. Atkinson's and through Raleigh by Hargett street to its re-union with the South line at Judge Cameron's.

The North line is identical with the middle line, until it reaches a point between the racefield and Mr. Atkinson's, it then runs a little South of Mr. Atkinson's and through Lane street by the Raleigh and Gaston Rail Road Depot, back of the Female Seminary and connects with the middle and Southern line near the Haywood road on the lands of Dr. Cook.

It appears from a comparison of these lines as exhibited in the accompanying table, that the South line is 1875 feet shorter and that the cost of graduation and construction is $6788 less than on the Middle line, and that in comparison with the Northern line, the length is 2175 feet and the cost is $45.029 in its favor. The maximum grade is the same on all these lines, the grade being rather in favor of the Middle route ascending westward and about the same in both directions as the Northern line. The curvature is also in favor of the South line as compared with both of the other lines.

A line was also run uniting the South and North lines through Harrington street, which increased the distance over the South line 2750 feet and the cost $25511.

The cost, distance and degree of curvature being all in favor of the South line, I am compelled in a professional point of view to give it my preference. There are other considerations however, which may properly influence the Board, such as the propriety, probably the necessity and obligation of the Company, to put a depot within the corporate limits of Raleigh, which would be attended with no serious objections so far as the grades of the road are concerned on the Middle line; while on the South line the road ascends with a uniform grade of 47½ feet per mile past Raleigh, upon which the establishment of a depot would be very objectionable, on account of the difficulty of stopping the descending and starting the ascending trains, and this objection can only be removed by introducing a lighter grade which can in no other way be effected than by increasing the rate of ascent from Walnut Creek, which would operate against this line; but as the grade would be in favor of the heavy tonnage, it would still maintain its superiority over the middle line.

Recurring again to the commencement of the line at the Wilmington and Raleigh Rail Road, I would recommend the establishment of the Depot at Goldsboro', instead of at the point of connection of the roads—for the reason that the Wilmington and Raleigh Company having warehouses already erected at Goldsborough could without additional expense to them give accommodations that would be a saving to the Company.

SECOND DIVISION.

After several trial lines across Crabtree Creek which is encountered six miles from the commencement of this division, a line was selected crossing at Mr. Jere Morris', thence it ascends along the sloping ground drained into Crabtree to Mr. Robt. Witherspoons on the ridge dividing the waters of New Hope and Neuse Rivers, thence the line pursues this ridge, departing from it only at one place to maintain the general direction and at the same time to avoid the Brasfield hills which are past, leaving them a half a mile on the North, at a trifling expense encountered in embanking across two small branches of New Hope. At Desarnes, ten miles east of Hillsbro', two routes present themselves, one pursuing the ridge dividing the Waters of the Eno and New Hope rivers, forming an independent line crossing Haw river at Gilbreath's ford, and thence to Providence meeting house, designated on the way as the Chapel Hill ridge line. The other passes by Hillsboro' and crossing Haw river at Trolinger's bridge reunites with the other at Providence meeting house These routes may be united by a cross line on the ridge dividing the waters of the Eno and Haw rivers by a deflection from the first line at Gravelly Hill, and thus the various routes crossing Haw river, which will hereafter be described, may be made a part of either line and a comparison between the two may be made; adopting either of the crossings of the river. Suffice it to say, however, that the result by any combination that could be made would be in favor of the route by Hillsboro', in all the essentials of grades, cost, curvature and distance. I shall therefore dismiss the Chapel Hill route as it is designated on the map and confine my observations to the Hillsboro' route, which after it became evident that it would be the preferred route, was subjected to the most elaborate explorations and surveys. The first important enquiry was the pass of the Valley of the Eno, the result of which was the establishment of a crossing at the upper end of the town of Hillsboro' and again just below the bridge near Brown's Mill, thence the line ascends along the side hills of Seven Mile Creek to the ridge dividing the waters of the Eno from those of Back creek, a branch of Haw river, and along this ridge it is traced to the vicinity of the Orange and Alamance county line. From this point to the Haw river a thorough reconnoisance of the Country was made and the river examined from the shallow Ford to Ruffin's Mills. The result of this reconnoisance was the selection of four lines crossing Haw River respectively at Gilbreaths ford at the mouth of Freeland creek, Conrad Long's and near Trollingers bridge, all uniting at Providence Meeting House. The first line was abandoned on account of its increased length and cost, and the second for the same reasons and in addition thereto in consequence of its objectionable curves and the heavy rock excavations between Back Creek and Haw River. This narrowed down the choice between the two routes crossing at Long's and at Trollingers bridge, noted on the map as the upper and lower lines. A comparison of these lines gives the following results viz: The upper line costs less by $5,000 and the length is one mile less than the lower line. The lower line has less curvature of the minimum radius and the length of the maximum grades is less, but these favorable features not being sufficient to counterbalance its decreased length and cost, I give the upper line the preference and recommend its adoption. From Providence Meeting House, the line, of this division is traced over very favorable ground along the ridge dividing the waters of Haw and Alamance rivers, to its determination on the dividing line between Alamance and Guilford Counties.

With the view of cutting off the detour, on the route by Hillsboro', around the head of N. Hope, a line was reconnoitered diverging at Parris Yates on this division, one and a half miles from its commencement, passing around the head of Crabtree and by Mr. Bartley Sear's, eight miles from Yates', thence along a ridge dividing the waters of North East, New Hope and White Oak Swamp to Mr. Marmaduke Williams, where it crosses New Hope, thence on a ridge between Morgans and Bollings Creeks, to a point about two miles from Chapel Hill, where the ridge, upon which the College is situated, rises very abruptly; to ascend to the summit of this ridge either Morgans or Bollings are available; having attained the summit, at Mr. Arch. Andrew's, owing to the necessity of exceeding our maximum grades in the passage of Cain & Haw Creeks, the line would be compelled to follow the ridge heading these creeks, until it intersects the line heretofore described as the Chapel Hill ridge line, near Mr. Fred. Williams, and thence with that line as run. Owing to these frequent deflections this route, although called the direct route, would be about two miles longer than the line by Hillsboro' and a comparison of the grades, curvature and cost would also be against it. This being the result of the reconnisance, it was not thought advisible to incur the expense of a survey.

THIRD DIVISION.

This division begins on the Alamance and Guilford lines, about one and a half miles north of the stage road on the ridge dividing the waters of Traverse creek from those of Alamance and continues on this ridge about two miles, thence it descends the Valley of Rock Creek which it crosses at the junction with Cedar prong, thence upon the south slope of Cedar prong Valley to the summit of the ridge, dividing its waters from Birch Creek, thence along the South slope of the ridge, dividing Alamance and South Buffalo creeks, crossing it at the intersection of Shallowford and Fayetteville roads. The line then descends to south Buffalo creek, crossing it about one thousand feet below the stage road bridge, thence it descends to the ridge between North and South Buffalo creeks on which it continues to Greensboro', crossing South street three hundred feet north of the Caldwell Institute, thence on the ridge to station 928 near Mr. Nathan Hiatts'. From this point to Lexington, three lines present themselves for comparison—which we will designate the Fair grove, Middle and Northern lines.

The Fair grove and Middle lines are common to Prospect meeting house; before reaching this point the line crosses South Buffalo near Mr. A. Wilsons, Bull Run a little below the stage road ford, and Deap river 1200 feet below the stage road bridge; thence the line passes a little to the South of Jamestown, up the soputh rong of Big branch to station 1839, a quarter of a mile west of Prospect meeting house on the summit of the ridge between Deep river and the Yadkin. From station 1839 it continues heading nearly the waters of Hunts Fork, thence it descends along the South slope of the Valley of Hambies' creek, crossing the Raleigh road near Fair Grove meeting house and continuing upon the north side of the road to a point near the house of Mr. Smith Curry, thence keeps near the Raleigh road and passes about 300 feet to the left of the Poor House, thence it descends to Abbotts creek, crossing it about three fourths of a mile below Randolphs bridge; thence it passes up the south slope of the valley of Grime's branch to the summit of the ridge between Abbotts and Swearing creeks near Parks', at the crossing of the stage road about 4.500 feet west of the Court House, where it joins the 4th division.

The middle line diverges from the Fair Grove line at station 1839. crosses the head waters of Hunts Fork to the ridge between Rich Fork and Hambie's creek, which it follows three miles; thence it descends into the Valley of Jimmies creek to Conrads's old mill; here the line crosses the creek and again makes two crossings at the bend opposite Mrs. Lopp's and passes over the point of a ridge between Jimmies creek and Rich Fork, crossing the latter near its junction with Hambies Creek, thence it crosses Abbotts Creek about half a mile above the junction of Rich Fork, thence it passes up the valley of Abbotts creek, crosses Leonard creek near its mouth and thence along the sloping ground of Leonard's creek to Parks', passing Lexington 1200 feet South of the Court House. This line may be straightened by a route leaving the line which is common to it and the Fair Grove line at station 1641, passing three fourths of a mile north of Prospect meeting house, and coming into the middle line again about 5 miles 1644 feet from the point of starting.

Northern line; the line deflects from the Fair Grove and middle lines, at station 928, at Heats; thence it crosses South Buffalo creek a little below the Salem road, it then ascends to the summit of the ridge between Haw and Deep rivers; thence it descends Piney branch to its mouth, where it crosses the North prong of Deep river, thence passing over the ridge between the North and South prong, it crosses the South prong just below Chapmans mill.—Thence it follows up Tan Yard branch to its head, thence crosses Rich Fork near its source and immediately ascends to the ridge between Abbotts creek and Rich Fork, along which it runs to Mr. Andrew Links on the stage road, when it commences descending and crosses Abbotts Creek about half a mile below the stage road bridge and thence along the grounds of Abbotts creek to its re-union with the middle line at station 2381. The length curvature, grades, cost of construction and maintenance being in favor of the middle line, I give it preference and recommend its adoption.

FOURTH DAVISION.

The location of this division commences at the termination of the Third Division above described.

The line passes through the far-famed fertile lands of the Jersey Settlement. Swearing Creek and North Potts Creek, which waters these lands are crossed, the 1st at Yarbrough's old mill and the second about a mile below Dr. Holt's mill on the lands of Dr. Holt, which furnish the best evidence on the line, of the beneficial effects of a judicious combination of science and practical experience in farming.—The second branch of Pott's Creek is crossed at the Trading Ford road, and by a cut across this road, the line enters the Valley of the Yadkin, which it pursues to station 2720 on the land of Mr. McDonald. From this point two lines were located across the Yadkin. The upper line crosses the river a little below Locke's bridge, on a bridge 600 feet long, 46 feet above low water and 30 feet above high water. The low line crosses the river near the lower end of Cowan's Island, by a bridge 1000 feet long, 8 feet above high water and 24 feet above low water. I am not prepared to give an opinion as to the comparative advantages of these two lines and express my preference until a farther examination has been made, which will be done the first low stage of the water. I shall however, place in the general estimates such a sum as will embrace the cost and any contingences of a farther examination. These two lines re-unite at station 2517 on the ridge near the head of small branches of the Yadkin, and thence for a distance of 22½ miles follows the ridge, keeping within the vicinity of the stage road and passing at station 2315 the town of Salisbury. From station 1328 the line descends to the valley of Irish Buffalo and crosses the creek near the old mill dam a quarter of a mile below the public road and about a mile from the village of Concord. Thence crossing Caudle Creek and Rocky River, 423 and 578 miles respectively from Irish Buffalo, the line passes over into the valley of the Back Creek, and ascending the ridge between Back and Mallard Creeks, the summit of which is gained near Col. Cochran's, it then follows the creek of the ridge from which it descends, crossing some of the head waters of the tributaries of Sugar creek, into the valley of one of the main branches of that creek, along which it is traced to a favorable point for crossing at station 132, thence to Charlotte passing on the south eastern side of the town to station 1049, the end of the Charlotte Rail Road.

The line above described is the result of a full reconnoisance of the Country and a comparison of the cost, grades and length with a trial between Lexington and the Yadkin, and it was also tested by the merits of a line from the vicinity of Concord to Charlotte, crossing Irish Buffalo at Coleman's quarter and passing to the West of Back creek, by different crossings of the intermediate streams. The line by Mount Mourne was also compared with it and was found from its greater length to be objectionable.

In the above description of the several divisions I have omitted numerous lines that were surveyed and examined, which will be found in the mem. of the Principal Assistants, herewith laid before you, and to which I beg leave to refer.

I have confined myself to those lines, in whose comparison I supposed the stockholders might feel an interest.

The surveys have been made throughout in reference solely to the interests of the company. It has been your pleasure to leave me free and untrammeled, with no other declaration of opinion on your part than an expression of your solicitude for the selection of the best and most practicable route, and it has been my most earnest desire to conform to your wishes; no pains have been spared on my part and no labor has been wanting on the part of those entrusted with the duty of carrying into effect my instructions. The Country has been thoroughly explored; whenever any doubts existed they have been solved by instrumental surveys, and the competing lines tested and compared by well known and acknowledged principles, verified by experience; nothing has been left to speculation, theory reduced to practice is the formula by which I have been governed in my efforts, in the language of the charter, to obtain the most practicable route for a rail road from the Wilmington and Raleigh Road, via Raleigh and Salisbury, to the town of Charlotte.

I believe such a route is now presented to you, and that there is not a Rail Road in the country of the length which possesses equal facilities for the economical application of Locomotive power. The grades no where exceed fifty feet a mile and curves of five degrees deflection adopted as the minimum, occur in but very few instances. The length of the road is 223 miles.

I have estimated for a single track with the condition of the waste earth being disposed and the borrowed earth taken by widening the Cuts with a view to a double track, the Road bed to be formed of gravel or other suitable material to the depth of a foot, and for a superstruction with a T rail of sixty pounds to the yard. The drains and culverts are all to be built of stone or brick, and the wooden bridges to be on the most substaintial plans of arch bracing, resting on the stone abutments, and every description of work to be as permanent and durable as any of a similar kind in the country. The warehouses will be of wood.

The whole cost of the road on this plan, including engineering expenses, superstruction and land damages and every thing appertaining to the road way, will be $3,165,332.

In this estimate I have endeavored to provide for every possible contingency that may arise. Such as increase of labor and provisions, unforeseen difficulties in sinking foundations, and although the amount of each excavation has been ascertained by repeated borings on nearly the whole line, lest it might have been missed in our examination, I have made a liberal allowance for that contingency, also, so that I feel every confidence in stating the above sum as full and sufficient to cover all expenditures for the items therein embraced; and, every thing is included except the locomotives, cars and coaches and the shops for renewal and repairs.

The cost of the shop and fixures may be put down at $100,000 though the whole of this expenditure will not be necessary before the completion of the road; it may be spread over two or three years after the road goes into operation.

The numbers of Locomotives and their trains depend of course entirely on the amount of business, and may be increased as the wants of the company require. It is not usual to embrace in the original estimates and charge to capital, more than barely sufficient to put the road into operation, and with inconsiderable additions, carry it through and enable it to do the business of the first year. With this restriction I submit the following estimate, viz:

10 Locomotives,	at 7 500	$75 000
6 Passenger cars,	" 2.000	12 000
4 Baggage and mail cars,	" 1,000	4.000
80 Burthen cars,	600	48 000
		$139.800

Which sum added to the two preceding sums give $3.405.132, for the road way equipment and workshops.

No difficulty or extraordinary expenditures will be encountered on any portion of the line in procuring substantial foundations for the works of art. The soil on every portion is peculiarly adapted to the formation of a dry and firm road bed; timber for sills are found every where convenient to the line; for several of the bridges, it will have to be transported a considerable distance; with this exception and the scarcity of good building rock at some points, suitable materials of every kind are found every where convenient to the line.

In relation to the income of the road I have no data, if it were my province to do so, upon which I would be willing to venture even a conjecture of the specific amount. But, upon a subject of so much importance to the stockholders it may be expected that I should say something, at least in relation to the prospects and just expectations that may be entertained by those who have embarked in it.

This rail road passes through the almost entire length of the State, it embraces in its route a variety of soil and productions not to be found on any railroad in the country. It commences in the rice fields on the Cape Fear and terminates in the cotton fields of the ancient and honored county of Mecklenburg, traversing on its way a highly productive Grain, Tobacco and Cotton growing country. What is deficient on one part of the line to supply the wants of man is found on another, the raw material on one point will supply the manufactures at another, who in turn will send out the wrought fabrics to the producer. The wheat and flour of the West will be exchanged for the products of the coast, and thus a reciprocal, growing and constantly increasing way trade will spring up, which the history of railroads shew, is the most profitable business; indeed, that it is the only business that *pays*. Then there is the enterprising and flourishing town of Wilmington which may be regarded as the eastern terminus of the road, with her large West India trade and varied commerce, giving her the ability to supply the wants of the producers and creating a constant demand for their productions, and the markets of Virginia thrown open by the Raleigh and Gaston Rail Road, with their demands and means of supply, all uniting to stimulate industry and production and thus add such an amount of tonnage and business to the road as to render it almost unnecessary to look beyond its limits for the sources of its productiveness. But, if we were permitted to look abroad, we could with quite as much plausibility of argument as we see urged every day, in connection with other schemes, place this one also in communication with Memphis, which seems to be regarded by many as a point on the great high way to the Pacific, and we could then without any very great stretch of the imagination, extend this road to Beaufort, and fancy her safe and secure harbor crowded with shipping from all parts of the world. Such speculations would probably not be considered rational, though far within the bounds of the visions which fill the mind of the projectors of Rail Roads possessing nothing like the probabilities of accomplishment as would seem to attend the very reasonable project of extending the North Carolina Road into Tennessee and down to Beaufort.

And why should not North Carolina accomplish this enterprise? I believe she will; she has already authorised surveyes to ascertain the cost of extending the road over the mountains and granted a charter for a Rail Road to Newbern; both schemes are entirely feasible and practicable, and will at no distant day, I have no doubt, be accomplished. They are probable in theory, and what is probable in theory has in practice always proved true.—But these schemes are in the future, although in my opinion in the certain future. I prefer reasoning from the past and grasping what is before me. Looking, then, as I have said, to the wide spread demand, and to the ability and capacity of the Country on the immediate borders of the road to supply that demand, I have no fears of the result and feel no need of travelling beyond the borders of the State in search of trade and travel to demonstrate the productiveness of the Stock of the N. Carolina Rail Road. I am, however, not indifferent to the income arising from the through business; it is one of the certainties of the present which I count largely upon from our connection with the Charlotte and South Carolina Rail Road. Having, however, in the outset confined myself to the limits of the road, and to a simple statement of its influences in promoting home industry, and thereby adding to the wealth of the State, and creating business for itself—have, although entertaining just expectations, not felt myself at liberty to draw heavily from other sources—I prefer leaving that branch of the estimate to others quite as competent to the computation as myself; to make such additions as may suit their views.

The effect of rail roads every where is to increase the value of lands. The ratio of increase is dependent upon the fertility of the soil and the remoteness of the lands from market, and the amount of increase is exactly the capitalized sum which the saving in the transportation upon the annual produce of an acre would give. For instance, if the annual saving in the transportation of the produce of an acre of land is one dollar, the value of the land will be increased $16,2-3, the capital which at six per cent. would yield a dollar. My own impression is that the lands on the line of the North Carolina Rail Road will be increased in a greater ratio than this, now universally acknowledged principle of computation would give, for the reason that they are from some cause greatly underrated, especially from Lexington to Charlotte; the lands on this portion of the road which grow Cotton as well as Grain, compared with lands in Virginia similarly situated in reference to markets and which grow only grain and grass, are valued at very little more than half the price of the lands in Virginia. The effect of the Rail Road will be to raise these lands to their proper standard of value and add also thereto the enhanced value arising from the diminution in the cost of transportation.

The manufacturing establishments on the line of the work, which are now in a comparatively feeble and declining condition, will receive an impulse that will reward their enterprising proprietors, and revive the drooping hopes of the advocate of home industry. For it must be obvious to every one how they are affected by the cost of transportation.

The expense of transporting the raw material, and manufactured goods, constitutes an element in the cost of those goods in market. The means of transportation are in fact but a part of the machinery in the manufacture of goods for market, and the same principle applies as well in the improvement of the one as in the other. The man with good machinery can manufacture profitably and sell at a price at which the one with poor machinery would be ruined. If then we apply this principle to the transportation of the raw material, breadstuffs and other articles of consumption in manufacturing establishments, it needs no argument or calculation to shew that he who can make use of a rail road for this purpose can always undersell those who are without the accommodation. This is the true secret of the success of the Northern manufactories; the liberal system of internal improvement at the North has cheapened the transportation of their supplies. I doubt not, it would prove upon investigation, that the transportation of a bag of cotton from the interior of Georgia in the vicinity of a rail road to Lowell, costs less than the transportation to many manufactories in North Carolina, within a hundred miles of the Cotton fields.

The reduction in the price of transportation must be attended at least with the working of the existing establishments up to their full capacity, and with their success the erection of others will follow, until in the course of time the State will become a manufacturing and by consequence a consuming as well as producing State.

The home market built up by the manufacturing establishments will stimulate, encourage and foster the agricultural interest, which is the great interest of the State. And thus the great ends of government will be accomplished by the silent workings of the system of internal improvements, without doing violence to the theories or prejudices of any one. The greatest benefit will be conferred on the greatest number. In fact all will be benefitted. For the North Carolina Rail Road is not a mere line of rail road accommodating a single line of travel and operating on a narrow section of the State; there is scarcely any portion or any interest in the State that is not benefitted by this work. It traverses nearly the whole length of the State, it is the Central Rail Road projected by the old and ardent friends of internal improvement, crossing the channels of some of the principal rivers, bringing their water falls and Manufactories into the actual vicinity of the Seaboard. It would be difficult to plan a work, so properly, so obviously and essentially a State work. The people themselves have made it so by their wide spread and unprecedented individual subscription of a million of dollars, and by their endorsement of the copartnership of the State from one end to the other, in her subscription of two millions more. That they will not be disappointed in their expectations, I am quite sure, unless it should turn out, and there is no reason why it should be so, that the same cause in North Carolina will not produce the same effects as in other States, North, South, East and West. In those States it is found that rail roads relieve the burden of taxation. First by the difference in the cost of transportation by common roads and by rail roads, which may be stated at about two to one. Secondly, by increasing the taxable property on the line of the road, a general reduction of taxes is made, thus lessening the taxes on lands more remote, giving them an additional value, and thus the benefits of the road are extended far and wide, and are felt by the whole agricultural community. And furthermore, the general benefits which result to trade and commerce from rail roads in other States extend to every portion of their territory; every branch of industry is affected by the trade and commerce opened by these channels of communication. No one can doubt that the same results will be experienced in North Carolina. In short, the effect of a judicious system of internal improvement is to unite a State as it were in one great community with all their wants demands and supplies brought to view, stimulating enterprise and industry in all the arts and various pursuits of man.

And last, though not on this account the least, of the important benefits of the North Carolina Railroad, is the effect it will have to withdraw the inducement to emigration which every year deprives the State of a portion of her most vigorous, enterprising and intelligent population. I am, gentlemen, very respectfully

Your obedient servant,
WALTER GWYNN, Civil Engineer.