

**A Maximum of Good Results:  
Martin Dodge and the Good Roads Trains**

**Table of Contents**

Who Was Martin Dodge?  
Chairman, Ohio Good Roads Commission  
Road Building in Ohio  
A Malthusian Comparison  
On To Washington  
Steel-Track Wagon Roads  
Director, Office of Public Road Inquiries  
Era of Transformation  
Death of President McKinley  
Colonel W. H. Moore and the National Good Roads Association  
Horatio S. Earle  
Good Roads Trains  
Southern Railway Good Roads Train

Winston-Salem, North Carolina  
Asheville, North Carolina  
Greeneville, Tennessee  
Chattanooga, Tennessee  
Birmingham, Alabama  
Mobile, Alabama  
Montgomery, Alabama  
Atlanta, Georgia  
Greenville, South Carolina  
Columbus, Georgia  
Augusta, Georgia  
Columbia, South Carolina  
Charleston, South Carolina  
Raleigh, North Carolina  
Lynchburg, Virginia  
Danville, Virginia  
Richmond, Virginia  
Charlottesville, Virginia

Results of the Southern Railway Good Roads Train  
The Great Northern Good Roads Train  
James Abbott on the Great Northern Railway Good Roads Train  
Martin Dodge's Other Initiatives  
National Road Inventory  
Fighting for Federal-Aid  
The Brownlow-Latimer Bill  
58<sup>th</sup> Congress, 3<sup>rd</sup> Session

Congressional Revenge on Martin Dodge  
Logan Page Takes Charge  
Logan Page and the Road Improvement Trains  
Martin Dodge's Later Years  
Testifying on the Townsend Bill  
Looking Back

## **A Maximum of Good Results: Martin Dodge and the Good Roads Trains**

By  
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*Joyce Ritter, former writer-editor with the Federal Highway Administration (FHWA), gathered information about Martin Dodge while developing America's Highways 1776-1976 for publication by the FHWA in 1976. That information, passed on to the author, was invaluable in preparing the biographical portions of this article.*

### **Who was Martin Dodge?**

Martin Dodge was the second person to head the Federal road agency, during most of which time it was called the Office of Public Road Inquiries (OPRI). From August 1898 to January 1899, he served as Acting Director of the Office of Road Inquiry (ORI) while General Roy Stone, the first head of the agency, served as a volunteer in the Spanish-American War. After General Stone retired in October 1899, Dodge became Director and served into 1905. When Dodge took office in 1899, the OPRI's budget was \$10,000 a year, the same amount as the first year of General Stone's tenure in 1893.

Dodge was born on May 27, 1851, in Auburn, Geauga County, Ohio, the youngest son of Joseph and Hannah Dodge. According to information provided by the Geauga County Historical Society, Dodge grew up on his father's farm and attended the common schools. When he was 17 years old, Dodge began teaching in the District School during the winter term. Although he entered Hiram College in 1871, he continued teaching for eight winter terms, serving as superintendent of a village graded school for two years. Dodge attended Hiram College for 4 years and Buchtel College in Akron for 1 year. The historical society material states, "A degree of Master of Arts was conferred upon him by the Trustees of Hiram College in 1893 in recognition of his services to the State."

Dodge moved to Cleveland in 1876 to study law. He was admitted to the bar and practiced law in the city for several years. According to the historical society, "He also became interested in real estate and did considerable building. For three years he was business manager of the *Cleveland Sun and Voice*."

In 1891, Dodge began the political career that would take him to Washington when he won election to the 70<sup>th</sup> Ohio General Assembly. Representing Cuyahoga County, Dodge "served ten consecutive terms, being one of the Republican leaders, first in the House and for four years in the Senate."

Hal P. Denton, writing in the *Cleveland Plain Dealer*, explained that "it was while serving in this position that he put in his first licks for better roads." ["Father of Good Roads a Clevelander," November 6, 1931] Shortly after taking office in January 1892 as

Governor of Ohio, William McKinley included a passage in his first annual message to the General Assembly calling attention to the need for better roads. The legislature did not act on the new Governor's remarks. After the Governor included a similar passage in his second annual message, Dodge helped secure approval of a resolution on February 28, 1892, calling for the Governor to appoint a four-member commission to address the issue:

Whereas, The Governor of Ohio, in his last annual message, most earnestly asked the consideration of the general assembly to the subject of good roads, and suggested the appointment of a commission to investigate and carefully consider all plans proposed and experiments being made, and to submit a report with recommendations in time for the meeting of the first session of the next general assembly; and

Whereas, It is the opinion of many engineers and inventors that electric and other artificial powers may be successfully applied to the country roads, when properly prepared, so as to reduce the cost and time of transportation, both on freight and passengers, far below that which can ever be attained by the continued use of horses and other animals; therefore,

Be It Resolved, By the general assembly of the state of Ohio, That the governor be and he is hereby authorized to appoint a commission, composed of four suitable citizens of the state, two of whom shall be chosen from each of the two political parties which received the largest number of votes in this state at the last general election, whose duty it shall be to thoroughly investigate the whole subject of road construction and the cost of transportation over roads, including those operated by steam power and electric power as well as those operated by horse power. Said commission shall make report to the governor what the average cost per ton per mile now is by horse power, and what the approximate cost would be if artificial power should be substituted for horse power; and especially whether it is possible and advisable to construct country roads so that both cars and wagons can pass over the same road, propelled by either horse power or artificial power; also the estimated cost of such combination roads as compared with the cost of roads established for horse power only, together with whatever recommendation they have to make as to the road laws of Ohio, or as to the enactment of any new laws by the legislature of the state. [Reprinted in Dodge, Martin, "McKinley -- Pioneer of Roads," *National Republic*, Vol. 18, No. 8]

Denton explained:

In contending for the passage of the resolution, Dodge directed attention to the fact that already we had reached the limit of horse power, and that there was no possibility of increasing the speed, strength or endurance of that animal; and on the other hand that applied science stood ready to furnish us with a power which was unlimited as to speed, strength and endurance.

### **Chairman, Ohio Good Roads Commission**

In 1893, Governor McKinley appointed Dodge the Chairman of the first Ohio Good Roads Commission. As Chairman, Dodge published an article in the May 1894 issue *Good Roads* magazine called “A Plea for Inanimate Power and Steel Roads.” The article, an adaptation of the commission’s report, outlined ideas that would be part of Dodge’s good roads gospel for many years. The article began:

The two largest factors in the problem of improving our common roads are, first, the enormous cost of such improvement in the aggregate if the system is co-extensive with our territory, and, second, the excessive cost of transportation over such roads, if animal power is to be applied.

Ohio, for example, contained approximately 80,000 miles of common roads. The level of improvement would vary from road to road based on location and use (“in some sections, \$9000 per mile; in others it may cost as little as \$3000 per mile”), but he estimated an average cost of \$6,000 per mile, which theoretically “could be reduced to \$5000 per mile on the average.” Overall, Dodge estimated that “it would still cost the enormous sum of \$400,000,000 to improve all the roads in the State.” He added:

This enormous cost of construction, though easily ascertained, is not so large a factor in the problem as the excessive cost of transportation over these roads when built. It is not generally known how high the rate of transportation with horses and wagons is, because most of this transportation is not paid for in cash, and therefore those who bear the burden of it are not mindful of how great it is.

He estimated that “our own rate in Ohio is twenty-five cents per ton per mile, and that there has been but little improvement or reduction in this cost in a generation or more, and that there is not likely to be much in the future.”

The railroad, the steamship, and the electric street car had significantly reduced the cost of transportation where they operated. Applying electricity to the vehicles on the roads “is destined to do for the short haul what the steam cars have already done for the long haul.” He elaborated on this point from a historical perspective:

It is a significant fact to which attention has been frequently called, that the history of the development of the means of transportation shows no instance in which, after a better means has been devised, mankind has gone back to a former method.

Every improvement in means of transportation reduced the comparative value of the former means of transportation, and frequently destroys it altogether. The bridle path and the pack animal disappear as soon as wheeled vehicles are placed upon the common roads in competition. The ox-team is abandoned for horses,

and the post-rider for the stage-coach. These, in turn, all give way and disappear wherever it is possible to introduce a steam car or an electric car.

It is undeniable that the development of the railway arrested the building of wagon roads on a large scale, such as the “National Road,” running through Ohio. The horse cars in cities superseded other methods of carrying passengers, and the electric and cable cars have about rendered the horse car obsolete.

At this early date, Dodge was not envisioning the automobile—gasoline-powered or electric-powered—as the vehicle for our common roads; the first gasoline-powered “motor-wagon” in the United States had been driven by the Duryea Brothers in Springfield, Massachusetts, only a few months earlier (September 1893). Dodge was seeking a way to reduce the cost of horse-drawn transportation by extending street-car tracks 30 or 40 miles into the country, but with the tracks designed for use by wagons and carriages drawn by horses initially but eventually by the electricity that operated the street cars in the city. Dodge believed that allowing horse-drawn and electricity powered vehicles to operate on the same tracks would so clearly demonstrate the superiority of “inanimate power” that horse power would soon be abandoned.

After repeating the argument he had made in the State Legislature about the limits of horse power, Dodge continued:

The only improvement we could hope to make to lessen the cost of transportation with these animals would be in improving the road-bed. A comparison of cost will show that the average expenditure required to macadamize a road or make it hard with any kind of metal is fully equal to the cost required to lay down steel rails over which not only wagons and carriages propelled by horses but cars propelled by electric power might also go at a greatly reduced cost in transportation . . . . [The] same vehicle can be moved over steel rails with one-eighth of the power that would be required to move it over a macadamized road, and with one-eighteenth of the power that would be required to move it over a gravel road, and with one-twenty-fifth of the power that would be required to move it over a common earth road in good condition.

The rails, especially with the replacement of horses, could carry passengers and freight. If the area between the rails were paved, it could carry bicyclists—then enjoying nationwide popularity in what historians refer to as “The Bicycle Craze” and leading to the push for better country roads. Dodge said:

Another new, unexpected and wonderful means of transportation has lately appeared in the form of the bicycle which is destined to give us the cheapest means of transportation of anything that can be devised for the transportation of a single passenger; and, in constructing a system of roads, some reference should be had to the uses of this new machine. It is a most wonderful fact that a person, with no cost but his own exertion, can go one hundred miles a day upon one of these machines, while, with a horse and carriage he could go but fifty,-which

demonstrates that this is a machine for practical use both in short and long distances, and also illustrates the fact referred to above, that by departing from horse-power we get great and unexpected gains, while, by adhering to it, we make no progress. Steel rails, laid as suggested above, long distances into the country upon the principal roads connecting city to city and village to village, with a slight additional cost for paving between, would make long, straight, smooth, level stretches over which bicycle riders could go with the rapidity of the cars themselves; and true economy would be secured by providing such a combination road as would allow both wagons and carriages propelled by horses, and cars propelled by electricity, to go over the same track while the pavement between would be suitable not only for the bicycle rider, but for the pedestrian. These roads should be constructed either with double tracks or with frequent turnouts and approaches, so that vehicles of the different kinds and going at different rates of speed could pass and repass each other.

(Despite this enthusiastic endorsement of bicycling, Dodge, then in his forties, does not say here or elsewhere whether he was a bicyclist.)

Dodge recognized that his proposed steel rails would have to be adapted for present uses, as well as for the future:

Wagons propelled by animal power, which would only be used during the evolutionary stage of development, could also be provided with wheels with a double tread, so as either to follow the tracks or to go upon the hard pavement, as desired.

He continued:

If it is objected that it would be impossible to make the system so extensive as to include all roads, this much has certainly been demonstrated: That we are on the threshold of the door that leads to a more extended use of inanimate power to take the place of animal power as a means of transportation; that more electric roads will be built, that they will be almost innumerable, in fact, unlimited, as evidenced by every indication, so that the problem of building the wagon road is made easier and easier by reason of the shortened distances for which horses may be profitably used for purposes of transportation. [p. 181-187]

General Stone commented on the commission's report in *New Roads and Road Laws of the United States*, a book published by D. Van Nostrand Company in 1894 (p 109-113). The chapter titled "The Report of the Ohio Road Commission" began:

If the late report of the Ohio Commission is, as some friends of good roads think it, a distinctly retrograde step in the march of road improvements, it is the only one taken by any State authority.

The Commission recommends to the Legislature to pass no new road laws, but to adopt a plan of masterly inactivity in the matter, mainly upon the ground that the extension of electric railways will greatly restrict the use of wagon roads and curtail the extent to which they need be built.

General Stone quoted a contrary view by *Engineering News* magazine that “especially in the neighborhood of large towns and cities, the present rapid extension of suburban electric railways will in itself hasten the general improvement of all roads affected by them.” The magazine explained that by connecting “chains of villages and towns,” the lines would increase “facilities for travel, tend to enhance the value of country property as a place of residence, and as a consequence create a demand for better roads and make it easier to meet the cost of improvement.”

The magazine, General Stone pointed out, also took exception to the cost estimates in the report. The commission had estimated that the average cost of “suitable improvement” of 80,000 miles of common roads would be \$5,000 a mile. *Engineering News* considered this estimate “altogether too high”—four or five times higher than the cost of excellent hard roads around the country. General Stone summarized the magazine’s argument that 10,000 miles of the common roads in Ohio were satisfactory and that 30,000 more miles “are not of such importance as to demand much improvement.” Ohio would need \$50 million, not \$400 million, “judiciously expended . . . to give the State a good system of highways.”

Further, General Stone questioned the report’s characterization of the State’s role. In some parts of the State, the commission found that people do not “appreciate nor desire good roads.” The Ohio report goes on to say:

There are, undoubtedly, some places in the State where material for road-making is sufficiently abundant and cheap, but where the character of the population is such that they prefer the discomforts and loss occasioned by defective highways to the trouble and expense required to improve the roads. It is manifest that no legislation can or should alter such a state of affairs. It is not the province of legislation to change human nature, and where a community deliberately prefers to adopt a course of action that is opposed to its best interests, it should be left to its own devices.

General Stone said of this passage that, “This is a novel exposition of the relations of a State to its citizens.” Education, he pointed out, is one of the primary duties of a State:

[If] any part of its people are so benighted as this, on a subject of such importance to their welfare, it would seem that duty, self-interest, and State pride would all conspire to urge the better-informed sections of the State to work a speedy reformation among them; and, since no lessons are so useful as object lessons, the most effective and persuasive teaching would be to help build some bits of good road in each of these districts.

Next, General Stone cited a passage in the commission's report on fairness. The passage read:

There are counties in Ohio that have improved their roads at their own expense in the past; they have borne the burden willingly and are now enjoying the benefits. To tax these counties again for the purpose of building roads in localities where the people, through lack of enterprise or inability, have failed to secure good highways, is unjust and is discouraging to enterprise. Why should Logan County or Hardin County or Union County, in which turnpikes have been built by local assessment, be required to contribute money for the purpose of building roads in Geauga County, where there is not a single mile of turnpike?

General Stone replied that "an enlightened self-interest would commend to the wealthy counties the policy of stimulating improvement in the poorer ones." Such a policy would "enable the latter to bear in time their proper share of the burdens of the State; and, again, there are many ties of blood, friendship, and business which cross county lines, and the people who confine their driving to their own county limits are few indeed."

In conclusion, General Stone gave the commission's report a mixed review:

The Commission has done good service in collecting information regarding the cost of various kinds of transportation, and though it does not propose any further action or investigation, but confines itself to negative recommendations, it may be hoped that its report will stimulate private experiment in the direction of such "combination roads," and ultimately bring in a new era of rural rapid transit; meanwhile, it seems a pity to raise up obstacles to such immediate and substantial improvement of the ordinary highways as is progressing elsewhere in the United States, and thus to bring a great State to a standstill in the path of progress.

Dr. W. D. Kempton, secretary and treasurer of the Ohio division of the premiere bicycle organization, the League of American Wheelman (LAW and L.A.W.), also was uncomplimentary regarding the commission. In October 1895, he addressed the National Road Parliament, a convention that General Stone presided over in Atlanta, Georgia. Dr. Kempton explained that Ohio did not have a State-aid program, such as the program in New Jersey where the State provided funds to counties to help them improve roads. He said:

There is nothing of that kind done. There was a law passed by the legislature not long ago—two or three years ago—authorizing the governor to appoint a commission to investigate the nature of the roads and suggest plans for improving them. This road commission consisted of Mr. Turney, of Cincinnati, Martin Dodge, and another gentleman, neither of whom was particularly interested in the country roads. Their report was not accepted by the committee on public roads in the legislature, and they did not recommend any legislation from it.

As a result, he said, “the road laws of Ohio have not been modified for a great many years.”

Dr. Kempton did agree with the report on one point, namely the attitude of the State’s citizens (although he did not reference the report in discussing this subject):

The League of American Wheelmen tried to get some improvement in the road legislation. They soon discovered that until there was a popular sentiment backing up any legislation, it was folly to try to secure it, because it excited a prejudice among the people . . . . The National Association of the League published several little pamphlets on that subject and I secured a number of these and sent them around to township trustees and road supervisors. Still, the very fact that that literature was published by a bicycle organization and sent out by it, prejudiced the road interests . . . .

I think we need in Ohio more agitation, because when the people become convinced that a certain thing is a good thing they will have it. When they are not convinced, you can not get it, because the legislators will vote the way their constituents want them to, and I think attempts at road legislation until the people are convinced, would be useless. [*Progress of Road Construction in the United States: Reports by Delegates to National Road Parliament held at Atlanta, Ga., October 17-19, 1895, Bulletin No. 19, ORI, U.S. Department of Agriculture, 1897, p. 34-35*]

(The prejudice against the bicycle and bicycle organizations was common in rural areas. Farmers thought the bicyclists were idle city “peacocks” parading around the country, scaring the horses, and “scorching” (speeding) while the farmers had to work for a living.)

### **Road Building in Ohio**

For ORI Bulletin No. 17, General Stone compiled information on road building in the United States. The bulletin included an essay by Dodge on “Road Building in Ohio.” Ohio, Dodge began, “stands in the first rank as to her road improvements, both in number and quality.” He proudly noted that Ohio had more mileage than any State of the National Road built by the Federal Government in the early 19<sup>th</sup> century—it was “in a fair state of preservation for the most part.” However, “with the advent of the railroad national road building ceased,” and later road work was done by counties and municipalities.

Dodge explained how State road laws had encouraged road development in the first part of the 19<sup>th</sup> century:

The most extensive road improvements outside of the paving of streets in cities and villages have been made in the form of free turnpikes under the 1-mile and 2-mile assessment plan, by which all land outside of municipal corporations and

within 1 mile or 2 miles is taxed according to the benefits. Whether the 1-mile limit or the 2-mile limit is taken depends upon the petition which accompanies the application. There is also a supplementary provision in the general law by which the entire property of the county may be taxed at a rate not to exceed 4 mills on the dollar to supplement the fund raised for free turnpikes under the 2-mile assessment law as referred to above. Before this can be done the proposition must be submitted to the voters of the county and favored by a majority.

(The phrase “4 mills” is a term used for property tax purposes. A “mill” is 1/10<sup>th</sup> of 1 cent or 1,000 mills to a dollar. The tax rate is based on “mills per dollar of taxable value.” If the tax is “4 Mills,” the tax assessor would calculate the tax by multiplying 4/1000ths of a dollar times the market value or assessed value of a property.)

Under this law, Ohio’s counties had worked on “many miles of turnpike of an excellent character . . . which have an aggregate of 6,000 miles of turnpike.” Dodge added:

So that, with the national road, the free turnpikes in various counties, and her extensive system of canals, the State has always been in the first rank as to the means of cheap transportation.

Because of the railroads, “the line of turnpike building has been gradually on the wane” the previous two decades. Now that interest in good roads had revived, the Nation had slipped into the worst economic depression of its existence to that point. Beginning with the Panic of 1893, the depression continued through 1896. In Ohio, “it being felt that the farmers were too poor to bear the burden of improving the roads by assessing the entire cost upon the benefited areas adjacent to the improved roads,” the General Assembly enacted legislation to revive road building without relying exclusively on the proximity taxation.

Dodge cited a special law for Cuyahoga County, which includes Cleveland, as “perhaps the most important of any.” The county had not employed the earlier law for construction of free turnpikes, so “the only improved roads it had before the passage of this special law were toll roads built of plank.” (The toll plank road craze had hit the country in the mid-19<sup>th</sup> century. Wooden planks were placed along the center of a road so wagons traveling in either direction could ride with one set of wheels on the planks. The craze lasted about a decade—just long enough for the wooden planks to rot. In the absence of sufficient revenue to replace the planks, the owners abandoned the roads to general use.) He explained:

Toll roads and toll bridges are generally of short duration among the American people. The time has come when their abolition is demanded and when free roads must take their place.

The General Assembly passed a law in 1892 to allow Cuyahoga County to build free roads where no toll roads had been built:

This act provides that all of the property in the county, both personal and real, shall be taxed at the rate of one-half mill on each dollar valuation on its assessed value; and in addition thereto the agricultural line outside of the city of Cleveland shall be taxed 1 mill on every dollar valuation. This is to form a general road fund for the improvement of the country roads in such manner as the county commissioners may direct.

With the tax, the county commissioners had about \$80,000 a year available for country roads, with about \$60,000 coming from within Cleveland. With this “magnificent sum,” Cuyahoga County had selected three roads leading out of Cleveland for improvement, with civil engineer Jay Brown in charge. Dodge reprinted Brown’s lengthy statement of plans, costs, and details for one of the projects on the Wooster Pike. This project was of sufficient interest that historian Albert C. Rose identified it as a milestone—“1893—First Brick Rural Road”—in *Historic American Roads: From Frontier Trails to Superhighways* (Crown Publishers, Inc., 1976, p. 77). Rose wrote:

The four miles of brick pavement were built in the fall of 1893, on the old stage route between Cleveland and Wooster in Wayne County, now United States Route 42. The brick section was [quoting Brown] “reached by following out Pearl Street in the City of Cleveland, through the village of South Brooklyn to the second toll gate, four miles southwesterly from said village, where the four miles of road built in 1893” began . . . . Built over a heavy white-clay soil, believed by many residents to present insuperable drainage obstacles, the brick road was completed successfully at a cost of about \$16,000 a mile.

The road was 60 feet wide from fence to fence, with a 32-foot wide roadway. A brick pavement was installed on an 8-foot strip along the drainage area “leaving 24 feet of dirt road for summer use,” as Brown explained. “This dirt road was repeatedly rolled with a heavy roller until the upper foot or 2 feet of the crust of the roadbed became hard and solid.” To hold the brick in place along the dirt portion without building a stone curb, Brown used “three courses of brick, standing edgewise, the first course flush with the top of the pavement, the second breaking joints and dropping two inches lower, the third 2 inches lower still, forming a stairwise bond for the brickwork course of curbing brick . . . .”

Dodge considered the new Cuyahoga County road “probably the best ever built in the State of Ohio,” but he added, “it remains true that the rate of transportation over these roads with horses and wagons is higher than the rate which prevails upon the electric cars wherever they are introduced.” The appearance of macadam and electric roads allowed for comparisons:

The macadam road is built with public money at a cost of \$16,000, while the electric road is built with private money at a cost of from \$5,000 to \$7,000 per mile. Still, the one that is built with private money is furnishing now, and is destined to furnish hereafter, a cheaper means of transportation than can be obtained over the free turnpike with horses and wagons.

Dodge explained his view that laying steel rails on the roads would be the best use of public money, quoting extensively from the commission's report. He added:

The effect of this report has been to stimulate the building of electric roads in various parts of the State, all of which have been extremely successful, and have shown the intrinsic value of the electric road to so greatly exceed any other means of transportation for short distances that the public is likely to extend to it the same friendly policy that it has heretofore given to vehicles propelled by animal power; that is to say, the public will provide the track upon which the vehicle runs, while private enterprise will supply the vehicle and power as heretofore.

He clarified the public and private roles:

It is not proposed that the public should operate these roads, but only furnish the track, according to the established public policy that has prevailed time out of mind for the public to furnish the way and private enterprise to furnish the power and vehicles.

As an example, Dodge cited the electric road from Norwalk to Sandusky via Milan as one of the most successful lines yet built. It was "being used for carrying package freight and food products as well as express and mail."

The outlook for Ohio, he concluded, "is brighter than ever":

And we shall demonstrate here first, most likely, how far it is wise to provide roads for the wagonload haul by means of horses, and how far it is best to provide steel tracks and inanimate power to supersede the horses. [p. 16-23]

On July 5 and 6, 1894, Dodge participated in the National Road Conference held at the Westminster Church in Asbury Park, New Jersey. (General Stone published the proceedings as ORI Bulletin No. 10 later that year.) Dodge began his address by recognizing that "the opinions of the members of this conference are, like Joseph's coat, of many colors." The principle that he thought everyone would agree on is that "whatever judicious expenditure of money is made to really better the roads so as to cheapen the cost of transportation, will result in lightening the burden rather than in putting greater burdens upon the people." If a road improvement "finally results in cheapening transportation, and thereby adds to the value of land and the rewards of labor," he said, "then we have done a good thing."

Judging the value of a road improvement can vary over time. He pointed out that Shelby County, Ohio, had expended \$2.5 million for common wagon roads that cheapened transportation costs and increased the value of land and labor when they were built earlier in the century. Because the railroad had reduced the value of the roads when measured in this way, "it has not proved to be for the best interests of the people to continue this method of building."

Now that roads again had the potential for increasing the value of land and labor while reducing transportation costs, Ohio had “departed somewhat from the usual rule” in other States. Ohio had not adopted the “clearly established principle that the horse and the wagon is the proper thing for the common people for the common purpose of common transportation upon the common roads.” Cleveland’s electric car system had provided the inspiration for Ohio’s view:

I think I am right in saying that the first practical system of electric cars was introduced in the city of Cleveland, although experimental lines had been used in two or three other places; and we have had object lessons there by means of those cars that have been most wonderful. I quite agree with the gentleman from North Carolina [Professor J. A. Holmes, State Geologist] when he says that a single object lesson is of more importance and value than any number of theories which may or may not prove to be correct.

Noting that the electric cars had greatly reduced the cost of transporting passengers, Ohio officials believed the same could be accomplished for freight, “especially farm products that are raised in the neighboring territory and largely consumed in the great cities, or shipped to the seaboard or other places.” After discussing costs, Dodge told the conference:

Every investigation and observation that the commissioners have made in Ohio tends to show that the electric [street] car is exactly suitable to come in and supplement these other means of transportation, and so give you, over every distance in the county, a cheaper means of transportation than we ever have had or ever can have unless we shall encourage and adopt, to a certain extent, the electric-car system; or, if not the electric-car system, some other system which shall use inanimate power rather than horse power.

Dodge favored electricity as power, but acknowledged the arrival of a challenger:

There are other systems of generating power which may be cheaper for such purposes than the electric system. It is possible that the gas engine, which had been largely developed in Europe, and somewhat in this country, whereby the unit of power is entirely detached from the central plant, and is entirely under the control of the operator, the same as a horse, may be cheaper than the electric system . . . .

Nevertheless, Dodge believed that the track system was the best alternative for accommodating the existing modes of road transportation. He concluded by urging the conference not put “new wine into old bottles.” If the common methods are best, he was for it, “but if there is a better way by which we can give better and more advantageous means of transportation than by the horse and wagon, let us do so.”

After Dodge concluded, General Stone asked him if Ohio had made provision for experiments of the theory Dodge had expressed. Dodge replied:

I will state that the Ohio legislature has passed three different acts authorizing the people to build in three different places experimental roads for the purpose of testing their value, and I will state to you that when a road is so built that both the horse and inanimate power can be applied side by side over the same track, then the question will be solved, and the object lesson that my friend from North Carolina discussed will be given before your faces and eyes, and those who think it is cheaper to use horses will either find out that it is or else that it is not, for they will be in competition over the same road and rail with the other power . . . .

Dodge submitted a paper, reprinted in the proceedings, about a combined rail and road way that W. I. Ludlow of Cleveland had invented.

### **A Malthusian Comparison**

Dodge reiterated his key points at every opportunity, including the July 1895 issue of the literary magazine *The North American Review*. The article, “The Need of Better Roads,” began:

The Malthusian doctrine of population teaches that the people will increase faster than the means to sustain them, and that it is only a question of time when the population will press upon the means of subsistence so as to prevent further increase in numbers, or, in other words, that the entire energy of the people will be insufficient to supply them with food.

(British mathematician Thomas Malthus, in his *An Essay on the Principle of Population*, published in 1789, had made his predictions based on extrapolation of current data. Although his theories were influential, skeptics have cited his predictions to illustrate the dangers of extrapolation.)

Although population had increased on the Malthusian principle of doubling once in 25 years, Dodge explained that the United States did not face the predicted problem of food supply. Food “has increased . . . [because of] the increased power and productiveness of human labor, whereby the output of product proceeding from the same unit of exertion has been increased from two to ten fold.” Increased productivity meant that fewer people were needed on the Nation’s farms or in the small communities serving the farms. The result was a population shift to the cities and to the industries operating in them.

“Cheap transportation,” Dodge told his *North American Review* readers, “has contributed much to the increased capacity of labor, by making it possible to concentrate surplus food products and material for manufacture.” Cheap and abundant food produced by fewer people and the increased output of products where labor and machinery are concentrated combined with cheap transportation resulted in “the prevailing condition by which nearly one-half of our population in the older settled parts of the country is concentrated in cities

. . . .” This condition “is a normal and not an abnormal condition, and being based upon scientific causes is permanent and not temporary.”

Dodge summarized his views on the need to reduce reliance on horse power, then noted that those who live in the declining rural districts cited the Nation’s railroad building to support the view that “if the same energy and expenditure were given to the improvement of the common roads, the results would be equally beneficial, and perhaps more beneficial than those that have followed the era of railroad building.” Dodge did not share this view. Horse power can never exceed the value of the railroads in reducing transportation costs:

The rate of transportation with horses and wagons can never be brought on the average below twenty-five cents per ton mile, while the average cost that prevails upon the steam [railroad] cars is not to exceed one cent per ton per mile, and in many instances but half a cent a ton a mile. The steam railroads have served and will continue to serve a great purpose, but it is probable that the limit of their usefulness is nearly reached so far as the ramification of their branches is concerned; but at the very point where the ramification of these roads ceases to be an advantage, the electric road comes in and is destined to contribute still more to cheapen transportation than it is possible that the horse and wagon can do by any amount of expenditure directed to that end. The average cost per ton-mile upon the electric cars would not exceed five cents, and the cost of building the steel roadbed suitable for such cars to run upon would be no greater than the cost of building stone roads.

Dodge went on to describe his vision:

My plan is to extend the street-car tracks from our cities out into the circumjacent [sic] territory a distance of thirty or forty miles, so that all the territory between the centres [sic] of population sixty or eighty miles apart would be reached. Let these tracks be so made and laid that wagons and carriages propelled by horses may go upon them, as well as cars propelled by electricity or other inanimate power.

He saw no reason why the electric cars, thus far confined to passengers, could not be adapted for freight, especially food products. He was convinced that such shared roads would quickly result in “a complete substitution of electric power for horse power wherever the rails are laid.”

Dodge made clear he did not think the electric roads should be built out of “the profits of the carrier.” He thought they should be financed by those who benefit from them, as was the case under Ohio’s State road law:

No better expenditure of public money could be made in the State of Ohio for road improvements than to build a system of electric roads connecting all the county seats with each other and with the great cities of the State . . . . And the

roads when so built could be operated by leasing to lowest bidder or by taking toll for each vehicle, the same as the State now does from canal-boats.

In closing, Dodge acknowledged that the dollar amounts he used for savings were simply estimates. “Observation to confirm this only waits upon experiment.” [p. 125-128]

### **On To Washington**

Some years later, Dodge said of his service as chairman of the Ohio Good Roads Commission:

Governor McKinley . . . often told me that if he should become President he wanted me to take charge of the road office for the United States government.

Governor McKinley became President on March 4, 1897, and served until he was assassinated in 1901. The new President retained General Stone in the ORI, but brought Dodge to Washington at the first opportunity. In June 1898, General Stone took a leave of absence to serve in the Spanish-American War. While Stone was away, President McKinley brought Dodge to Washington in August as Acting Director of the little ORI. General Stone returned to the Office on January 31, 1899, but resigned later that year on October 23. This time, Dodge was appointed permanent Director. According to Dodge, the opportunity arose when he “completed my term of service as senator in the state senate of Ohio.” [*National Republic*, p. 26]

President McKinley’s Secretary of Agriculture, James Wilson, had a more aggressive approach than his predecessor, Secretary J. Sterling Morton, under President Grover Cleveland. Secretary Morton, a fiscal conservative opposed to all forms of government “paternalism,” had spent much of his tenure trying to reduce the Department’s expenditures and role. He had limited General Stone to gathering information and disseminating it. By contrast, the Department’s official history stated that Secretary Wilson’s 16 years as Secretary (1897-1913) marked “a new era . . . for the Department, one characterized by expansion, the widening of the scope of its activities, and the strengthening of the relationship between the Department and the land-grant colleges.” [Centennial Committee, *Century of Service: The First 100 Years of the United States Department of Agriculture*, Department of Agriculture, 1963, p. 39]

Wilson, known as “Tama Jim” after his hometown in Iowa, had been a professor at Iowa Agricultural College, served in the Iowa State Legislature and the U.S. House of Representatives, and had introduced the first bill, in 1874, to elevate the existing Department of Agriculture to a Cabinet-level Department. [p. 40] Consistent with his general approach, Secretary Wilson wanted General Stone to “push the practical side of our work in preference to the academic,” as Stone put it in his annual report for fiscal year 1897. [p. 173]

In accordance with the Secretary’s injunction, General Stone initiated an object-lesson roads program modeled on a similar program by the Massachusetts State Highway

Commission. The idea was to build short stretches of road on or near State experimental farms for demonstration purposes on the theory that “seeing is believing”—that short stretches of good road would encourage the public to want more such roads. As explained in *America’s Highways 1776-1976*: “These would serve to instruct the roadmakers, to educate the visiting public and to improve the economic administration of the farms.” [p. 45]

With a limited budget, the agency had to rely on outside groups to assist in building the object-lesson roads. As General Stone explained in his annual report for FY 1897:

No funds being provided by Congress for actual road construction, I have been compelled to carry on road building by means of contributions from the various parties interested, viz, the agricultural colleges and experiment stations, the citizens concerned, and the manufacturers of road implements and machinery; the Road Inquiry contributing only a small installment of the expenses, through the payment of freight on machinery and part payment of wages of experts sent in charge of the machines, but keeping full control of the construction in order that the roads may be creditable to the Government when done. [p. 173-174]

With an investment of \$300 to \$500 in Federal funds for each locality, the Office could build from \$2,000 to \$10,000 worth of road. [*America’s Highways 1776-1976*, p. 46] The first object-lesson roads, on Nichol Avenue and College Avenue, were built at the Agricultural College and Experiment Station in New Brunswick, New Jersey, in June 1897. The ORI team improved 660 feet of Nichol Avenue with crushed rock from the cross street to the gate of the farm. Because of the difficulty of obtaining materials, ORI was able to provide crushed stone for only a portion of the planned 500-foot College Avenue project; the work was completed by local authorities. [Stone, Roy, “Object-Lesson Roads,” *United States Department of Agriculture Yearbook*, 1897, p.376]

### **Steel-Track Wagon Roads**

Although the object-lesson roads would demonstrate the latest techniques in road building and encourage their adoption, Secretary Wilson wanted General Stone to explore experimental methods as well. As historian Philip P. Mason explained:

The Office of Road Inquiry also was interested in the building of sample roads for purely experimental purposes in order to gain first-hand knowledge of the best methods of road construction. This program differed from the object-lesson road work in that the federal government paid all of the expenses . . . .

In the 1880’s and 1890’s . . . the main emphasis of road reformers was on hard-surfaced or macadam roads. It was soon discovered, however, that not only was this type of construction too expensive for most rural communities, but that many areas of the country lacked the gravel, rock or other hard material necessary to build such roads. The Office of Road Inquiry was soon aware of this problem and began to conduct experiments in 1897 with other types of road materials. [Mason,

Philip P., *The League of American Wheelmen and the Good Roads Movement, 1880-1905*, Ph. D. dissertation, 1957, University Microfilms International, p. 162-163]

As the number of motor vehicles increased, the problem would worsen because broken stone road surfaces, such as macadam, that served horses and wagons were not suited to automobile tires. The search for a suitable surface would continue into 1910s, with asphalt and concrete overtaking macadam, bricks, stone-clay, and other materials as the dominant surfacing materials for the automobile age.

Secretary Wilson wanted General Stone to focus initially on steel roadways. Dodge, who had not yet been appointed Acting Director, stated that he convinced the Secretary of the practicality of the concept. In the Department of Agriculture Yearbook for 1898, Dodge discussed his involvement, dating to 1891, with steel-track wagon roads. [p. 291-296] The principal advantages in any surfacing material, he said, were cheapness, durability, and reduction of power required to move a vehicle. He believed that everyone agreed that steel tracks offered the advantages of cheapness and durability, but acknowledged that in reference to cost and manner of construction, “there is great diversity of opinion.” He disagreed with earlier plans, proposed in 1894 and discussed during the National Road Conference in Asbury Park, where the steel tracks were placed on wooden substructures. He explained:

This wooden substructure adds to the cost of construction without adding to the real value or utility of the road, and can therefore be omitted with advantage, provided we can so adapt the steel track to the roadbed that it will combine with the materials composing the latter in such a way as to form a substantial and integral part of it.

Mr. Abel Bliss of New Lenox, Illinois, and Mr. F. Melber of Pittsburgh, Pennsylvania, had put down short experimental sections, only 25-30 feet long, reflecting what Dodge considered “the best form of construction,” but the sections were too short “to furnish any full and sufficient tests as to the value and utility of such roads.” In the fall of 1897, Dodge said, he had conducted the first true test of the value of steel-track wagon roads:

At that time the county commissioners of Cuyahoga County, Ohio, authorized the writer, by contract, to lay 500 feet of steel track on the Brecksville road, immediately south of the city limits of Cleveland. The form chosen for this track was one designed and recommended by Mr. Melber, but without the wooden substructure provided for by him in 1894. This track was not completed till June, 1898, and has been somewhat disturbed and obstructed since by reason of grading done adjacent to the track by the contractor, who was charged with carrying out more extensive improvements on the Brecksville road. The track, when completed, presented a fine appearance, and will doubtless give satisfactory results, but sufficient time has not yet elapsed to test it thoroughly in every respect.

With the Secretary's backing, General Stone initiated the experimental work by contacting the principal steel manufacturers, which offered construction plans. Stone favored a proposal by the Cambria Iron Company of Johnstown, Pennsylvania. In his annual report for FY 1897, he said:

Upon investigating what has been already done by private experiment I am confirmed in my former opinion that a well-designed steel trackway can be successfully built and will be profitable to use and maintain, especially in localities where other road materials are scarce.

The considerable expense involved in preparing to roll special shapes of rail has prevented much experiment in this direction heretofore, but the Cambria Iron Company is disposed to aid in the matter and will undertake this expense whenever a definite order for 1 mile of road shall be received. I have not succeeded as yet in getting such order and it will probably be necessary to ask Congress for a small appropriation for this purpose. The cost of material for a mile of road will be \$3,500. It will be advisable to put this down in several places, widely separated, in order that the test may be more complete and the exhibition more thorough. [p. 174-175]

Stone did not say so, but the Office was aware of Dodge's work in Cuyahoga County. The annual report for FY 1899, drafted by Assistant Director M. O. Eldridge and submitted by Acting Director Dodge, described Dodge's work:

This road is composed of inverted channel bars placed in such a position that they become a tramway or trackway. A broken-stone surface has been prepared for the horses to walk upon, and to enable the teamsters to take their wagons on and off the road at will. The road is laid in a street on which there is a large amount of heavy traffic and has already demonstrated the great value of steel in road construction. [p. 161]

The first Federal experiment took place under Dodge's direction while he was filling in for General Stone. At Dodge's urging, Secretary Wilson authorized construction of a steel trackway on the grounds of the October 1898 Trans-Mississippi Exposition in Omaha, Nebraska. Dodge's Yearbook article indicated that Secretary Wilson "determined to undertake, through this Office, a test as to the utility of the steel track, made and laid so that vehicles without flanged wheels might have the great advantage of a smooth track, heretofore enjoyed only by vehicles with the flanged wheels." [p. 292]

For the FY 1898 annual report, drafted by Eldridge and submitted by General Stone, described plans for the trackway:

The contract for the steel work has already been let to the Cambria Iron Company, and it will be completed in a few days. It is the purpose of the director of this office [Acting Director Dodge] to proceed to Omaha and superintend the laying of this track upon the roadway connecting the main street of the exposition with the

Indian village, where it can be seen and examined by all persons attending the exposition. It is also proposed to make traction tests upon this steel road, with a view to showing how much less power would be required to move vehicles over such a road than over any other heretofore built. It is expected that this experiment will show that steel roads can be built at no greater cost than other hard roads, that when built they will last many times as long with but little repair, and that the power required to move a vehicle will be reduced to a small fraction of that which is now required. It has been claimed that an animal can move fifty times its weight over such a road as is to be built at Omaha. The tests to be made by this object-lesson road will prove or disprove these claims. [p. 162]

Under Dodge's supervision, the Office's engineer in charge of object-lesson roads, General E. G. Harrison of Asbury Park, New Jersey, built 280 feet of steel track on the exposition grounds. In the Yearbook article, Dodge described the facility:

The road thus laid consists of two parallel lines of steel plates, 8 inches wide, laid at a sufficient distance apart to receive the wheels of vehicles of the standard gauge. These plates have a slightly projecting flange upward and on the inner edge, so as to prevent the wheels of ordinary vehicles, which have no flanges, from easily leaving the track. At the same time the flanges, being only one-half inch, are not of a height to prevent the vehicles from leaving the track for the purpose of passing other vehicles whenever the driver so desires. These steel plates are not supported by wooden cross-ties or longitudinal stringers of any kind, but are provided with flanges projecting both downward and outward. These flanges are embedded in the concrete of the roadbed so as to form a substantial part of it, and the steel plates are supported at every point by a substructure of cement or other enduring material. [p. 292-293]

The trackway included cross-ties, "not for support, but only to maintain the steel plates at a uniform distance from each other and also to prevent tilting and to maintain the face of the plates in a horizontal position." Without cross-ties of wood, the trackway "contains no perishable material . . . heretofore used and thought necessary for all steel-track construction." [p. 293]

After completing the exposition tracks, General Harrison built a 150-foot steel trackway at the State experiment station in St. Anthony, Minnesota, and a 180-foot trackway at the State College at Ames, Iowa, both in September.

Dodge reported that the cost of the steel-track road was about \$1 per foot, but he thought the cost would be lower when trackways were built in longer sections "requiring large quantities of material, and when the rolling mills are equipped with suitable rolls to get the shapes desired without the extra cost incurred in making the 'built section.'" He also thought that experience would indicate that the weight of steel could be reduced, resulting in additional cost reduction.

At the Omaha exposition, Dodge demonstrated that one horse on a steel trackway could haul an 11-ton load that would require 20 horses on an ordinary road. In the case of the steel trackway, the 11 tons consisted of men and boys, including Dodge in his top hat, on wagons. He also demonstrated that a “horseless carriage propelled by electricity” could operate on the steel-track wagon road, and that a bicycle could ride one track of the double trackway.

Thus, the experiment proved his point that the steel-track wagon roads were cheaper and theoretically more durable than regular roads. It also demonstrated that “the power required to move a vehicle . . . is only a small fraction of the power required to move the same vehicle over any other kind of road.” (In his *National Republic* article, Dodge stated that “The same demonstration was made at the Paris Exposition in 1900.”)

Although Dodge considered the trackways a success, the three experimental trackways built in the autumn of 1898 would be the ORI’s final experiments with the concept. The cost of retooling steel plants for manufacture of specially designed steel tracks proved prohibitive. With General Stone back in office but having missed much of FY 1899, Eldridge again wrote the annual report, which included a summary of the experiment:

These experimental sections of steel road clearly demonstrated their usefulness for the Western States and for the other level States which are but sparingly supplied with good stone or gravel. The time was so limited and the means at our disposal so inadequate that we had to prepare a design for these steel roads, using rails of the regular shapes found in the market. Imperfections were naturally found which can be easily remedied if steel again becomes so cheap that the manufacturers can take the matter up and make rails of special shapes, or if sufficient means are appropriated by Congress to perfect the system. [p. 157]

### **Director, Office of Public Road Inquiries**

As the permanent Director beginning October 23, 1899, Dodge continued many of General Stone’s initiatives, but with a different emphasis. Historian Bruce E. Seely said of Dodge:

In most respects, Dodge retained Stone’s mix of technical and promotional efforts through cooperation, but altered the balance of these activities, not to mention the style of operation. Stone had used technical activities to further promotion ends, whereas Dodge reversed the order. [*Building the American Highway System: Engineers as Policy Makers*, Temple University Press, 1987, p. 17.]

Dodge was aided by new instructions provided by Secretary Wilson on May 29, 1899. In the OPRI annual report for 1900, Dodge wrote:

According to the strict construction put upon the law by your predecessor (see letter of instruction printed in the report of this Office for 1893), we were, up to the time of your accession, prohibited from engaging in any practical road work. On May 29 of last year the Director of this Office received the subjoined letter of

instructions, to the effect that we should push the practical side of our work. Under these instructions this Office has embraced every possible opportunity to assist in or take charge of the construction of object-lesson, sample, or experimental roads.

U.S. Department of Agriculture  
Office of the Secretary  
Washington, D.C.  
May 29, 1900

Sir: In order that the provisions of the statutes relating to “Public-road inquiries” may be properly and efficiently executed, you are hereby authorized and directed to supervise, manage, and conduct investigations, inquiries, and experiments relating to the following subjects, viz.:

- (1) To make inquiries in regard to the various systems of road management throughout the United States.
- (2) To make investigations, by experiment and otherwise, regarding the best methods of road making and the best kinds of road-making materials to be found in the several States.
- (3) To prepare didactic reports and statements upon the subjects of road making and road management suitable for publication and distribution as bulletins of this Department.
- (4) To assist the agricultural colleges and agricultural experiment stations in disseminating, by object-lesson methods and otherwise, information on the aforementioned subjects.

The necessary expenses attending the execution of these instructions will be provided for upon requisitions and specific letters of authorization.

These instruction supersede all former general directions given you respecting the scope and purpose of the work of the Office of Public Road Inquiries.

Respectfully,

James Wilson, Secretary

These instructions [p. 279-280] formally confirmed the Secretary’s desire that Dodge continue the initiatives that he and General Stone had begun while undertaking the “practical” activities that Secretary Morton had opposed.

At the same time, OPRI remained a small office compared with its broadened task. Dodge would have to use his ability to work with the private sector, as well as his political skills, to accomplish the mission.

With the Secretary's and congressional support, Dodge took several steps in 1900 to strengthen his staff. One was to establish the organization's first field structure, with four divisions headed by special agents. The FY 1900 annual report explained:

The Congress at its last session appropriated an additional sum of \$6,000, over and above that usually appropriated heretofore, in order that the work of this Office might be extended; and for the purpose of carrying out that idea the United States has been divided into four divisions known as the Eastern, the Southern, the Middle, and the Western . . . .

The special agents were:

Eastern division—Logan W. Page of Cambridge, Massachusetts, who was the Chief of the Bureau of Chemistry's Division of Tests in the U.S. Department of Agriculture.

Southern division-- Professor Joseph A. Holmes, State Geologist, Chapel Hill, North Carolina.

Middle division--Horatio S. Earle, State Senator and Chairman of the Michigan State Highway Commission, Detroit, Michigan

Western division--James W. Abbott, Lake City, Colorado. [p 290]

Except for Page, the special agents were part-time employees. Dodge provided a look at their work in his annual report for FY 1901. Special Agent Abbott traveled 12,000 miles by railroad for the following activities:

He has, by personal interviews and private letters, brought the subject of road improvement to the attention of governors and other State officials, the editors of leading newspapers, professors in institutions of learning, presidents and managers of railroads, prominent civil and mining engineers, members of the legislatures, boards of county commissioners, road supervisors, the heads of leading industries, manufacturers of road machinery, besides a large number of influential private citizens.

He attended and participated in the work of four very important conventions, at two of which he read papers. He has written several articles for publication in leading newspapers, and numerous interviews have been published giving accounts of his movements and work. He spent some time in consultation with the road committees of the Colorado legislature and assisted in framing a carefully prepared road law. He visited many places in Colorado, Utah, and California, and gave advice where it was desired regarding specific or general road improvement. Mr. Abbott visited, practically at his own expense, this Office and the highway departments of New York, Massachusetts, and California . . . . [p. 238]

*America's Highways 1776-1976*, quoting this material, added:

All this for \$1,500 per year! Obviously, Special Agent Abbott also had a private income to draw upon, as did the other division heads. [p. 47]

Seely summarized the efforts of the special agents as reflecting Dodge's political style:

He hired three part-time special agents in part to supervise object-lesson roads but also to organize road conventions and meet with political and civic leaders. One drafted several bills after consulting with ten legislatures in 1899, while another agent distributed 200,000 copies of an OPRI circular on state aid to thirty-five Illinois farmers' institutes in 1901 before preparing a bill. In 1900, OPRI agents appeared in twenty-three states, for as Dodge's assistant later explained, "a great deal can be said in a speech that cannot be printed in a Department publication." [Seely, p. 17]

This division structure would be retained in expanded form until the mid-1940's.

The arrival of Logan Page in Washington would have long-term significance. Born in Richmond, Page graduated from the Virginia Polytechnic Institute in 1889 and went on to become one of the first three graduates of the highway engineering program that his uncle, Professor Nathaniel Shaler, had begun at Harvard.

In 1893, Shaler appointed Page, then 23 years old, to direct the testing laboratory of the Lawrence Scientific School at Harvard. In this capacity, Page served as geologist and testing engineer for the Massachusetts State Highway Commission, the Nation's first State highway agency. To learn about laboratory testing from the acknowledged international leader in good roads, Page took courses in France's School of Bridges and Roads (*l'Ecole nationale des Ponts et Chaussées*).

One of the challenges facing road builders was the availability of material suitable for use in roads. Each State had its own unique materials that were more or less suited to road building. In 1897, the ORI had begun working with the U.S. Geological Survey to identify satisfactory road materials. In 1900, Congress appropriated funds for a materials testing laboratory in the Agriculture Department's Bureau of Chemistry. Dodge, who believed that material testing was at the heart of French success in building good roads, hired Page to head the laboratory.

Page, with 7 years of experience in Massachusetts and training in French laboratory science, would establish the new laboratory as the Nation's primary scientific laboratory on road building materials. As Seely explained:

Like the object-lesson road program, the sample testing program was extremely popular. The railroads, contractors, quarry operators, government officials, and the public all sent samples of stone, rock, tar, oil, sand, and other materials for analysis and often asked for proper instruction on their use. Almost every letter received a short reply, and whenever applicable, a copy of a relevant office bulletin or circular. Under Page's guidance, the testing division also began

research projects into the use of Portland cement and other materials for road surfacing. The laboratory director was especially interested in cement and concrete, and as this work became known, he even received requests for help from manufacturers of concrete fence posts and cement wash tubs. The primary point is that the laboratory very quickly strengthened the Office of Public Road Inquiry's national position as the standard source of information on road materials and construction methods. [*Highway Engineers as Policy Makers: The Bureau of Public Roads, 1893-1944* , Ph.d. Thesis, 1982, University Microfilms International, p. 40]

### **Era of Transformation**

Dodge's tenure coincided with a national shift in surface transportation. As reflected in his Ohio work, he initially saw a shift from animal power to inanimate power. This was, he believed, part of a larger debate in society about the shift of population from farms to the industrial urban areas. In December 1898, the Acting Director told *The Washington Star*:

Some ten years ago I became satisfied that the agricultural industry in this country was passing through a period of decline, especially in the eastern and middle states. When the census report for 1890 was published, it was more apparent than ever before that the agricultural industry had not only declined as to its prosperity, but that relative to other industries it was losing its place. This was manifest by deserted villages in the rural districts, abandoned farm-houses, and an absolute decrease in the rural population . . . . In studying the causes of this decline in agriculture I soon observed that *those communities which had the best and cheapest means of transportation had suffered the least*, and that those communities that were poorly provided with the means of transportation had suffered most. [Emphasis in original]

States in the trans-Mississippi group, which had "the cheapest means of transportation for long distances by the steam railroads and the steamships upon the great lakes," suffered less of a decline:

On the other hand, the local communities who are dependent upon animal power to move their products have suffered the greatest decline where the wagon roads are poorest, and the least decline where wagon roads are best. So it seems apparent that the most important factor in producing the changed condition of population and the decreasing value of agricultural land is the item of transportation.

Dodge pointed out that the relationship was so clear that "the value of agricultural land can be accurately estimated by its distance from easy means of transportation." By "easy" or "cheap" transportation, he explained, "I mean something better than an ordinary wagon drawn over an ordinary unimproved road by animal power."

Documenting the cost of transportation under varying conditions was a task that General Stone, Dodge, and his successor would consider an important part of their scientific and promotional work. The purpose of the three steel trackway demonstrations in 1898 had been to illustrate a way of reducing the cost of transportation. Dodge summarized the latest findings:

The cost of moving tonnage 1,250 miles by steamships upon deep water, 250 miles on steam cars, or 25 miles upon electric cars, is no greater than the cost of moving tonnage five miles by animal power upon a common road. Having noticed this great difference in the cost of moving the productions of the country . . . it seemed to me imperative that everything should be done to supply the rural districts a cheaper means of transportation than they have ever enjoyed, and restore them as much as possible. [*Star* article quoted in "Effect of Roads on Population," *L.A.W. Bulletin and Good Roads*, December 23, 1898, p. 459]

While promoting the shift from animal to inanimate power, Dodge served as Director during the period when the automobile replaced the bicycle as the primary vehicle behind the Good Roads Movement. During the 1880's and 1890's, bicyclists had dominated the movement during The Bicycle Craze, including efforts to convince farmers that good roads were in their interest. Dodge, as Acting Director in 1898, cited the bicycle as an example of one of the trends he favored in an era when alternatives to the railroad were being examined. He suggested shifting focus from the roadbed to the vehicle riding over it and the means of its propulsion. He explained:

The roadbed, as commonly constructed, is of great width and solidity, yet the burdens passing over these roads are, as a rule, only from one or two tons in weight. It is unnecessary and unwise to build roads for the transportation of light burdens capable of sustaining burdens a hundred times the ordinary weight. Of course the new roadway should be hard and smooth. This can be effected by substituting steel for stone. In reference to the vehicle, the fault which expresses itself in excessive weight, is the result of a natural evolution based upon conditions heretofore existing, but now rapidly passing away and capable of complete elimination.

The bicycle offered four advantages over the horse-power commonly used on the roads:

First of all, the improvement of the roadbed can be effected without increasing the cost of its construction. In the second place, the weight of the vehicle can be greatly diminished in proportion to the load it carried. The bicycle is a noted example of what has been done in this respect. The chief value of the bicycle resides in the fact that it carries a burden many times its own weight. If it were constructed on the principle of nearly all other vehicles, so as to weigh as much, or more, than the burden it carries, it would have no practical value and would not be in use. It is possible, in my opinion, to construct other vehicles so as to attain, to a very great extent though not to so high a degree, the perfection of the bicycle in that the vehicle shall carry in all cases more than its own weight, and in most

cases many times its own weight. In the third place, having such vehicles as I have referred to above, it is possible to substitute inanimate power for animal power for all distance [sic] upwards of five miles, and by such substitution there would be a gain equal to four-fifths of the present cost for animal power. As a fourth element of advantage, and one resulting from the foregoing, there would be an increase in the speed of vehicles and consequently a proportional saving in time, which is also an economic gain of great consequence . . . .

No real progress was made in the development of the bicycle until the low wheels were put on and the centre of gravity lowered to the lowest possible point. This example should be imitated in the construction of other vehicles . . . . With a smooth truckway and a light vehicle placed upon roller bearings, it is possible to substitute inanimate power for animal power on all distances of five miles and upwards with a very great saving, equal to what is estimated to approximate four-fifths of the present cost for animal power, and as a natural result of these conditions there will come a great increase in the speed of the vehicle. [Dodge, Martin, "The Disadvantages of Animal Power," *L.A.W. Bulletin and Good Roads*, February 10, 1899, p. 201-202]

Soon, Dodge had to acknowledge that technology was moving in the opposite direction, away from light vehicles with heavy loads. Dodge put the evolution in historical perspective:

In the early history of this country the plan of internal improvement by the general government included the building of highways. This plan was strongly advocated by such statesmen as Clay and Calhoun and was followed until the introduction of the railroad furnished a cheaper means for the long haul than could be attained upon the ordinary highways . . . . Within the past few years new inventions have been made which are destined to change all this. We now have the bicycle, the automobile, the suburban street car, all moved without the aid of animal power and suited for use upon the highway . . . . The time has now come to take up, develop and carry out the original thought and intention of providing a cheap and easy way of moving light and ordinary vehicles over the common highways, to and from the houses of the people carrying themselves and their products. The one great thing which we need in order to accomplish this very desirable result is better roads. And in order to make sure of a rapid and permanent improvement of our highways we should appeal to the original system of internal improvement advocated by Clay and Calhoun. [Dodge, Martin, "Ideas of Clay and Calhoun," *The L.A.W. Magazine*, June 1900, p. 16-17]

The November 1900 issue of *L.A.W. Magazine* contained this brief item in its "Observations of the Month" column that reflected the shift to the automobile:

In relation to his active interest in the construction of an inter-state side path from Boston to New York to Chicago, Director Dodge, of the office of Public Road Inquiries, at Washington, informs us that he is confident that the completion of

such a wheelway would be but the first step toward the construction of an interstate national highway along the same route.

Having brought this part of the plan to a successful conclusion, the next step would be to interest the automobile people. Judging from the rapidity with which the automobile is becoming popular, and the success which has attended recent long-distance runs, the horseless vehicle is destined to spread beyond the metropolitan districts. As good roads are essential for the rubber tired carriage, Mr. Dodge hopes, by the aid of manufacturers, automobile clubs and property owners along the proposed route, to widen the cycle path into a road sufficiently broad for the automobile.

Having obtained a smooth and serviceable road, twenty feet wide, and running in as nearly a straight line as possible from Boston to Chicago, the further task of widening it for a universal highway would be the natural sequence. As soon as the states west of Chicago evince a willingness to fall in line, as some have already done, the work will be extended westward in the same manner. [p. 1]

### **Death of President McKinley**

On September 6, 1901, Dodge's patron, President McKinley was in the Temple of Music at the Pan American Exposition, a World's Fair held in Buffalo, New York. McKinley was greeting exposition visitors. Historian Paul F. Boller, Jr., explained that shaking hands with well-wishers was a favorite activity:

McKinley's handshake was famous. To save wear and tear on his right hand at receptions, the President developed what came to be called the "McKinley grip." In receiving lines, he would smile as a man came by, take his right hand and squeeze it warmly before his own hand got caught in a hard grip, hold the man's elbow with his left hand, and then swiftly pull him along and be ready to beam on the next guest. [Boller, Paul F., Jr., *Presidential Anecdotes*, Oxford University Press, 1981, p. 188]

Just past 4 p.m., the President reached out to apply the "McKinley Grip" to the next guest in the receiving line. The guest, a Polish anarchist named Leon Czolgosz, shot the President twice, once in the chest and once in the abdomen. After emergency surgery in the exposition's small hospital, the President was taken to the home of the exposition president, John Milburn. The President's condition was considered too grave for the longer trip to a larger hospital.

On September 14, *The New York Times* reported on the President's final hours. The article began:

Buffalo, Sept. 14.—Before 6 o'clock last evening it was clear to those at the President's bedside that he was dying, and preparations were made for the last sad offices of farewell from those who were nearest and dearest to him. Oxygen had

been administered steadily, but with little effect in keeping back the approach of death. The President came out of one period of unconsciousness only to relapse into another.

But in this period, when his mind was partially clear, occurred a series of events of profoundly touching character.

His Cabinet had arrived at the Milburn House:

They knew the end was near and that the time had come when they must see him for the last time on earth. This was about 6 o'clock. One by one they ascended the stairway—Secretary [of War Elihu] Root, Secretary [of the Interior Ethan A.] Hitchcock, and Attorney General [Philander C.] Knox. Secretary [of Agriculture James] Wilson also was there, but he held back, not wishing to see the President in his last agony. There was only a momentary stay of the Cabinet officers at the threshold of the death chamber. Then they withdrew, the tears streaming down their faces and the words of intense grief choking in their throats.

The President revived about 7:45 and asked to see his wife:

She came to the room strong in her weakness compared with the weakness of the strong man whose life was so fast ebbing. The physicians and all but one of the nurses in the room, and for ten minutes husband and wife sat alone. Mrs. McKinley came from the room and was escorted back to her own. This was the second time last evening she had been by the side of the dying President. When she left Mr. McKinley murmured words from the hymn, "Nearer, My God, to Thee."

From the Milburn house came State Senator Martin Dodge of Cleveland, an old friend of the President and a fellow-worker with him in years gone by. He was not permitted to enter the room, but stood in the hall trying to catch one last glimpse of the face of his early companion. As he reached the barrier in the street he stopped, looked about, and, while weeping, said "Gentlemen, the Nation's chief is dying. There is absolutely no hope, no chance."

While officials kept vigil, the President approached his end. It came on the afternoon of September 14. McKinley regained consciousness long enough to say his final words to his family:

"Good bye all. It is God's way. His will, not ours, be done. Nearer my God to Thee!" he said softly. Soon, he would be gone, and his Vice President, Theodore Roosevelt, would become President.

(Czolgosz would be executed in the electric chair at Auburn State Prison on October 29, 1901.)

### **Colonel W. H. Moore and the National Good Roads Association**

Just 2 days after President McKinley's death, the International Good Roads Congress opened on September 16, 1901, on the grounds of the Pan American Exposition. On July 22, 1901, the National Good Roads Association (NGRA) had called for the congress, with Martin Dodge supporting the proposal by issuing a notice of the congress. Acting Secretary of State Alvey A. Adee had issued an invitation to foreign governments on August 8, noting that, "The congress has the indorsement [sic] of the director-general of the Pan-American Exposition at Buffalo" but "will not be under the auspices or patronage of the Government of the United States." Nevertheless, "the Department would be glad if the Government of the country to which you are accredited could find it of advantage to send delegates to the congress." [*Proceedings of the International Good Roads Congress*, OPRI Bulletin No. 21, 1901, p. 5]

Throughout his tenure, Dodge would be closely linked with the NGRA, a private group headed by Colonel William H. Moore and based in St. Louis. *America's Highways 1776-1976* said of the NGRA:

Like many other good roads organizations, the National Good Roads Association had no permanent membership list and depended for its support on donations from civic groups, manufacturers of road machinery, suppliers of road materials, wealthy individuals, the public at large and even the railroads. Colonel Moore, the guiding spirit of the NGRA, was a skillful and persuasive promoter, with a wide acquaintanceship among influential people. [p. 48]

Moore was born in 1856, a native of Sheffield in Ontario, Canada, who grew up in Ontario's Lambeth. As he would put it in a speech to the North Carolina Good Roads Convention on February 12, 1902:

I lived on a farm until I was 16 years old, and I know what it is to travel through the mud to school, and I also know I missed many days when I should have been there.

He also discussed the origins of the NGRA:

This is the eleventh year I have been associated with this movement. It started in a Southern State—Missouri—in 1891. We next held a convention in Omaha, and then in St. Louis, and finally we got up to Chicago, and there held a national convention in 1900, with representatives from thirty-nine States, at which time this National Good Roads Association was organized . . . . [*Proceedings of the North Carolina Good Roads Convention*, OPRI Bulletin No. 24, 1903, p. 12]

With the Nation in mourning for the assassinated President, Moore opened the International Good Roads Congress on September 16. He explained:

It is not necessary for me to state that we meet under adverse conditions, for the hearts of the nation to-day are following the funeral train that is now on its way to the Capitol bearing the remains of our beloved President. [Bulletin 21, p. 6]

Dodge, addressing the congress as temporary chairman, began his comments in a similar vein:

I appreciate very highly, I assure you, the honor of being called upon to preside temporarily over your deliberations. I do so, however, with feelings of the most intense regret, that we and the entire nation have been overtaken by this great calamity—the assassination of our beloved Chief Magistrate. Undoubtedly the attendance of delegates is diminished by reason of that unfortunate fact.

Turning to the subject at hand, he stated that “it is a matter of regret that the Government has been somewhat slow to appreciate the necessities of the people in this great movement.” Citing annual appropriations as low as \$8,000, he explained that Congress had increased the appropriation to \$14,000 the previous year and to \$20,000 for the present year. “It is still, however, ridiculously small to meet the necessities and requirements of the case.”

(The reference to \$8,000 is correct. Although the Office began in 1893 with a budget of \$10,000, the annual amount was reduced in later years during the depression that followed the economic panic of 1893.)

The remainder of his speech covered familiar territory, including the evolution of vehicles, the shift from animal power to inanimate power, and the need for cheap transportation by road. He concluded with an observation that he made in other speeches and articles:

In conclusion, let me call your attention to the fact that the cheap rates which prevail upon the steam roads and the steamships have been largely brought about by the aid which has been given to them by the Government of the United States. You all know how many millions of dollars are and have been appropriated annually for many years past in the “rivers and harbors” bill to deepen the rivers and harbors and the water communication between the Great Lakes . . . . The Government has also given its aid to the long-distance railroads going through the prairies of the West and over the mountains to the Pacific coast, and in that way great results in the cheapening of transportation have come through Government aid . . . . But what I now think is that having accomplished so much in those directions and the needs being so great in reference to a matter which has been so long neglected, we ought all to agree that the Government itself should give suitable aid, and the various States would follow the example set by this State, Massachusetts, New Jersey, and other States, and push this work forward until we have accomplished for the short haul as much as has been accomplished for the long haul. [p. 11-15]

Later that first day of the congress, delegates adopted a resolution on the death of President McKinley, expressing their grief and deciding to adjourn on September 19, the day of his funeral.

Despite the somber circumstances, the congress was successful in its array of topics. The OPRI published the proceedings in November 1901 in a first edition of 10,000 copies. When that edition was exhausted, OPRI printed another 10,000.

### **Horatio S. Earle**

Horatio S. Earle, born in 1855 in Vermont, moved in 1889 to Detroit, Michigan, where he was a businessman specializing in road-related activities: Earle Cycle Company, Genesee Gravel Company, the Good Roads Supply Company, and the Earle Equipment Company. He joined the LAW in 1896, becoming chief consul of the LAW's Michigan Highway Improvement Committee in 1898. As he traveled around the State speaking on good roads, he observed the difference between rural and urban audiences, as historian Kenneth Earl Peters explained:

It became apparent that city dwellers were saying "if the farmers want good roads, let them build them," while the farmers were saying "if the cities want good roads to use for their pleasure, let them build them." Trying to soothe each group, Earle stressed to rural audiences that the roads could be partially financed by cities, but when he addressed urban groups, he tended to soft-pedal this line of argument. [*The Good-Roads Movement and the Michigan State Highway Department, 1905-1917*, Ph.D. Thesis, University of Michigan, 1972, University Microfilms International, p. 19-22]

In October 1899, Earle became Chief Consul of the LAW's Michigan Division. In December 1899, he announced a contest to increase membership and promote good roads. The first Michigan city to recruit 200 LAW members would host an international good roads congress in July 1900. Port Huron won the contest and became the site of the First Annual LAW Festival and Good Roads Congress on July 2-5, 1900.

Earle asked Governor Hazen S. Pingree to appoint 1,000 delegates but the Governor declined because, as Peters put it, "he felt that the majority of Michigan people did not favor good roads." Peters explained where Earle turned for support:

Consequently Earle approached Martin M. Dodge, the director of the U.S. Office of Public Road Inquiry [sic], who eagerly sent special invitations to prominent good-roads advocates throughout the United States and Canada as well as to Michigan legislators, journalists, and local officials. [p. 23-24]

Peters described Earle's plan to attract all types of people, not just good roads advocates, to the congress:

In order to attract and win over such a diverse crowd of people, Earle scheduled for the event a variety of activities, ranging from bicycle races to automobile tests, athletic games, band concerts, vaudeville shows, fireworks, a carriage parade, and all-night smoker, speeches, and a banquet. [p. 24]

Although the festival had to be fun, it was designed “to dispel the belief that road builders were mere visionaries.” Peters described how Earle helped to convey this idea:

Earle sought to establish the idea that with wise investment of money and modern techniques, men could build roads at a reasonable price. Earle sought to demonstrate his ideas through two devices—his good-roads train and the object-lesson road. On July 4 Earle hitched together the first good-roads train ever assembled. It consisted of a traction engine, a road roller, a sprinkler, dump wagons, and farm wagons, which were loaded with several hundred people riding to the festival’s major event, the object-lesson road. This macadam road, financed through donations of equipment and materials from the Port Huron Engine and Thresher Company, was the first object-lesson road built in Michigan under the supervision of a road expert from the U.S. Office of Public Road Inquiry [sic]. [p. 25]

(Peters pointed out that, “Earle admitted that the credit for the train rightfully belonged to Maurice O. Eldridge” of the OPRI. [p. 25, footnote 10])

Dodge described the object-lesson road in his annual report for FY 1900. He had dispatched General Harrison to build the object-lesson road at the Port Huron festival:

The crushing plant and the road machine, kindly placed at the disposal of the Office by a road-machine company, were operated by Mr. J. M. Starkweather, who also had general supervision of the road. An enterprising engine and thrasher company supplied a traction engine, provided with extra wide wheels for rolling, a spreading wagon, and sprinkling cart, as well as otherwise materially aiding the enterprise, and it was largely due to the efforts of this company that the work was so successfully completed.

A special feature of the work was that the traction engine was used instead of horses to draw the road machine and dumping wagons, which plan proved very satisfactory. Thus, the traction engine served the treble purpose of furnishing power for the crusher, drawing the road grader, etc., and rolling the road . . . .

Part of the sample [road] had been completed and part was under construction when the convention met. Thus the delegates were afforded an opportunity to observe the methods and details of construction and to see the principles, taught by the road builders present, actually put into practice.

Dodge joined General Harrison on July 2 “and took general supervision of the work July 2, 3, and 4, making explanations of the work done there and in other parts of the country by this Office.” Dodge also presided over the convention of July 3 and 4.

The results of this meeting, and especially the object-lesson road, of which there was about a mile built under the auspices of the Government, were so satisfactory that many applications were made to have similar work done at other places. [Annual Report, 1900, p. 289]

Peters concluded that Earle’s “hard work yielded overwhelming success and tangible results,” with hundreds of delegates from the United States and Canada:

Another important outcome was the adoption of the following bold resolutions: to call upon the United States government for liberal assistance in road building; to extend the powers of the Office of Public Road Inquiry [sic] so that it could develop educational campaigns and object-lesson roads in every state; to use convict labor for preparing road materials and building macadam roads. [p. 25-26]

When Dodge announced his selection of special agents for regions of the country, he granted Earle a 90-day appointment as a special agent of the OPRI for the Midwest at a salary of \$500 plus expenses. [Peters, p. 27, footnote 14] Earle sought the appointment partly because he thought it would help his effort to win election to the State Senate where he planned to promote good roads:

As special agent Earle concentrated most of his efforts on publicizing, and educating the public about, good roads in Michigan. He primarily sought to achieve his purposes through good-roads conventions. The largest was in Saginaw on August 21-22, 1900. Martin Dodge wholeheartedly cooperated with Earle by sending a road engineer to supervise an object-lesson road, by ordering an assistant to negotiate with railroads for free transportation of machinery to the convention, and by offering to issue invitations. Although the convention was not as large as the one in Port Huron, hundreds of people attended, and the event was very successful primarily because of the . . . object-lesson road, which good-roads proponents hoped would persuade the farmers to join the crusade for better roads. [p. 27-28]

Dodge described the Saginaw work in his annual report for FY 1900:

About August 10 the work of actual construction was begun on the object-lesson road built south of the city of Saginaw. A distance of 8,017 feet was prepared, by properly grading first, then the crushed stone was put on in layers as usual and rolled, so that when the convention assembled on the 21<sup>st</sup> there was an opportunity to see the road in every stage of improvement, from the undisturbed earth at one end to the finished roadway at the other. The work was substantially

a repetition of what we did at Port Huron, except that a longer distance was undertaken. [Annual Report, p. 289-290]

Again, Dodge joined General Harrison on August 18 “and remained until August 22 explaining the work.” Dodge also presided over the Saginaw convention.

(In September 1900, Dodge appointed a new special agent for the Middle Division, State Senator James H. Stout of Menomonie, Wisconsin. Stout, who was elected to the State Senate in 1894, was a good roads advocate who had sponsored an ORI object-lesson road in FY 1899 in Menomonie. The “model road” proved itself in the rainy months, according to the *Milwaukee Sentinel*, which stated:

If there were such roads throughout the State, as there may be eventually if a systematic scheme of road construction is indorsed by the people, thousands of farmers will reap benefits that will be worth to them many times what they are assessed to help pay for the roads. As the assistant director of the Agricultural Department Bureau of Road Inquiry [Eldridge] said in a recent report: “The difference between good and bad roads is often equivalent to the difference between profit and loss.” Anyone who observes the results attained by the Menomonie model road can appreciate the significance of this remark. [Quoted in Annual Report, 1900, p. 286]

On November 6, 1900, Earle won election to the State Senate, running almost entirely on a good-roads platform. Earle was also encouraged that voters elected an LAW member, Aaron T. Bliss, as Governor.

Although the new Governor would support good roads, Earle realized it was up to him to get good roads legislation through the legislature. In the 1901 legislature, Earle “perhaps made a pest of himself by using a rule that permitted him to make a good-roads speech on every bill.” [Peters, p. 29] In May, he secured passage of a concurrent resolution calling on Governor Bliss to appoint a Michigan State Highway Committee. Governor Bliss signed the resolution and appointed the seven men Earle had recommended, including himself. The committee met the same day, May 21, and chose Earle to be chairman. [Peters, p. 31]

In February 1901, Earle had been elected president of the national LAW, but the organization was fading along with the Bicycle Craze as a result of the automobile. When Earle’s term as president ended on December 6, 1901, he began to create an organization, which he called the American Road Makers, to carry on the fight for good roads that the LAW with its declining membership could no longer lead. Earle had chosen the name for his group because its acronym “ARM” meant that the association “will never lower its arm until its purpose, ‘The Capital Connecting Government Highway’ is attained, connecting every state capital with every other state capital, and every capital with the United States Capital—Washington.”

Peters stated that, “Earle’s plan to start the American Road Makers received prompt endorsement from Martin Dodge, who, like Earle, discerned that if the rapidly growing number of professional road builders and engineers could be effectively organized, better roads might emerge more quickly.” Although Earle issued invitations to 200 people around the country to attend the organizational meeting, only four were present at the Cadillac Hotel in New York City when the American Road Makers was organized on February 12, 1902. [p. 33-34] Despite this inauspicious beginning, ARM would evolve into the influential American Road Builders Association, which was renamed the American Road and Transportation Builders Association in the 1970s.

In the OPRI’s annual report for FY 1903, Dodge recalled the Saginaw object-lesson road built in 1900, “the longest piece of object-lesson road ever built in any one place by the Office of Public Roads Inquiries . . . it being nearly 2 miles in length.” The road had, he explained, helped enact the State good roads law as well as encouraging Saginaw County to vote to expend \$60,000 a year to improve its roads:

This new work was inaugurated on June 19, 1902, at a great meeting held in the city of Saginaw, after which a grand procession marched through the city about 2 miles out to the road where the actual work was begun. This procession was headed by the governor of Michigan and his staff, and the mayor and police force of Saginaw. Ground was broken for the new work by the governor. Governor Bliss, of Michigan, therefore, has the credit of being the first governor to put his hands to plow in this new and great work of road building by cooperation. The city of Saginaw, the county of Saginaw, the State of Michigan, and the United States Government were all represented at this meeting, and they all cooperated in producing the result. [p. 334]

On July 29-31, 1902, Earle and the State Highway Committee staged a 3-day exposition in Greenville. Dodge, who had helped plan the event during a visit with Earle in Detroit on June 13, issued invitations to influential people around the country. Peters noted that, “Earle received word on July 1 that Michigan railroads, which were vitally interested in obtaining better roads to and from their stations, would grant half-fare rates to persons traveling by train to the exposition.” [p. 37] Over 25,000 people attended the event.

On July 30, Dodge addressed the convention on "Government Co-operation in Object-Lesson Road Work." He discussed the history of road building in the United States, including construction of the National Road, the era of toll roads, and the passing of responsibility for roads to counties and townships. That was sufficient in an earlier time, but now, the local road officer finds “himself deficient in skill and the proper kind of resources.” Dodge summarized the work of the OPRI, including object-lesson roads and Logan Page’s work in testing rock samples. In discussing object-lesson roads in 1900 and 1901, he said, "In all of these cases the co-operation has been very hearty on the part of the state, the county, the municipality in which the work has been done, and the results have been very satisfactory and beneficial." *Good Roads Magazine*, August 1902, p. 3-6]

According to Peters, Earle was encouraged by the popularity of the object lesson roads built in Michigan to begin developing plans for another good roads train. It would “consist of an engine, several railroad cars containing current road building machinery, and a Pullman car for road-machinery operators and for good-roads experts, such as Martin Dodge and E. G. Harrison.” Earle’s plan was elaborate:

The train was to travel to twenty-five states, stopping at designated communities, where the road experts would give talks on good roads, and the machinery operators would construct object-lesson roads. According to Earle, the purpose of his good-roads train was to show the people what could be done toward building and improving roads by using the most scientific, modern machinery.

Earle began organizing the Earle Good Roads Train Company in June 1901, but planning lagged. Peters stated:

The train began to roll when financial backing came from many railroads, the Port Huron Engine and Thresher Company, the Acme Road Machinery Company, and individuals who offered free meals and lodging to passengers on the train. On May 5, 1902, the Pere Marquette Railroad even assured Earle that it would haul the good-roads train free of charge over company tracks, whenever Earle desired. Earle’s good-roads train operated in Michigan for four weeks in 1901 and for nineteen weeks in 1902. [p. 38-39]

*America’s Highways 1796-1976* stated that neither Dodge nor the OPRI’s road experts participated in the Michigan venture. [p. 50] The book did not explain their absence, but by then the OPRI was involved in a more grandiose enterprise.

### **Good Roads Trains**

Although Earle had employed a railroad to promote good roads, Colonel Moore is usually credited with conceiving the Good Roads Trains. *America’s Highways: 1776-1976* explained:

In 1901 he conceived the idea of a traveling good roads show that would cover the country, educating the public on the advantages of improved highways, very much in the manner of the circuses and the popular Chautauqua shows [a traveling series of lectures]. He persuaded the road machinery companies to help with this project by donating their latest models, along with trained operators, to run them. [p. 48]

He asked the railroad companies to help transport the men, exhibits, and equipment, and asked Dodge for his support:

[He] approached Director Dodge to give Government sanction to the idea by providing a road expert to lecture on roads and supervise demonstrations of roadbuilding. Dodge was unable to help because his budget was already

committed to other work; however, when the Association offered to pay the expert's salary and expenses, he agreed to participate and designated Special Agent Charles T. Harrison of New Jersey [the son of General E. G. Harrison, who had died in February 1901 at the age of 73] as the OPRI's representative. [p. 48-49]

The Good Roads Trains increased the impact of the object-lesson roads by allowing the free use of the latest equipment, generating publicity over a wide area, providing a forum for meetings, and promoting formation of State good roads organizations and adoption of State road laws.

In preparation for the Good Roads Trains, the NGRA used an advance publicity campaign to promote attendance, sent agents ahead of the train to organize conventions, and arranged for donations of labor and materials for the object-lesson road construction that served as the cornerstone of each stop. After construction was underway, Harrison would conduct a Good Roads Day for the farmers and local officials. He would explain the new construction as he worked on it, lecture on the importance of drainage, and explain stone surfacing and road maintenance. [p. 47-49]

These trains, which were popular and effective, were an example of the close relationship between the early good roads movement and the railroads. Because highways were viewed as feeders bringing people and goods to the railroads, officials of the railroad companies saw road improvements as being in their own interest. (This relationship lasted until World War I, when heavy demands exceeded railroad capacity, giving truckers an incentive to expand their range in intercity shipments. Only in the 1980's and 1990's would the relationship be revived, thanks largely to the container/piggyback revolution.)

The first Good Roads Train ran on the Illinois Central line from Chicago to New Orleans (April 20 to July 27, 1901), with Dodge along most of the way. (He left the train at Jackson, Mississippi, where Assistant Director Eldridge took his place for the remainder of the trip.) The nine-car train stopped in 16 cities and five States. In the annual report for 1901, Dodge explained:

The "good-roads train" visited the following places, where sample roads, varying in length from a half mile to 1½ miles, were built and where the officers of the National association organized permanent local and State associations: Flossmoor, Ill.; New Orleans, La.; Natchez, Vicksburg, Greenville, Clarksdale, Oxford, Granada, McComb City, and Jackson, Miss.; Jackson, Tenn.; Louisville, Hopkinsville, and Owensboro, Ky.; Cairo and Effingham, Ill.

About 20 miles of earth, stone, and gravel roads were built and 15 large and enthusiastic conventions were held. The numbers attending these conventions and witnessing the work were very large, in nearly every instance more than a thousand persons and in some cases 2,000 persons being present. Among the attendants were leading citizens and officials, including governors, mayors,

Congressmen, members of legislatures, judges of the county court, and road officials. This was undoubtedly the most successful campaign ever waged for good roads, and the expedition has been of great service to the cause, and especially to the people of the Mississippi Valley. [p. 243]

In the annual report for 1902, Dodge printed comments from good roads associations regarding the roads built during the first Good Roads Train. One was from Harry H. Hodgson, Secretary of the Louisiana State Good Roads Association. Although nothing had been done to the earth road since it had been built in the city, "it was so built that it is in very good order." Further, "the piece of road built had greatly benefited several road committees in our parishes, resulting in their making a number of improvements." Similarly, J. W. Ross, Secretary of the Goods Roads Association in Natchez, reported that the road built in that city "had done a vast amount of good," and had inspired the Board of Supervisors. As a result, "we think in time that every road in this county will be put in magnificent condition."

Stokely D. Hays, President of the Tennessee Good Roads Association in Jackson, reported the object-lesson road "is in good condition and is well constructed." It had inspired "a general demand for road improvement in this county." He predicted: "I think it will not be a very great while before there will be a concerted effort on the part of the citizens of the county looking to the construction of better roads throughout the county."

In Louisville, OPRI's Harrison had built a mile of earth road from Elwood Avenue to the country club. It "has awakened interest in the movement throughout the state," reported J. C. Van Felt, Secretary of the Kentucky Good Roads Association in Louisville. Since then, "the country club has had it macadamized, and it is as pretty a road as one could wish to see." Because of the interest stirred by the Good Roads Train, the 4-year old association was "doing more for the cause than ever before." [p. 310-311]

The second Good Roads Train ran from Chicago to Buffalo, New York, later that same year. In the 1902 annual report, Dodge said:

During the month of September, 1901, another good-roads train, organized in Chicago and carrying all kinds of modern road-building machinery, proceeded over the Lake Shore and Michigan Southern Railroad to Buffalo, where the machinery was used in the construction of samples of macadam and earth roads on Grand Island, near Buffalo. The good-roads train was on exhibition on the grounds of the Pan-American Exposition during the session of the International Good Roads Congress. This was the first international good roads congress ever held which was attended by European delegates. It was attended by prominent statesmen and officials, road experts, and engineers from various parts of this and other countries, and the results, it is believed, will prove far-reaching in their benefits. [p. 309]

### **Southern Railway Good Roads Train**

Of all the Good Roads Trains, the Southern Railway Good Roads Train was "the most spectacular project," as Seely put it. [Book, p. 18] It left Alexandria, Virginia, on October 29, 1901, and continued its work until April 5, 1902 (with a December break for the holidays). It cost the Southern Railway \$80,000.

Dodge's annual report for 1902 summarized the tour:

During the intervening time it traveled over the Southern Railroad and its branches through the States of Virginia, North Carolina, South Carolina, Tennessee, Georgia, and Alabama, a distance of 4,037 miles, stopping at eighteen different places and building as many object-lesson roads. The following places were visited, where conventions were also held: Winston-Salem and Asheville, N.C.; Greenville and Chattanooga, Tenn.; Birmingham, Mobile, and Montgomery, Ala.; Atlanta and Augusta, Ga.; Greenville, Columbia and Charleston, S.C.; Lynchburg, Danville, Richmond, and Charlottesville, Va.

The governors of several of the States issued proclamations announcing the arrival of the train and urging the people to witness the object-lesson work and to participate in the deliberations of the conventions held. These conventions were addressed by the governors, United States Senators, Representatives in Congress, generals, professional and business men, farmers, and others. The addresses were of an unusually high class and were very instructive, as they covered almost every phase of the road question . . . .

This Southern Railroad good roads train was equipped with twelve carloads of the most modern and improved road-building machinery, as well as two officers' cars for the road experts and officials of this Department and the National Good Roads Association, and one camp car for the laborers. The train, its equipment, and operating force were all supplied by the railroad company, while the road-building machinery and the expert operators of the same were furnished by the road-machine companies. In all cases the materials and common labor for the road work were supplied by the local authorities. The Government furnished instruction and scientific information, expert road builders, and didactic literature pertaining to the work. At all the places visited samples of stone, gravel, chert, earth, or shell roads were built, so adapted to local conditions as to show the best and most economic use of the available materials. [p. 309-310]

The train carried the following machinery:

Road graders: One Western road grader, two elevating road graders, three steel Champion road machines, and one Buckeye road machine.

Engines: One 25-horsepower portable engine and boiler, and one 18-horsepower portable engine and boiler.

Rock crushers and elevators: One No. 4 Champion mounted crusher, one No. 4 stationary Champion crusher, one Aultman mounted crusher with elevator, one 18-foot elevator with mounted bin, and one 10-foot elevator with bin.

Wagons and carts: One 1½-yard Aurora wagon, 2 Champion distributing carts, one iron-axle cart, one dump wagon, and one sprinkler.

Road rollers: One Buffalo-Pitts 10-ton double-engine road roller, one 6½-ton horse roller, and one 3½-ton horse roller

Miscellaneous: Eight wheel scrapers; seven plows of different styles and sizes; two disk harrows; seven drags; picks, shovels, screens, etc. [*Road Conventions in the Southern States* , OPRI Bulletin No. 23, 1902, p. 10]

Dodge, Assistant Director Eldridge, and other OPRI officials accompanied the train, which traveled in a westerly loop via Tennessee to Mobile, Alabama, before returning to Virginia on an easterly loop. Participants constructed a total of 12 to 15 miles of roads using earth, gravel, sand and clay, chert, shell, and macadam, depending on the availability of the material.

OPRI Bulletin No. 23 discussed the object-lesson roads built at each stop, described the conventions, and printed many of the speeches delivered along the way. From the bulletin and articles in *Good Roads Magazine*, a sampling of the activities at each of the stops can be provided as a way of exploring the concerns of a time when the United States was still trying to decide whether to commit to the automobile and the road.

### **Winston-Salem, North Carolina**

The train reached the first stop, Winston-Salem, North Carolina, on October 30. The road building equipment, all of it new, was put to its first use on North Liberty Street, just beyond the city limits. The OPRI bulletin explained the project:

About 1,000 feet of macadam road and 400 to 500 feet of earth road were made. The soil for the roadbed and the other materials at hand were well adapted for the purposes. The subgrade had previously been prepared by convict labor for a width of about 34 feet and was comparatively level. The road graders were utilized in preparing the foundation for the stone work, and the steam roller was used both on the foundation and in preparing the macadam. The foundation stone was composed of crushed granite shipped by rail from the Mount Airy (N.C.) quarries. This foundation was of a uniform depth of about 5 inches. Excellent local trap rock was crushed by the good roads crushing plant and used for the second layer and for finishing. A most excellent piece of macadam was constructed, demonstrating the use of local material in preference to that shipped in by rail. In making the earth road the elevating grader, road machine, and roller were used.

The bulletin added:

Since the visit of the good roads train the local authorities have largely extended the work done there, and plans have been made for building in Forsyth County a large amount of modern macadam road as well as improving many earth roads. [Bulletin 23, p. 11]

Governor Charles B. Aycock opened the 2-day convention by thanking participants in the Southern Railway Good Roads Train “for what they are doing for good roads.” In his brief remarks, he stressed the link between good roads and education, saying, “When our roads are good we can do something for the country schools, and that is what I hope for.” [Bulletin 23, p. 12]

U.S. Senator Furnifold M. Simmons, a lawyer who served in the Senate from 1901 to 1931, told the convention about the political reality that a way must be found to convince the majority of people in a community to support good roads “for the roads must be built by some system of taxation.” He continued:

You ask why the legislators do not pass the needed laws anyway. Well, you may say what you please, but the fact stands that the average man who goes to the legislature or to Congress will not vote for a measure that he knows the majority of the people who elected him are opposed to.

He hoped that in North Carolina, at least, “we can discuss such questions as this without consideration for one’s political fortunes.”

Senator Simmons agreed with the Governor about the link between good roads and education:

Good roads and education go together. Educate the people and there is no power in the world that will keep them from building roads. Build roads and you can not keep the people from becoming educated. [Bulletin 23, p. 12-13]

Delegates organized the Northwestern Good Roads Association of North Carolina, with headquarters in Winston-Salem. They also adopted resolutions endorsing the work of the Good Roads Train and the OPRI. [Bulletin 23, p. 15]

### **Asheville, North Carolina**

The train was in Asheville from November 4 to 7. As at Winston-Salem, convicts were employed to construct a sample road at Emma outside the city. It included 1,000 feet of earth road and 1,000 feet of macadam. The convention lasted 2 days, November 6 and 7, resulting in formation of the Appalachian Good Roads Association. [Bulletin 23, p. 15]

The bulletin printed only one of the speeches. Mr. M. V. Richards, Agent of the Land and Industrial Development of the Southern Railway, assured the convention:

I express the opinion that this good roads movement will be carried forward until the fullest measure of benefit will be received therefrom by the people of the South. There is growing demand for better roads; the present decade will pass into memory as the good roads age. [Bulletin 23, p. 17]

## Greeneville, Tennessee

The Southern Railway Good Roads Train reached Greeneville on November 8 and stayed through the 12<sup>th</sup>. Inclement weather delayed the object-lesson work on the road from the village limits to Tusculum College. (According to the college's Web site: "Founded in 1794, Tusculum College is the oldest college in Tennessee, the twenty-eighth oldest college in the nation, and the oldest coeducational institution affiliated with the Presbyterian Church (USA).") Despite delays, the team prepared 1,000 feet of foundation for the crushed stone road. The account noted:

A fund for the improvement of this road to Tusculum College, a distance of 3 miles, has already been raised, and it is believed that the object-lesson road work at Greeneville will inaugurate not only scientific and practical methods of construction, but the building of many miles of roads out of the excellent limestone rock which is so plentiful in that county. [Bulletin 23, p. 18]

The 2-day convention, November 11 and 12, featured speeches by a representative of Mayor Mitchell, J. B. Bewly of the Greene County Commissions, Colonel Moore, and Representative Walter P. Brownlow, who spoke on the road history of east Tennessee, as well as the importance of securing improved highways. However, the ORI Bulletin reprinted only one of the addresses, Assistant Director Eldridge's illustrated lecture on "The Highways of Europe and America." Eldridge presented versions of this popular speech, using stereopticon images, on many occasions. As reproduced in the bulletin, Eldridge began:

When we review the pages of history back to the dawn of civilization we find that the first promoters of art and science, commerce and manufacture, education and government were the builders of enduring highways.

He cited ancient examples, beginning with Memphis, the first capital of unified Egypt dating to about 3100 B.C., and Babylon, the ruins of which are in Babil Province, Iraq, about 55 miles south of Baghdad. He said that "the two most ancient centers of civilization . . . were connected by a commercial and military highway." After discussing roadbuilding in modern England, France, Italy, Spain, Switzerland, and other countries, he turned to the history of roads in the United States. He described the National Road built in the early 19<sup>th</sup> century, as well as more recent efforts. Eldridge concluded:

For beauty, grandeur, and magnificence our mountain scenery can not be surpassed, but it is unfortunate that so much of it is practically inaccessible to the lovers of nature. Except in a few isolated spots like this [Colorado along the Ouray and Silverton Toll Road, shown in the illustration he used] or the Yellowstone Park it is far more pleasant for wealthy Americans to spend their summers traveling through Europe, where good roads abound. By the construction of good roads Switzerland has been made "the pleasure ground of Europe," but if we should add good roads to all our other attractions and advantages over foreign countries we could turn the tide of pleasure seekers and

make our country not only a garden spot but the pleasure ground of the whole world. [Bulletin 23, p. 19-24]

(Comments such as this were common at the time and would coalesce into the “See America First” movement over the next decade.)

The East Tennessee Good Roads Association was organized “to cooperate with the State association, the national association [i.e., the NGRA], and the Office of Public Road Inquiries.” Delegates adopted resolutions thanking the NGRA, OPRI, and the Southern Railway Company “for their presence and assistance.” Other resolutions called attention to the importance of the Good Roads Movement, demanded the opportunity to vote on issuing road bonds, and promised “redoubled efforts along the lines mapped out by the convention.” [Bulletin 23, p. 24]

### **Chattanooga, Tennessee**

In Chattanooga from November 13-16, OPRI’s Harrison led construction of a sample road on a 3,500-foot straight stretch of Vance Avenue at the foot of Missionary Ridge. The clay loam soil of the roadbed was a good soil for a road “if properly drained and consolidated.” To illustrate proper construction of an earth road, Harrison proceeded by “simply rounding it up with the road machine, leaving wide and open ditches on both sides, and rolling the surface with the heavy steam roller.” [Bulletin 23, p. 25]

Col. Moore, in his speech to the 2-day Chattanooga convention, referred to the road to Tusculum College:

I am sure those people in Greeneville, where we had such a successful meeting, would not have had anything permanent done in the near future for good roads unless we had visited them. They are going to complete that road to Tusculum College, and it will enable that college to get more money and more students. If they get that road to the college they are going to put in an electric car line. So you see what improvements follow in the wake of good roads.

The same could happen in Chattanooga, destined to be “one of the greatest cities in the country” in 25 years or so. Moore did not expect much help from the State legislature at the time, “but in a short time, when you have your organization, I am sure the legislature of Tennessee will fall in line and help the roads.” [Bulletin 23, p. 26]

Hamilton County Commissioner J. W. Clift addressed the convention on “Requisites to Road Improvement.” He recalled being summoned to Chattanooga for a meeting of the commission building the county courthouse:

The whole country was flooded with water and the river was out of its banks. I mounted my horse, however, and came. Up here by Square Forks my horse mired down with me in the public road so that I had to get off into mud knee deep. That was the condition of farmers then. Such a state of affairs could not be

encountered now with our improved roads. It would be impossible for a horse to mire now on the road between Chattanooga and the upper end of our county.

Clift discussed the two most important requisites of road building. First, he said, was a “wise, wholesome, common-sense law under which these roads may be constructed.” The current law in the county was effective, but he added, “The most important requisite in carrying out of the provisions of the road law is the selection of proper men to take charge of the roads.” The second requisite was funding. Although the county had been “crippled somewhat for funds,” he said that “a long stretch of good roads [had been] built in our county under the contract system.” By selecting contractors solely on merit, “we have made good progress in road building.” [Bulletin 23, p. 27]

Colonel R. W. Richardson, secretary of the NGRA, addressed the convention on the “Character of the Good Roads Movement.” He explained that, “The high purpose of this movement is not always understood.” The railroad men, he said, understood that developing roads “means eventually larger returns for them.” What was not as well understood was that the issue crossed city and county lines. The “question of transportation is one of greatest importance to every town and section.” If the “enterprising men of Chattanooga” want to build up their city, they must not limit themselves to improving the city’s roads. They “must broaden their views until they reach all the surrounding country.” He said:

Now, the question of good roads is primarily an industrial question. It is at the very basis of the transportation question. Its solution means larger, broader, and better commercial and social conditions, and the people of this particular district can do nothing wiser than to improve the highways over which are transported all their commodities before they reach the great railroads.

Each locality would have to work out its transportation problems “according to the conditions involved.” The Good Roads Train was designed to help:

We come to you with this train, carrying its complement of machinery and improved methods. We do not hope that we are going to revolutionize your methods. We only hope to inspire the people where we make these stops to give their attention to the matter of organization for road improvement.

Communities should work together to build common highways that cross jurisdictions. “It will not do much good to build a short stub of a road if you plunge into the mud at the end of it on reaching a county line.” Cities, counties, and towns should cooperate to connect their roads. He concluded:

These are the thoughts that we have tried to burn into the minds of the business men of the country through which we have come. [Bulletin 23, p. 27-28]

The Chattanooga District Good Roads Association was organized during the convention. The bulletin did not list the resolutions adopted, but noted that they were “suitable.”

### **Birmingham, Alabama**

Beginning with Birmingham, the first stop in Alabama, the train spent a week at each stop to allow more time for sample road building. Unlike some other locations visited, Jefferson County, in which Birmingham is located, “has often witnessed practical road demonstrations, that county to-day having 225 miles of improved public highways, including chert and macadam roads, and some of the finest to be found anywhere in the United States.” As a result, “The interest of the people in the coming of the train and in the movement was very great, greater perhaps because the people were constant witnesses of the value of improved highways.”

The sample road was built on an extension of Avenue A from 24<sup>th</sup> Street, from Birmingham to Avondale, a distance of about 1.5 miles:

In the six days’ work fully a mile of this road was completed, and some work was done over the entire distance. This work consisted of cutting, filling, grading, and macadamizing.”

The main goal was to demonstrate “the proper use of local materials, slag and chert, in connection with the latest improved road-building machinery.” [Bulletin 23, p. 29]

The convention was held on November 20 through 22. Mayor W. M. Drennen welcomed convention participants to Birmingham. Although the county had good roads, he welcomed the opportunity presented by the Southern Railway Good Roads Train to learn “the most up-to-date methods of building country roads.” He added:

Now, if we can get the people of Alabama more interested in the improvement of public roads throughout the State we will have won a great victory.

Colonel J. M. Falkner of Montgomery, Alabama, addressed the convention on the duty of the Federal Government. Although he was a “strict constructionist” of the Constitution, Colonel Falkner said “there is no question as to the power of either the Federal or State governments to do what is necessary in the interest of good roads.” He argued:

The Government of the United States has undertaken to carry and deliver the mails, and this to-day is essentially a governmental function; and the governments of the several States have undertaken to furnish highways; therefore, it follows that whatever powers may be necessary to enable either the Federal or the State governments to perform their duties exist, and it remains for us to see to it that these duties are performed.

The delegates formed the Northern Alabama Good Roads Association and adopted resolutions “embodying the form of the organization and the rules which are to govern its operations.” [Bulletin 23, p. 33]

### Mobile, Alabama

The train stopped in Mobile, “the southernmost point visited,” from November 24 to 30. The road improved was Washington Street from Virginia Street southward. In keeping with the idea of using the best available road building material in the area, Harrison used oyster shells, “of which there is a great supply in Mobile and in near-by sections”:

Mobile had already many shell roads constructed by simply putting a deep layer of unbroken shells over the road improved and leaving them to be crushed into good condition by the traffic which should pass over them.

(This idea of letting traffic compact the road surface was at the heart of a long-running debate over the value of narrow bicycle-type tires and wider tires for heavier vehicles.)

Harrison removed the sand surface, used the steam roller to create a good foundation, placed a 6-inch layer of oyster shells on the foundation, and compacted them with the steam roller before placing sand and gravel for top dressing:

Near Mobile there is an abundant supply of good gravel, and by using the combination of oyster shells and gravel it is possible to make, at a reasonable cost, an excellent road. Nothing of the kind, however, had been constructed previous to the arrival of the good-roads train. This demonstration, therefore, not only attracted the attention of the people in that vicinity, but undoubtedly will lead to excellent results at other points along the Gulf Coast. [Bulletin 23, p. 33-34]

Although Dodge addressed earlier conventions, his remarks were not included in the bulletin until the Mobile convention. His subject, an excerpt of which was reprinted in the bulletin, was “Relation of Roads to Rural Population.” He said, “It is a fact, known to every one of us, that agriculture has declined within the last two decades, and especially compared to the general advancement of the Nation.” He explained his theory on why this decline occurred:

We find that the concentration of population in the cities has been brought about mainly by the cheapening of transportation rates on railroads and steamships and the securing of long hauls at an exceedingly low rate. These advantages, however, have left the agricultural interests relatively worse off than before the change took place. Therefore it seems to me it is incumbent upon us to remove, if possible, the obstacles in the way of more rapid advancement of population in the rural districts.

The goal was to reduce the cost of the short haul. He believed that “those having more wealth, who are securing direct benefits from the rural districts, should assist in building the rural highways,” as was the case in the Cleveland area. Cuyahoga County had a \$100,000 fund for road improvements, 80 percent of which was raised in Cleveland. No one in the city, Dodge reported, complains that the money will be used mainly in rural areas:

While all who live in the country must go to the city, a smaller proportion, though a greater number, with their carriages, bicycles, and automobiles, go from the city to the country. While without the aid of taxation we have been able to secure cheap transportation by means of the railroads, we have not obtained the cheap transportation over the common roads which we ought to have. [Bulletin 23, p. 35]

Rabbi Alfred G. Moses of Mobile addressed the convention on “The Citizen’s Duty to Public Improvements.” The excerpt of his speech began:

The Romans were the great organizers of antiquity. Without holding good roads conventions, they went to work to pave the broad domains of the republic and the empire. They saw the absolute need of good roads as the media of political and economic unity. The Roman roads spread forth like arteries throughout the system of States and colonies, transmitting the lifeblood of the nation . . . . The Roman ideal of civic duty and practical patriotism has never been excelled. The citizen’s duty to the public might be emphasized by many examples from Roman sources.

The Egyptians, Chaldeans, Babylonians, and Persians were other societies that “have paid particular attention to this form of public improvement.” The Bible, Rabbi Moses said, contains many references to roads:

Moses himself showed an appreciation of good roads when, in Biblical language, he sent messengers unto Sihon, King of Heshon, saying: “Let me pass through thy land; I will go along by the highway; I will neither turn unto the right hand nor unto the left.” (Deut. iii, 27.) No figure of speech was employed more frequently by Bible writers than that of a highway or road. The great prophet of the exile, the second Isaiah, rises to the full length of prophetic vision when he conceives the imminent return of the exiles from Babylon as a triumphal march along a smooth and even highway: “The voice of him that crieth in the wilderness, Prepare ye the way of the Lord, make straight in the desert a highway for our God. Every valley shall be exalted, and every mountain and hill shall be made low: and the crooked shall be made straight, and the rough places plain.” (Is. xl, 3, 4.)

Moving to the present, he said that, “From ancient down to modern times no public utility received more attention than the roads, for they were the only means of transportation.” Until the “shrill whistle” of the locomotive sounded the “knell of public roads,” every President through James Monroe issued messages containing “elaborate discussions of this matter.” Now, “We are again realizing the necessity of good roads,” as this convention made clear in a practical way:

In this country I am afraid there is too much apathy on the part of citizens toward public improvements. Europe is far ahead of us in this respect. We have yet to

acquire the art of beautifying our cities with the proper style of architecture and landscape effects. We have yet to learn the duty of providing our rural and municipal districts with ordinary public improvements, such as proper roads, harbor facilities, and with the higher forms of public utilities, such as advanced schools, public libraries, city parks, public statuary, museums of art and nature, and imposing municipal structures. Yet all these things will come in time. With our great resources we will yet vie with Europe in useful and beautiful public improvements. Mere sentiment will not suffice. We must produce concrete results. A good, well-paved road is one of the best paths leading to the development of real patriotism. [Bulletin 23, p. 36-37]

In addition to forming the South Alabama Good Roads Association, the delegates adopted a resolution stating that the association will “vigorously present” information to the State legislature urging “the importance of enacting a well-digested and practical road law, founded upon modern experience and applicable to the several counties of the State,” with the goal that “common road construction may be encouraged and put in active operation.” The delegates also endorsed the OPRI’s work, and regretted that it “has not received the support which its importance demands.” Therefore, the delegates urged their representatives in Congress to “use their influence and votes to secure proper recognition and financial support for this Office.” [Bulletin 23, p. 38]

### **Montgomery, Alabama**

The Southern Railway good roads train was in Montgomery the week of December 2, 1901. “Several years ago,” according to the bulletin, Montgomery County “took up in earnest the question of improved highways, with the result that she has to-day upward of 100 miles of chert and macadam roads leading from Montgomery to the county lines in all directions.” Plans called for two object-lesson roads, but inclement weather prevented work on a country earth road at Snowdoun. However, Harrison was able to build a 1,200-foot long stretch of macadam road on Sayre Street in the city, including “a great deal of grading and foundation work, and chert and gravel were used for surfacing.”

The 3-day convention, December 4 through 6, took place in the chamber of the House of Representatives. The bulletin described it as a “very large and enthusiastic convention,” adding that, “Some expressed the opinion that it was the finest and most earnest body of men ever gathered in an Alabama State convention of any character whatever.” [Bulletin 23, p. 38]

State Superintendent of Education John W. Abercrombie addressed the convention on “Common Schools as Affected by Roads.” He was proud of what the State had accomplished since the law establishing public schools had been approved in 1854. The State now appropriated a million dollars a year for common-school education or 50 percent of all State revenues:

Considering the conditions under which our people have labored, that notwithstanding our poverty we have been confronted with the absolute necessity

of educating two races almost equal in numbers, and that this burden has been borne practically without assistance from any source, our achievement has been remarkable.

Still, he said, “the results have not been wholly satisfactory.” In particular, attendance was not as good as it should be, and the lack of good roads was one reason:

A school may be perfectly equipped as to building, furnishings, and trained teachers, and at the same time prove a failure on account of a lack of accessibility. Accessibility depends upon the kind and condition of the public roads.

Why build good school buildings, he asked, “along impassable highways?” We would not build homes or businesses there, so why schools? Abercrombie quoted U.S. Senator John T. Morgan as saying:

Not only are good roads pleasant and ornamental features of a country, but they are the wisest and most economical bestowal of money and labor. Every civilized country is measured by its roads, as much as it is by its industries, in the estimate that men place upon its value.

Abercrombie mentioned other factors affecting good schools, but summarized his views on the link between schools and roads:

It is possible to have good roads without good schools, but it is absolutely impossible to have the best of schools without good roads . . . . Let us be encouraged by this movement looking to an improvement in road building and road working. I see in it a better day for the boys and girls who must look to the country schools for preparation for citizenship and for success in everyday life. [Bulletin 23, p. 39-41]

Henry Fonde, president of the recently formed South Alabama Good Roads Association, also addressed the convention. Like many of the early good roads advocates, Fonde gave a history lesson:

The great importance of the public highways or roads was recognized at the very earliest times of which we have any historical knowledge. Herodotus refers to a great road in Egypt, which was built during the reign of King Cheops, and upon which more than 100,000 men were employed for a period of ten years. Strabo informs us that the city of Babylon was paved about the year 2000 B.C., and that three great roads were constructed, radiating from that city and extending to Susa, Ecbatana, and Sardis. The road leading from Babylon to Memphis was paved at a very early date, and along or near to it were constructed the great cities of Nineveh, Palmyra, Damascus, Tyre, and Antioch. The senate of Athens and the governments of Lacedaemon and Thebes exhibited great interest in roads and bestowed a great deal of care upon them. The Carthaginians were systematic and

scientific road buildings, and it was from them that Rome learned the art of road making.

Alabama and Mississippi, by contrast, “are hampered in whatever we may undertake for the improvement of our highways by unsatisfactory laws,” which relied on rural residents, who know nothing about how to build a road, to donate time to road improvements. He argued for more involvement by county and State governments based on proper road building techniques. [Bulletin 23, p. 41]

The Alabama State Good Roads Association was formed. (If the convention adopted resolutions, the bulletin did not mention them.)

### **Atlanta, Georgia**

The next stop was in Atlanta from December 9 through 14, 1901. The object-lesson road work, rebuilding Soldiers’ Home Road, was difficult because of the rain that seemed to follow the train from stop to stop:

The demonstration work was conducted under many difficulties, there being storms most of the week. Excavating to a depth of 10 feet over a considerable portion of the course and heavy filling in other places was necessary. This cutting through heavy clay, and the time allotted under the bad weather conditions was not sufficient to make the demonstration desired. The work showed, however, what modern machinery will do. In addition to this heavy grade work a short stretch of macadam was made, the rock used for the purpose being local granite. [Bulletin 23, p. 42]

Although Dodge spoke at each convention on the way, only a few of his speeches, including his presentation in Atlanta, were reprinted in the OPRI bulletin covering the good roads train. Dodge’s speech was called "Work of the Federal Government for Good Roads." Dodge began by discussing the migration of the population to urban areas:

This has worked a hardship on the agricultural regions, and they have failed to keep pace with the cities in public improvements. One of the chief causes of this will be found in bad roads.

He noted that the cost of transportation over railroads and deep waters had been diminished, but the cost of road transportation was as great as ever:

On the deep water of the Great Lakes we take tonnage 1,000 miles at no greater cost than is required to carry it 5 miles by animal power. There is no doubt we can reduce this cost greatly by improving highways. Therefore, it ought to be a matter of interest to the people to take up this subject.

He urged the States to get involved, as they once had been involved with roads and railroads in the 19th century. As for the Federal Government, it had once been involved

in roadbuilding, having appropriated \$7 million to build 700 miles of road in the early 1800's, "but that policy was abandoned long ago." As for the present:

Within a few years Congress, in consequence of the demands from various sections of the country, has thought it wise again to foster in some measure the improvement of the highways; and for the purpose of ascertaining the facts and publishing useful information established a small office in the Department of Agriculture, appropriating, however, only \$8,000 from year to year until last year. They have now made it \$20,000, and I am informed that there will be at least double that amount appropriated for the next year. But this is too small to enable the Government to make any contribution toward the actual construction of roads. For many years past the Director of this Office and his subordinates have been engaged in visiting the different localities and giving such information as might be of use to the people in improving their highways. The General Government is doing all it can in the way of giving scientific information to diminish the cost of construction, and thus increase the amount of improvement in proportion to the money expended. General Stone, my predecessor in office, published a large number of pamphlets giving instruction on the various phases of our work, and, as it is not possible for me to enter into the details of construction, I will simply call your attention to these publications, which will be furnished to any person making application for them. [Bulletin 23, p. 43-44]

Professor T. P. Branch of the Georgia School of Technology also addressed the convention on the technical aspects of "Road Construction." He explained that the "locating of a road is one of the fine arts of the profession." He considered location even more important than the details of construction:

In time the mistakes of construction are usually corrected, those of location rarely ever. The mistakes of the roadmaker are not so fatal, but they are none the less costly. All that has been said to you of the expensiveness of poor roads applies with double force to poorly located roads. The mistake is not announced by a crash, as when a bridge goes down. The consequent loss runs in a trickling stream, which is making our country poorer and poorer. The time has come to stop this.

Branch also stressed the importance of maintenance.

The road must be kept in good order at a reasonable cost. One of the weakest points in the old road system was this lack of provision for regular repairs. "A stitch in time saves nine" is more than true of road repairs. [Bulletin 23, p. 45]

During the convention, advocates formed the Georgia State Good Roads Association. (Again, the bulletin did not reprint resolutions.)

### **Greenville, South Carolina**

The Southern Railway Good Roads Train was in Greenville, South Carolina, the week of December 16, 1901. Two macadam object-lesson roads were built. One was constructed on four blocks of Washington Street with granite from nearby quarries:

The crushing plant from the good roads train was set up on one of the side streets, where the granite boulders [sic] had previously been placed for this work. They were crushed in the usual sizes, separated with the revolving screen, from which they dropped into specially prepared compartments, and from these bins they were dumped into spreading wagons, which in turn spread the materials upon the road, thus illustrating the use of modern labor-saving machinery.

The street posed a unique problem:

The street where this work was done had previously been macadamized by hand, the materials used being large stones, varying in size from 6 inches in diameter to 12 and 14 inches. It was difficult, therefore, for the road machine, or even for men with picks, crowbars, and shovels, to prepare the subgrade unaided; and so spikes were placed in the wheels of the steam roller, with which the surface of the street was torn up. The large boulders were then taken out, and the foundation leveled with the road machine and rolled with the steam roller without the spikes. Only one side of the street was used for this demonstration; that is, from the car track in the center to the curbstone, a distance of about 16 feet. The materials were spread on with the spreading carts in two layers, according to the usual custom, and sprinkled and rolled, enough binding material being added to form an impervious crust and to make the road smooth and fit for immediate use. [Bulletin 23, p. 45-46]

The bulletin did not mention the fact that the ground was frozen, but this point was cited in an article about the Good Roads Train in the June 1902 issue of *Good Roads Magazine*. [p. 5]

In addition, a half-mile of earth road just outside the city was "graded up and prepared with the elevating grader and blade machine and rolled with the steam roller." For this work, convict labor was used, consistent with a State law that required all convicts sentenced to less than 5 years in jail to work on the public highways.

Governor Miles B. McSweeney had appointed delegates from every county to attend the convention and nearly all were present. Although the convention was confined to a single day, many participants spent several days in the area observing construction of the two object-lesson roads. The bulletin observed:

One of the most interesting features of the week was the active effort of these supervisors to inform themselves about all improved methods of road making and their holding of frequent meetings for the discussion of road work and means of pushing road improvement. [Bulletin 23, p. 45]

State Senator A. H. Dean, in his address of welcome, said that he considered the meeting the most important to be held in the State in a decade. He ended on a rousing note:

We regard good roads as next in importance to our great duty in training the minds and hearts of the young. We are thoroughly alive to the importance of this movement and have resolutely determined that within the confines of Greenville County good roads shall not be simply a Utopian dream, and we invite other sections of the State to lock shields as did the Roman legions and let us bear our grand old State onward in this work to that measure of accomplishment to which our conditions entitle us. [Bulletin 23, p. 47]

Duncan C. Heyward, a farmer who had been elected Governor on November 4 and would take office on January 20, 1903, addressed the convention. He began:

The only roads with which I have had experience are not the kind which we care to discuss on this occasion. Most of us are too familiar with them already. The only thing which may be termed good about them is that they remind one of St. Paul's definition of faith, being at best but the "substance of things hoped for, the evidence of things not seen."

Everyone understood the importance of good roads, Governor-elect Heyward said, but this issue appealed to no one more than "to that great class who are the bone and sinew of our country, the farmers." The greatest obstacle was "the cost that must necessarily be incurred in constructing good roads." He encouraged the NGRA and all other supporters "to endeavor to remove the natural aversion which people have to an increase in taxation; they should persuade them to let 'down the bars,' so far as taxation for good roads is concerned."

Practical demonstrations, such as the two in the Greenville area, were valuable because they "let the people see what good modern roads really are, how easily they can be built and kept in repair, and how durable they must be when built in a scientific manner with improved machinery handled by men who are experts in the business, having devoted to their profession years of study." He added:

I speak from my own experience when I say that road building is something which grows upon one. A man can catch the fever for better roads just as he can catch the measles or mumps, and it is a fever which is extremely contagious. Everyone who had been driving over bad roads all of his life and comes upon a mile of good, hard road which was once a miserable quagmire is sure to catch the contagion.

He knew that the common practice of farmers devoting a few days each year to road work "will not give us good roads." The State's duty was to "assist the people in their work by the passage of wise road laws and the election or the appointment of officers who shall supervise the construction of roads." [Bulletin 23, p. 47-48]

(Governor Heyward would not be able to deliver on these words. The State Legislature did not approve legislation creating a State road commission until 1909, 2 years after he left office in January 1907.)

The South Carolina Good Roads Association was formed, resolving:

- The State should give counties the right to levy taxes for road construction and maintenance.
- The State should allow counties to issue bonds for road improvements.
- The State should pass legislation altering present law to assign all convicts serving 2 years or less to county chain gangs for road work in the county where they were convicted.
- The State should encourage the use of broad tires on the public highways of the State.
- And the Congress should approve "a liberal appropriation for the support of the Office of Public Road Inquiries . . . for the diffusion of literature and the extension of general instruction on public road improvements throughout the States." [Bulletin 23, p. 47]

### **Columbus, Georgia**

After a Christmas and New Year's break, the Southern Railway Good Roads Train resumed the tour in Columbus on January 13-18.

The road work consisted in making about 2,000 feet of earth road and a short stretch of macadam, the latter by the use of the local granite. There was much heavy grading to be done, but the road builders were able to show the use and advantage of improved road-making machinery and of scientific methods of road construction. [Bulletin 23, p. 49]

Inclement weather delayed the object-lesson road work. In addition, *Good Roads Magazine* explained that "comparatively little work was done on account of lack of proper materials" on the road in the North Highlands district of the city:

Much of the work consisted of cutting down a steep grade and in filling. A very much improved roadway was constructed, a short portion of which was macadamized, the stone used being a native granite from the banks of the Chattahoochie. [February 1902, p. 2]

The bulletin described the 2-day Columbus convention as "very large" and "with an attendance from southern Georgia and southern Alabama." Colonel Moore, Colonel Richardson, Dodge, and others addressed the convention, but the bulletin did not reprint their speeches. The only presentation reprinted was a technical talk by Professor S. W. McCallie, Assistant State Geologist, on "Roads and Road-Building Materials of Georgia."

Delegates formed the Chattahoochee Valley Good Roads Association to represent nearby counties in the two States. Resolutions demanded better road laws; condemned the system of working out the poll tax, preferring the payment of taxes in money, not labor; endorsed “organization and action in the work of road improvement”; favored the use of convict labor; and thanked leaders of the Southern Railway Good Roads Train. [Bulletin 23, p. 51]

*Good Roads Magazine* noted a development that was sufficiently unusual to deserve mention:

One feature of the convention was the presence of a delegation representing the Woman’s Federation of Georgia, headed by Mrs. J. L. Johnson, who made a brief address to the convention. This president of this association was made an honorary president of the Chattahoochie Valley Association.

The magazine also observed that, “The superintendent of the public schools, with all the pupils of the high school, attended both sessions of the convention.” [January 1902, p. 3]

### **Augusta, Georgia**

The train arrived in Augusta, Georgia, for a 1-week stay on January 20. Again, heavy rains interfered with the object-lesson work on the unimproved road in front of the Schuetzen Platz, extending to the Sibley and King Mills. [*Good Roads Magazine*, February 1902, p. 3] The bulletin observed that despite the heavy rains, the demonstration “was successful in attracting large numbers of people and in showing the uses of improved machinery and the best methods of road grading and construction.” The county in which Augusta is located, Richmond County, “has one of the best improved road systems of the United States,” with a great portion of public highways consisting of improved earth or macadamized roads. [Bulletin 23, p. 51]

The Augusta convention was held on January 23 and 24, with participants from Georgia and South Carolina. The convention chairman was General Mathew C. Butler, a lawyer who had served in the U.S. House of Representatives, the Confederate Army, the United States Senate, and the Spanish-American War. He emphasized the need for systematic organization and the hardest of hard work, and he suggested that his State, South Carolina, appoint a good roads engineer with a sufficient salary to ensure his ability. He did not want to absolve the State and municipalities of all burden, but believed that permanent improvement of roads could not occur without Federal Government aid. He thought such aid should be matched on an equal basis by the localities. [Bulletin 23, p. 52]

Governor A. H. Candler of Georgia agreed. “Nothing is so calculated to bring about the advancement of the material interests of the States and promote interchange of communities as good roads.” He added, “But talk does not build roads. Talk is cheap; it

takes money to buy land.” Still, he acknowledged that “talk is important after all. You have got to do the wind work first.” [Bulletin, p. 52]

The convention also featured John D. Twiggs, an Augusta engineer, presenting a technical speech on “Practical Problems in Road Building.” He discussed such topics as grades, location, drainage, cross section, road classification, and surface pavements. He ended by quoting Georgia State Geologist Yates who said that “if all the common public roads of Georgia were first-class macadam roads, there would be a saving to the State of over \$6,250,000 annually, or enough to gravel or macadamize over 6,000 miles of roads.” Twiggs said:

These figures should be a sufficient incentive to make each man use his best efforts in furthering the great work of perfecting the roads throughout our State. [Bulletin 23, p. 56]

The Savannah Valley Good Roads Association was organized, with General Butler as its president. Resolutions favored formation of associations to work for road improvement and recommended giving the OPRI bureau status with increased appropriations. [Bulletin 23, p. 56]

### **Columbia, South Carolina**

The Southern Railway Good Roads Train spent the final week of January 1902 in Columbia, South Carolina. Rain again limited the planned object-lesson road work. The bulletin summarized the activity:

The engineers and machinery experts with the train began the work Monday morning, January 27. A portion of a city street was graded and macadamized and a new country earth road about 1 mile in length was graded and rolled.

The convention, held in the hall of the House of Representatives on January 30, was a 1-day affair. The State legislature, which was in session, adjourned for the day, but virtually all members of the House and Senate attended the convention. [Bulletin 23, p. 57] The addresses were necessarily shorter than at other conventions, with sessions during the day and night.

Governor McSweeney welcomed the convention participants with the observation that:

The day of economy in time has dawned with the twentieth century, and the annihilation of space, as far as practicable, is one of the coming needs of our great country. With this comes the general movement throughout the United States in behalf of good roads.

Interest in good roads was growing around the State, he said, noting that Richland County’s “clay-sand roads have been pronounced by experts to be the finest of their kind in the country.” Still, “it remains for the general assembly to act,” and he encouraged

participants to debate “the promotion of good country highways from the standpoint of finance and feasibility and, deciding upon the best, take the interests of our people as our watchword and act.” [Bulletin 23, p. 57-58]

Colonel Moore agreed with the Governor, saying, “One practical road bill passed by this legislature will do more good than all other legislation that can be adopted.” He added, “The road question is going into politics, and it will go into national, State, and county politics.” [Bulletin 23, p. 58]

The convention did not result in formation of a new promotional group, but did endorse the memorial that the South Carolina Good Roads Association had adopted on December 19, 1901, during the Greenville convention, to the legislature.

### **Charleston, South Carolina**

The Southern Railway Good Roads Train arrived in Charleston while the South Carolina Interstate and West Indian Exposition was in progress. The Charleston exposition or World’s Fair ran from December 2, 1901, to May 31, 1902, with the goal of highlighting the city’s commercial advantages. Only 675,000 people attended the 6-month exposition, in part because of poor weather, with the result that the Exposition Company went bankrupt.

In anticipation of the expected crowds, the OPRI and the NGRA planned a Southern interstate good roads convention for the week of February 3-8. The two organizations, along with the Exposition Company, invited the Governors of Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, Missouri, North Carolina, South Carolina, Tennessee, Texas, Virginia, and West Virginia, along with the Mayors of cities and villages throughout the region and commercial bodies and the public.

When the train arrived in Charleston on February 1, it went to the exposition grounds (where Hampton Park is now on Charleston peninsula). The object-lesson road work on Grove Street was designed to show how to build roads in the sand of the area. A road machine shoved the sand aside, leaving a flat surface that was rolled with the steam roller. Clay-gravel “of excellent quality, which had been secured in an adjacent county, was spread in one layer of 6 inches in depth, which was then rolled until the desired surface was secured.”

The bulletin noted that when material of this character can be had, “the building of improved roads is a comparatively simple proposition, because little or no attention has to be paid to the question of drainage, for when the water is shed from the surface of these clay-gravel roads it sinks down into the sand alongside.” Only a thick layer of surface material was needed because South Carolina does not have “the deep frosts which destroy the highways of the North unless their foundations are deeply laid and thoroughly drained.” [Bulletin 23, p. 59]

The convention was held on February 5-7 in the Exposition Auditorium. The exposition designated February 7 as "South Carolina Legislature and Good Roads Day," with the entire State Legislature in attendance. Although the convention featured many speakers, the bulletin reprinted only two addresses: "Improved Highways" by E. L. Tessier, Jr., of Charleston (a former chairman of the Good Roads Committee of the LAW) and "Road Building in the Mountain County" by S. F. Kelsey of North Carolina. Both were mainly technical in nature.

The convention adopted several resolutions, including one endorsing the idea of changing the OPRI to a bureau with a larger appropriation. The resolution also recommended that Congress empower the Secretary of Agriculture to appoint a special agent for each State to "devote his entire time to the betterment of the highways of that State." Other resolutions recommended formation of State highway commissions or engineering departments in each State, endorsed the use of convict labor, and "heartily" approved the use of wide tires where practicable "and the payment of the usual road taxes in cash instead of labor." [Bulletin 23, p. 65-66]

### **Raleigh, North Carolina**

On February 10, the train arrived in Raleigh. Bulletin No. 23 referenced the stop without elaboration. However, OPRI Bulletin No. 24 reprinted the proceedings of the North Carolina Good Roads Convention, held February 12 and 13 in Raleigh's Metropolitan Hall, in conjunction with the visit of the Southern Railways Good Roads Train.

The object-lesson road work began on February 11 on Salisbury Street in Raleigh to make it accessible to convention goers. The 50-foot wide street was macadamized to its full width over a length of two city blocks. The bulletin said of the work:

The building of the sample road was watched by a large number of delegates to the convention, who showed great interest, not only in the methods of construction, but in the handling of the road-building machinery. This object-lesson road had the one disadvantage of being located in the city, and being itself a city street instead of a country road; but it had the advantage of being easily accessible to all the delegates, and its educational value was enhanced by its location at the State capital, where it will serve as an object-lesson in scientific road construction to visitors from all parts of the State for several years. [OPRI Bulletin No. 24, p. 8]

As the convention began, Governor Charles B. Aycock welcomed the delegates. He pointed out that when North Carolina was settled, "our forefathers settled in scattered communities," with one old resident stating that "he did not want to live so close to his neighbor that he could hear his dog bark." In that way, the State lost "the power of combination; we miss the strength which comes from unity . . ." Times had changed:

This is a rapid age, an age in which every man is on the move. We must do something if we would keep up with it. The struggle for the good things of life is

intense, and we can not keep the pace with other States and peoples unless we bring to bear the whole power of all the people . . . . We live in an age which does not count distance by miles but by hours. If I should ask any man to-day how far it is to Washington, he would answer in the number of hours it takes to travel there.

The State must “meet the conditions which confront us.” He said:

The roads are the only thing in the State of which I am ashamed, because they are in a condition which is without excuse. Captain Galloway once said that there is a sand road in eastern North Carolina 8 miles long and 2 miles deep. The difference between the sand roads of the eastern and the clay roads of the middle and western parts of the State is that the latter are still longer and deeper. If we ever expect to get the power of combination and unity we must make better roads . . . . There is no interest in the State which is not vitally concerned in the building of public roads; and I extend to you gentlemen from a distance, and to the citizens of North Carolina, to all who are here, the heartiest welcome, and bid you Godspeed in your great work. [Bulletin 24, p. 9-10]

Colonel Moore, in addition to discussing how he became interested in good roads (cited earlier), told the delegates that the movement was “taking root, and in a very short time the question of good roads will take precedence of the money question and similar issues of the past. What you want is something that will improve your home, your children, your wife, your property, and that is good roads.” In the year the NGRA was formed, he said, “the good roads office at Washington [was] struggling along with only \$8,000 a year; they hardly gave it enough to run the office.” He repeated the oft-cited contrast with other funding programs:

And yet in the last Congress the Lower House voted \$60,000,000 for rivers and harbors. We don't like that sort of treatment. Organize and go up to Congress and say you want an appropriation for the Office of Public Road Inquiries, to extend its educational work to all the States. The Government has a right to do it. Congress appropriates \$90,000 a year to test soils. Remember that we can not have successful rural free delivery unless we have roads that can be traveled over twelve months of the year.

Colonel Moore also discussed the Illinois Central Railway and the Southern Railway Good Roads Trains, inviting delegates to the major Charlottesville convention in Virginia that would end the present tour. He also discussed some of the issues, recommending appointment of a State highway commissioner who can provide leadership and guidance. Money, of course, was the “very important question.” He thought counties could employ tax valuation and that the corporations, railroads, and cities could help finance road improvements. Bonds could be issued:

This method will build the roads now; you will enjoy them, and your children will help pay for them. The bonds, if not paid, will be refunded when they are due at a lower rate of interest.

As an alternative, he recommended the State-aid approach used in Massachusetts, New Jersey, and New York. “I do not believe such a system could be adopted in North Carolina now; but in a short time, if the subject is studied and agitated, public opinion will be developed in favor of State assistance.” He added that, “I believe our bones will be under the ground long before you have 25 per cent of the roads in North Carolina macadamized.” He recommended that the officials “deal with the earth road, the common dirt road” by grading each one, with the plan to macadamize it as population and wealth increase. [Bulletin 24, p. 11-14]

Dodge addressed the convention on “Progress of the Good Roads Movement in the United States.” He wanted to focus on “States which are older in experience in dealing with the improvement of the public roads” where “we find that there has been an evolution both in sentiment and substance.” Although “improvement of the highways has been deferred too long,” he was pleased to note “that all over the country, East and West, and North and South, there is a sort of uprising among all the people for better and more permanent improvement of the highways.”

He briefly cited the evolution of transportation from highways to railroads and water routes. “Long-distance transportation has been cheapened beyond expectation, but the cost of transportation over the common roads is as expensive as ever.” He did not think the burden of rural road improvement should fall on the farmers, who could not afford it. City property should be taxed for the purpose. The State-aid programs cited by Colonel Moore were another possibility. But he added:

In all my observations, covering most of the States of the Union, I do not find that anything is being done to make any substantial improvement in the highways except where one of three conditions obtain. The first is where they work prison laborers, as you are doing here in North Carolina and some of the other Southern States. The second condition is, a general fund of money paid into the county treasury and expended under the direction of county engineers, supervisors, etc. I find that there are a few counties—quite a number in the aggregate, but few in proportion to the whole number—that have that general fund. The third condition is that of State aid. Where the State is aiding, the people have not only made improvements, but are encouraged to go on and make additional improvements. It is thought by many, and possibly by most of you, that many counties and many States are too poor to improve their highways. The fact is the opposite. You are not rich enough to afford to neglect them, because the cost of transportation by existing means is an incubus upon your industry. It diminishes the returns of your labor and the profits of your industry. You are wearing out your lives, impoverishing your land, and decreasing the value of it by the lack of these facilities. It is a question of necessity, not of choice.

Dodge described the OPRI's work, including its budget increase from \$8,000 a year, to \$14,000 the previous year, and \$20,000 for the current year. The laboratory work cost \$7,500 a year. He had recommended an increase in budget to \$45,000, but "Congress did not see fit to make that appropriation." Nonetheless, he was optimistic:

I hope that, where these object-lesson roads are built and the people see them and see the benefits of them, there will be a public sentiment that will uphold the members of Congress in making these appropriations . . . . You must understand that any scheme or proposition we put forward in this matter is based on the belief that the benefits coming from these expenditures would be many times what the expenditures would be. [Bulletin 24, p. 16-19]

Dodge and Colonel Moore had prevailed on General Butler, the former Senator from South Carolina, to address the North Carolina convention. Referring to his service with "tar heel" troops in the Civil War and the arrival of cadets from the Agricultural and Mechanical College during Dodge's presentation, General Butler said, "I want to say to you now—to the young gentlemen and to the old gentlemen—that if you work roads as hard as you fought in those days you will have the best roads in the world."

He knew that everyone in the convention believed in the good roads cause, so he joined in endorsing the idea of State highway commissioners and State-aid programs where feasible. "But let me say what many of you already know: The people in the rural districts in the South—and I believe it is so in the North, both East and West—are not able to raise the amount of money necessary to improve the highways." Still, cities could help directly through taxation and by issuing bonds.

He thought the Federal Government, which "has appropriated \$439,000,000 for the improvement of rivers and harbors, although the people do not all get uniform benefit from these appropriations," could do more. "There is as ample constitutional warrant for the improvement of the public roads out of the United States Treasury—as large as there is for improvement of rivers and harbors or for the support of the agricultural colleges." He knew the objection: "when the Federal Government comes to the aid of the counties and States the counties and States will fold their arms and do nothing." The State-aid concept where the States must help would defeat that objection.

General Butler urged people to speak to their Representatives and Senators about Federal involvement. He added:

Let me say another thing: If something is not done . . . the depopulation of the rural districts will be nearly complete; the people are not going to live where they can't get about. The young men will come to the towns and cities; the tendency is everywhere toward the concentration of population and the depopulation of the country districts; but decent roads would obviate this to a great degree.

He concluded that with efforts such as the work of the NGRA, "the leaven is working and will work until we get a movement by which the rural population of this country can

derive their share of the benefits growing out of the liberal appropriations.” [Bulletin 24, p. 19-22]

Other addresses covered the “History of Good Road Making in Mecklenburg County” (by Captain S. B. Alexander of Charlotte), “Good Roads and Their Relation to the Farmer” (T. B. Parker, secretary of State Farmers’ Alliance based in Hillsboro), and “Interest of Railways in Road Improvement” (M. A. Hays, Agent of Land and Industrial Development of the Southern Railway). Alexander, whom *Good Roads Magazine* referred to as “the father of good roads in North Carolina,” had worked for good roads as a State Senator. He appreciated General Butler’s proposals for national and State aid, but said, “I am afraid I won’t be here when that comes, and I want some good roads to go over while I am here.” [Bulletin 24, p. 24]

The evening session began with the announcement that “on account of an unavoidable accident to the stereopticon apparatus, Professor Holmes, State Geologist and OPRI’s Southern special agent, “would not be able to give his illustrated lecture on good roads.” Addresses that evening covered “Economical Roads for Rural Districts” (Professor W. C. Riddick of the State Agricultural and Mechanical College), “Good Roads and Their Relation to Country Life” (General W. M. Cox, ex-president of the State Fair Association), and speeches from delegates representing North Carolina’s counties.

February 13 began with talks on “Roads and Road Laws of Wake County” by W. C. McMackin, superintendent of roads for the county, and “Good Roads and Their Relation to Churches” by the Reverend T. N. Ivey, editor of the *Christian Advocate* in Raleigh. The Reverend Ivey concluded his address by referring to his observations of the object-lesson road and convention:

I have seen the wonderful road machinery at work, and the enthusiasm of the convention here assembled; I have listened to the speeches; and I see in it all a harbinger of a better day for North Carolina. I see the sunshine of prosperity falling like a mantle over our State; I see increased numbers of school children wending their way toward schoolhouses; I see the church filled with warmer and more enthusiastic congregations; I can hear the sound of trade as it sings and laughs on our highways, and to-day, as an humble representative of the church in North Carolina, as an official representative of the paper with which I am connected, I here pledge the efforts of all our good people to do with their might what their hands find to do in getting for North Carolina benefits which mean so much. May the blessings of God rest upon this convention and upon the cause which it represents. [Bulletin 24, p. 45]

He was followed by J. W. Abbott, OPRI’s energetic western special agent, who spoke on “The Good Roads Movement in the West.” He said of his territory:

The country I represent, beyond the Missouri, an empire so diversified in its products and in its possibilities that it covers almost everything desirable under

the sun, is if possible more primitive in its roads than any portion of even your South, but they have begun to wake up to the question.

He said that while visiting the OPRI offices in Washington on Monday, he had seen the Sunday edition of the *Raleigh News and Observer*, which contained a three-page good roads feature:

I saw that you people in the South had waked up on this question; that your education had proceeded very much further than ours and I was glad of it . . . . I am going to return to the Pacific coast, and I shall tell them out there that they can look toward the South, from whence their help and inspiration in this matter is to come.

He explained that he was trying to convince western States that good roads could reduce shipping costs and to encourage newspapers to take up the cause, but at times, he felt “that we are undertaking a hopeless task without the means to accomplish the settlement of this road question.” Then, he said, “I look back over other things in my life I have fought with, and, although the prospect now looks discouraging, we are bound finally to succeed.” He concluded his brief remarks by noting that the South did not need the type of proselytizing as the West. “I don’t believe any such work as that would be necessary here in the South; it seems to have been done.” [Bulletin 24, p. 45-46]

After a speech on the “Economy of Good Roads” by Dr. George T. Winston, president, State College and Agriculture and Mechanical Arts, the General Superintendent of Free-Delivery System of the Post Office Department, A. W. Machen, spoke on “Rural Free Delivery of Mails.” He began:

The great popularity of the rural free delivery causes such an incessant demand for the service that I am kept busy at my desk almost day and night.

However, he could not resist the invitation from Governor Aycock, Senators Simmons and Jeter C. Pritchard, and the NGRA to attend the convention “to point out to you in what way it [rural free delivery] affects the good roads movement.” He put rural free delivery in context:

The school, the postal service, and good roads are to my mind among the most, if not the most, effective means through which the people may be given or may attain the full employment of material blessings here below.

Schools were first on his list because on them “rests the stability of our institutions.” Mail service was second because “it is a great aid to each [schools and good roads] and at the same time dependent upon both”:

Without education the mail service would be useless, and without good roads a modern universal mail service can not be brought to the degree of efficiency and perfection which an up-to-date public requires.

Before discussing roads in relation to mail service, Machen provided a brief history of rural free delivery:

At the sexennial convention of the Universal Postal Union held in Vienna in 1891 a proposition was made that every postal administration belonging to the union should undertake to establish a universal delivery of mail as soon as possible. Out of compliment to the United States, that agreement was signed on our national birthday—July 4, 1891. The American representatives on their return from Vienna made a report to the Postmaster-General. Mr. Wanamaker, the merchant prince of Philadelphia, was Postmaster-General at that time. He at once looked at the subject from the standpoint of a business man, saw the impracticability of attempting a universal free delivery immediately, and realized that the only thing to do to carry out our part of the agreement was to make an experiment to determine what could be done toward establishing a feasible system of rural delivery. He asked Congress for an appropriation of \$10,000 for that purpose, which was promptly granted, effective July 1, 1893 . . . . I promptly made inquiries of friends, postal experts, and asked for suggestions as to the best method to be pursued in an experiment. The Postmaster-General of that day, confronted with decreasing revenues and increasing deficits, was loath to take a step which might involve the future revenues of the service, so the money was not expended.

Although Congress appropriated \$10,000 the following 2 years, Postmaster-General Wanamaker did not use the funds before leaving office with President Grover Cleveland following the 1896 election. That year, Congress appropriated \$40,000 for the experiment:

The late William L. Wilson was then Postmaster-General. While the phraseology of the appropriation did not make its disbursement mandatory on the Postmaster-General, Mr. Wilson considered the fact that Congress had quadrupled the appropriation in the absence of a recommendation or suggestion on his part to mean that the legislative branch of the Government had determined that an experiment should be made. On October 1, 1896, five and a half years ago, the first route was established in Charlestown, West Virginia.

By July 1, 1897, 44 rural free delivery routes were in operation, and by the end of 1898, 148 routes were active. With appropriations increasing to \$1.75 million for FY 1901, the Postal Service brought the total to 4,301 routes serving 2.7 million rural inhabitants. For the current year, Congress had appropriated \$3.5 million:

To-day there are 7,700 routes, covering 160,000 miles every day over country roads. By the 1<sup>st</sup> of next July fully 8,600 carriers will reach from 4,500,000 to 5,000,000 people in the country and travel 200,000 miles of road every day.

He anticipated that Congress would increase the funding for the coming fiscal year:

The great annual increases in the appropriation for rural free delivery have not been equaled in any other department of our Government and never in the history of the postal service. It took the city [postal] service twenty-five years to grow as much as rural free delivery has grown in five and a half years.

The mail carrier did more than deliver the mail to the farms so the farmer did not have to go to the nearest post office for other services:

He not only delivers and collects mail, but he registers letters and delivers registered letters and special delivery letters; he accepts money for a money order, gives an official receipt for it, and within a few months he will pay money orders at the farm; he answers all the purposes of a postmaster; he carries stamps and a special kind of stamped envelopes specially suited for rural districts.

Roads were the key to providing this service:

This service to be satisfactory, therefore, must be efficient; it must be regular and punctual; it must be a daily service; it must be prompt, because the farmer should know just what time every day to expect the carrier. Such a service can only be maintained with good roads; with bad roads it is impossible. Good roads are indispensable to rural free delivery if we hope to have an ideal service.

Therefore, Machen said, something had to be done to improve the roads. The previous summer, “the [Post Office] Department undertook . . . to call to the attention of those in charge of the construction and maintenance of public roads the necessity of improving them at once if a continuance of rural free delivery was desired.” To follow up, the Department had sent a circular letter to postmasters seeking information on the condition of roads used by rural carriers. “A letter to the postmasters directed them to notify patrons that service would be discontinued if roads were not improved.” The letters had the “desired effect” of prompting rural residents to ensure the local road superintendent tended to their roads.

In this brief history of rural free delivery, Machen had “shown what it does for the good roads movement and what it is bound to accomplish in the future wherever the people want the service.” He added:

If they are as insistent everywhere else as they are in North Carolina through their Senators and Representatives, nothing will stop good roads. The people are bound to have rural free delivery, and in order to have it as it should be, efficient and satisfactory, they must provide good roads.

Before closing, Machen discussed the social benefits of rural free delivery, which helped to relieve the isolation of farm life. Like many others of that era, Machen was concerned about the isolation and monotony “which I believe is largely responsible for the desertion of the farms by the young men.” He concluded by saying:

Rural free deliver means nothing more nor less than the city reaching out and clasping hands with the country, bringing our country cousins into a closer and more satisfactory relationship. This perfect public convenience, this ideal service for which we are now striving, can not be established or maintained without good roads. Therefore, good roads mean good rural free delivery. [Bulletin 24, p. 50-55]

Senator Simmons, who was the next speaker, delayed the start of his speech to make a motion that Machen's presentation "was worthy of more than passing notice, and he moved a rising vote of thanks." The thanks "was given unanimously and with applause."

(In July 1906, the Secretary of Agriculture and Postmaster-General entered into an agreement to facilitate rural free delivery by the improvement of country roads. As explained in the Office of Public Roads' annual report for FY 1906, the agreement "provides that whenever a road upon which a rural route has been or is about to be established is reported by the carrier or inspector to be impassable or in bad repair the Fourth Assistant Postmaster-General will advise the Director of the Office of Public Roads of the fact and request that he have an engineer inspector detailed to examine the road and give such advice and instruction to the local officials as may be required." The inspector would identify defects and advise on their correction—and assume temporary direction of the work in some cases at the county's request for purposes of instruction. "By this means correct methods of road building and road maintenance will be introduced into practically every section of the United States." [p. 22-23])

The subject of Senator Simmons' speech was "Methods of Raising and Expending Road Funds." He did not have a prepared speech on good roads, but the subject was sufficiently important that he decided to attend the convention. He did not come to talk about methods of building good roads, a subject he knew nothing about ("I am not in the habit of discussing war in the presence of Hannibal; and in the presence of these expert road builders I shall not be so presumptuous as to discuss methods of road building"). Instead, he came to learn.

As he understood it, the case for good roads rests on three propositions:

[It] is contended by the advocates of good roads that bad roads cost more than good roads . . . .

[The] good roads people claim that there are about 1,000,000 square miles of farm lands (650,000,000 acres) actually cultivated by the farmers of this country, and that the actual cost to the farmers and the community on account of bad roads is on an average of about 75 cents for each cultivated acre of land . . . .

The third general proposition is that it costs about three times as much to haul products per ton mile upon a bad road as upon a good road . . . .

When he first heard these statements, he said, "they so startled me that I was disposed to regard them more in the nature of guesses or as exaggerations of good roads fanatics and

enthusiasts.” But he found that the three points were based “upon reliable statistics carefully gathered by competent persons.” Martin Dodge, he said, had based his data on requests for information sent to 10,000 farmers. “Why, then, should we not accept the conclusions of the good roads advocates drawn from statistics?”

He sometimes heard road builders “say that the period for agitation of good roads has passed, and that we have now entered the period of actual construction.” While they were correct to an extent, he said, “If we do not progress any faster in good road building that we have during the last five years, it will be fifty years before we will have anything like a system of good roads in this State.” He stated that, “the period of agitation for good roads will not pass until a majority of the people who are to furnish the money are convinced that money invested in good roads is well invested.”

Some advocates thought the legislature would pass laws raising funds for good roads whether or not people were willing to be taxed for that purpose. Speaking as a practical matter, he said that a legislator is not likely to support “any measure he thinks will be obnoxious to a majority of his constituents.” Money, nevertheless, was the key:

It does not take a minute’s consideration to see that we can not succeed in building good roads in North Carolina under the present system of road building, by which every able-bodied man of a certain age is required to work upon the roads for a few days each year. We have been trying that method for about fifty years, and our roads, generally speaking, are but little, if any, better than they were fifty years ago.

Several methods were available for funding good roads by taxation. Convict labor was one option, while State aid as in New Jersey was another. “I do not mean to give my unqualified approval to either of these plans.” The State Legislature must “evolve some satisfactory scheme.”

He said the city folks had good roads because they taxed themselves to pay for them. “The suggestion that you build these [country] roads by taxing yourselves may shock you. It shocked the city people at first. I tell you, you can’t have good roads without paying for them.” He favored Governor Aycock’s plans for the use of convict labor, but stressed: “impose upon yourselves a tax such as you think you can stand.” He concluded:

My friends, let us then gird up our loins for the mighty race that is before us and continue in this work of building up the material interests of our State and nation as the basis of higher intellectual and social manhood and womanhood. [Bulletin 24, p. 55-61]

Senator Simmons did not express a view on whether the Federal Government should contribute to the cause.

Much of the afternoon session was devoted to organizing the North Carolina Good Roads Association. Resolutions adopted supported bureau status for the OPRI, creation of a State highway commission, adoption of a law providing for instruction in road building at the State University and the Agricultural and Mechanical College, and endorsing extended use of convict labor in road building.

(According to Dr. Walter R. Turner's history of the North Carolina Department of Transportation, the association would play a major role in ushering the State into the Good Roads era, including persistent lobbying that led to creation of the North Carolina State Highway Commission in 1915. [Turner, Walter R., *Paving Tobacco Road: A Century of Progress by the North Carolina Department of Transportation*, Historical Publications Section, Office of Archives and History, 2003, p. 2-3])

The evening session on February 13 began with Professor Holmes' stereopticon address on "Road Building in North Carolina." On the theory that the "present state of road improvement in any community can only be correctly understood when interpreted in the light of past experience," Professor Holmes provided a historical sketch beginning early in the 19<sup>th</sup> century. Discussing the present, he said:

The condition of the good roads movement in North Carolina . . . is, on the whole, quite encouraging. The more so, when it is remembered that nearly all of this progress has been made during the past decade. Evidently the reform has come to stay, and there will be very little turning backward in the future.

That being the case, he discussed the "four features which must be considered in all plans for future road improvement in this State. These are: Money, labor, intelligent supervision, and road-building materials."

Money was "one of the essential factors" in any public improvement. He explained that, "The deep-rooted opposition to all forms of taxation" in North Carolina had been "the great barrier to anything like general or uniform road legislation." Still, taxation was the answer:

Much has been accomplished in an irregular spasmodic sort of way in the past by voluntary and compulsory contributions in the form of labor, teams, implements, materials, etc. No intelligent man now doubts, or denies in theory, the fact that every practical system of road building . . . must be based upon money raised by taxation; but in practice we deny it every day.

He noted that, "The deep-rooted opposition to all forms of taxation by the people of North Carolina has been the great barrier to anything like general or uniform road legislation in the State."

Holmes described how despite the savings from good roads, "many of our people still too generally regard a tax simply as a burden." His expectation was that "some day our

people will come to consider a tax in its true light as an investment, and as the best and only satisfactory means of accomplishing certain necessary and beneficent results.”

He compared the “pay as you go” plan (“which means that the quantity of road building during any year must be limited to the amount of taxes raised for that purpose during that year”) to bonds (“borrow a considerable supply to be used for road building purposes during a short period of time, and use the money raised by the annual road tax to pay the interest on the money thus borrowed and provide a sinking fund for the final payment of the same”). He summarized the issue by saying that under “pay as you go,” a county could build 100 miles of good roads in 20 years, but not complete the work until near the end of the period. Under the bond system, the same work could be completed in 5 years “and during the remaining fifteen years the citizens of the county get the full benefit of all this work.” In short:

And while the total expense for the construction of the 100 miles of road may be greater by the interest on the money borrowed than the sum total of the annual expenditures under the “pay as you go” policy, nevertheless by the bonding plan the people of the county have had the use of the good roads for nearly twenty years, and have used them to excellent advantage. They have made money on the investment.

Holmes discussed the mechanics of bond raising, but concluded that, “whether it be by bond issue or by ordinary tax methods, the one thing needful is that we raise the money and improve the roads.

Turning to the use of convict labor, he stated that “compulsory labor” by residents in lieu of a road tax was common in the South, but had been abandoned in Northern and Western States. The question was whether to employ convicts or hired labor. Professor Holmes favored convict labor:

[It] is generally conceded that these convicts are more efficient laborers than those which can be hired to do this work, for the reason that there is more regularity and system in the control of their labor, and the majority of the prisoners continue in the service long enough to derive considerable benefit from their experience and training.

He pointed out that if a man goes to court, he takes a lawyer. If he wishes to build a home, he hires an architect, and if sick, a doctor. However, “we have always had the notion that almost everybody was a good road builder, and as a result of this mistaken notion we have never had until recently any good roads in the Southern States.” Building roads was a business that must be conducted by “men who have had some training and experience and who have demonstrated their capacity as road builders.”

In conclusion, Holmes urged everyone to get involved:

In this great movement each individual, each community, each county, each State, and the Federal Government must do its full duty, and the result will be one of increasing intelligence and prosperity in all this good land of ours. [Bulletin 24, p. 65-71]

To close the convention, M. O. Eldridge delivered his popular stereopticon speech on the roads of the world. The bulletin observed that, "The lecture was highly instructive and entertaining throughout, and the audience frequently expressed appreciation by applause.

According to Bulletin No. 23, the convention "both as to numbers in attendance and the general interest aroused, was quite successful." [Bulletin 23, p. 68]

### **Lynchburg, Virginia**

The bulletin explained that, "Inclement weather compelled the cessation of work by the good roads train during the last two weeks of February." Operations resumed on March 3 in Lynchburg, Virginia.

According to *Good Roads Magazine*, Dodge and Moore were in Washington arranging for the convention in Charlottesville, where the train was scheduled for an 11-day stay:

A formal invitation to Congress to attend this convention was to be extended, and it was expected that the President and members of the Cabinet would be making the postponed trip to the Charleston Exposition at about that time, and an effort is to be made to secure their presence in Charlottesville. The broad scope of the convention is to be seen in the list of speakers, which embraces Governor Montague of Virginia, Senator Daniel, General John B. Gordon, General Joseph Wheeler, General Fitzhugh Lee, Senator Mitchell, Senator Perkins, Senator Dolliver, Senator Hanna, Senator Depew, ex-Secretary of State Olney, ex-Governor David R. Francis of Missouri, and Mr. J. J. Hill, the railroad magnate. [March 1902, p. 5]

Although bad weather interfered with the object-lesson road work in Lynchburg, the bulletin reported that a "considerable stretch of earth road and another of macadam were constructed in the west part of the city." The interesting feature of the macadam road was that it replaced a macadam road built early in the 19th century:

This old road was built with stones of any size which happened to be at hand, and while the road served its purpose in its day, the larger stones kept working up to the surface, causing it to be rough at all seasons, and in the muddy season almost impassable. Its condition, compared with that of the new road built, showed the difference in macadam construction as practiced seventy-five years ago and that of to-day.

(The bulletin did not say so, but the macadam road built in the early 19<sup>th</sup> century does not appear to have followed John L. McAdam's specifications. McAdam called for three

layers of stones of differing measured sizes, compacted with a heavy roller. Drainage was provided via a crowned subgrade and ditches along the side.)

The convention was held on March 6 and 7 in the Hill City Masonic Hall. U.S. Senator John W. Daniel, a native of Lynchburg, was one of the featured speakers on March 7. Daniel, a lawyer, was known as the “Lame Lion of Lynchburg” because of extensive injuries he suffered as a Major in the Confederate Army during the Battle of the Wilderness in 1864. His lengthy remarks were reprinted in full, one of the longest addresses in the bulletin. An excerpt:

An itinerant college on wheels has come among us. It brings its professors and its equipment with it. It is known as the “good roads train” of the Southern Railway system. This college does not teach out of books, nor solely by word of mouth. It teaches by the greater power of example. If you will just watch its operation you will see a new good road grow over an old and bad road at the magic touch of titanic machinery, and while an orator talks of road building it will set his words to the music of practical accomplishment.

The United States is here with its good roads promoter and its rural free-delivery representatives to give suggestions and encouragement. The United States is pretty much everywhere. It is a good friend and an uncomfortable enemy, and I hope we shall always be ready to accept its friendship and cooperation. Indeed, we are a right considerable part of the United States ourselves, and we want to do our share of duty to the Republic and receive our share of the benefits. We give hearty welcome to its representatives . . . .

When a child I stood on the old stone wall which still overlooks the union depot here and saw Governor Floyd strike the first pick in the ground for the beginning of the Virginia and Tennessee Railroad. Recently I have gotten on a Pullman car here and taken a journey to San Francisco and back, scarcely touching the ground going or coming.

Here and now we behold the initiation of another new movement, a movement for good local roads, and many who witness these exercises will live, I hope, to see them constructed and to enjoy the pleasures and benefits which they will bring.

A good road is a universal public benefaction. There is not a single member of the community who does not receive advantage and pleasure from it. It is the most democratic of all public institutions. A court-house is for litigants, an asylum is for the infirm, a jail for criminals, a theater for entertainment, a park for recreation, a school for instruction, a church for worshipers, a hotel for wayfarers, but a good road is for everybody—saint and sinner, man, woman, and child, maid and matron, young and old, rich and poor, healthy and sick, the lame, the halt, and the blind—all get a share of benefit from a good road.

A good road is a mark of the progress of the community in which it is located. Show me a good road and I will confidently say of the people of the community: "They are up and doing: they are going forward."

He recalled Lynchburg's isolated days before the railroad and canal. "A boy who had been to Baltimore and gotten back was a returned adventurer," he said, "and could tell greater tales than a modern military hero just home from the Philippines."

Senator Daniel extolled the value of good roads, but asked, "Whence are these good roads to come? From the United States? From Virginia? From the municipal and county organizations?" He praised the General Government for establishing the OPRI "to encourage and aid, by literature and object lessons, the increase of good roads in our country." However, he cautioned, "Don't look for much help from the United States. The General Government will give you instructions and suggestions. The rural-delivery carriers will talk good roads wherever they go, but beyond this we should not indulge in great expectations. The States had "enough on hand with public debt and public schools." The answer, therefore, was:

[You] must look to yourselves, and face the plain proposition that the question of good roads is a question of finance, and therefore a question of taxation. You are the taxpayers. It is your business, and it is your burden that is to be lifted, and the results are for your benefit. It is for the taxpayers to work out their own salvation, bearing this in mind, that any community that has bad roads can not more speedily or more thoroughly improve itself than by making good ones.

In closing, the Senator pointed out that one sometimes hears of a young man "who is of the right stuff: "He will take an education." He concluded:

[The country] will not only take education, it thirsts for it, it demands it, and it will have it. Let us stretch forth the tentacles of good roads to all our neighbors. Let us pile up fuel on the flame of enthusiasm for road improvement that is burning here to-day. Let us bid godspeed to the good roads train; let us remember that good roads mean not only the better exchanges of products and greater material prosperity, but the drawing of our people closer together, on better understanding of each other, thus leading all to that useful and happy career "whose ways are ways of pleasantness, and all whose paths are peace." [Bulletin 23, p. 68-74]

(He was quoting Proverbs (ch. III, v. 17).)

The bulletin also reprinted a technical address by Colonel W. M. Patton of the Virginia Polytechnic Institute on "Alignment of Public Highways" and an address by M. A. Hays, representing the Southern Railway, on "Relation of Good Roads to Industrial Development." Hays spoke of the opportunities available to Virginia. He foresaw an end to the east-to-west migration that had been common in the United States, to be replaced by a north-to-south movement. "I know of nothing which will do so much to accelerate

such a movement as will the improvement of your public highways.” Referring to Governor Andrew Jackson Montague, who had taken office on January 1, 1902, Hays explained:

Governor Montague, in his recent addresses upon the road question, stated that you are spending \$700,00 a year for highways, and that nearly the whole of that amount is wasted. That sum intelligently spent would give Virginia a system of public highways equal to any in this country . . . . [It] would appear that it costs no more to build and maintain good highways, if the work is done properly, than it does to have bad highways.

He concluded:

The general improvement of American highways will do more than anything else to stimulate the productive energy of our people, building up and providing new markets, home markets—the best markets we can have—increasing and diffusing our national wealth, providing new fields of labor for our youth, broadening and bettering all our people, and in every way adding to their prosperity and social and moral advancement. Compared with the improvement of our public highways all other economic questions now before the people are really insignificant. [Bulletin 23, p. 74-77]

Before the convention ended, delegates formed the Midland James River Valley Good Roads Association and adopted a resolution commending Governor Montague for his efforts to improve public roads.

### **Danville, Virginia**

The Southern Railway Good Roads Train, having canceled its stop in Danville, Virginia, on February 17 to 22 because of bad weather, arrived for its rescheduled events on March 10, with the stay to last until March 15. The weather was excellent, allowing the object-lesson crew to regrade and macadamize a 1,600 foot stretch of city street, 16 feet wide, and to build “a considerable stretch” of earth road. The bulletin added:

Capt. C. A. Ballou, city engineer of Danville, estimated the cost of the macadam road alone at \$1,965. The total expenditures of all kinds in the construction of this work by the experts of the good-roads train including the earth road and the expenses for holding the convention and bringing the train to Danville, borne by the citizens, were \$1,600. [Bulletin 23, p. 81]

Nearly 1,000 people attended the convention, held on March 13 and 14. Many of the usual speakers, along with local good roads advocates, addressed the convention, including Eldridge, who delivered his roads of the world speech. Logan Page, OPRI’s road-material expert, was listed as participating for the first time on the trip, but his presentation on “Proper Road Materials” was not reprinted.

Governor Montague's presentation, according to *Good Roads Magazine*, was of "chief interest," although the bulletin did not reprint it. The magazine stated that the Governor "reminded his audience that bad roads cost as much as good ones, and pointed to the macadam road from Staunton to Winchester as having much to do with the prosperous condition of that section of the State." [This was a reference to the Shenandoah Turnpike.] Governor Montague said, "There is no State in the Union that has issued bonds to improve its highways that has had to increase its taxes. The increased revenues resulting from the improvement of the highways have always met all obligations." The magazine summarized his key points:

He said that Virginia needs a road commissioner to look after her roads, and that she will never have good roads until she has such an officer. He would have this commissioner be an expert and have his position be kept free from politics. He appealed to the people to take more interest in securing good roads, and stated that good roads could be built out of Danville and the town could capture the trade of other cities, or good roads could be made in the surrounding towns and they could take the business away from Danville. He said he believed that the National Government would soon be giving aid to the highway improvement movement. The Governor referred to North Carolina as the most progressive of the Southern States, and said: "With good roads in our mountain sections these counties would be filled in summer with wealthy people seeking health and pleasure. I would suggest," he continued, "that you request your legislators to give you the means and aid necessary to build the roads, and if they fail to comply with your request turn them out and elect men who will. As Governor I will promise to do all in my power to further the cause." ["Good Roads Train in the South," *Good Roads Magazine*, April 1902, p. 5]

The bulletin reprinted only one of the Danville presentations, this one by Professor Holmes on "Some Essentials in the Modern Systems of Road Building in the Southern States." Holmes stated that:

Our more thoughtful citizens have long since reached the conclusions that the old system of road building by compulsory labor—which is a relic of the Middle Ages—is a misfit for our modern civilization and that it must be abandoned and a new system inaugurated before we can expect to have any decided and permanent improvement in our public highways.

Given that "the necessity for money as a basis for all road building" was unquestioned, he addressed the pay-as-you-go plan and going in debt for good roads as methods of raising funds. His comments on these options, as well as on convict labor and the need for trained road builders, reflected his comments in Raleigh. [Bulletin 23, p. 82-86]

The convention resulted in organization of the Interstate Good Roads Association "to include the border counties of Virginia and North Carolina." Resolutions supported the Governor's recommendations, suggested increased appropriations for OPRI's work, and

commended rural free delivery of mail and the use of convict labor in road construction and improvement. [Bulletin 23, p. 86-87]

### **Richmond, Virginia**

The train arrived in Richmond on March 16 and spent a week in the State capital. As usual, the object-lesson work was a key feature:

A considerable amount of work was done on Floyd avenue between Lombardy and Park streets, consisting mainly of cutting and filling and illustrating the use of earth-handling machinery. After the grading was completed a short section of gravel roadway was built, demonstrating the application of domestic materials in connection with modern road-making machinery. [Bulletin 23, p. 87]

*Good Roads Magazine* provided a less mundane description of the work:

Construction work was begun at Floyd Ave. and Park St. The work of grading and macadamizing attracted a large crowd, in which were the city engineer and assistant engineer and the road supervisors. The operation of the elevating grader and loader attracted most interest. ["Good Roads Convention in Richmond," *Good Roads Magazine*, April 1902, p. 6]

The Virginia State Good Roads Convention took place on March 20 and 21 in the Chamber of Commerce hall. *Good Roads Magazine* explained that, "All the railroads out of Richmond offered half-fare rates to the convention . . . . The attendance on the opening day passed all expectation, the hall being filled with delegates from all parts of the State."

Although the bulletin listed many of the speakers, it did not reprint their presentations. The magazine indicated that Colonel George W. Miles of Radford, Virginia, who was selected as permanent chairman of the convention, recommended that Virginia issue \$5 million in bonds for road work. Governor Montague welcomed the crowd stating, as summarized in the magazine:

. . . the Legislature does what the people force it to do, and that the convention could do what it desired by arousing public sentiment; that the city was more vitally interested in the public highways than the country people; that he did not think it was altogether a question of money, and that he wanted to see Virginia do exactly what North Carolina was doing—appointing an engineer over the highways of the State.

The Governor endorsed the use of convict labor, "referring to the overcrowded conditions of the penitentiary, suggesting that the prisoners be put to work preparing road material." The magazine noted that Colonel Moore also endorsed convict labor.

(Dr. Turner's history of the North Carolina Department of Transportation discussed the North Carolina engineer noted by Governor Montague:

In 1901 the North Carolina General Assembly had created a feeble North Carolina State Highway Commission, composed of the commissioner of agriculture, the state geologist, and a secretary. The duties of the Highway Commission, which had virtually no funding, were to furnish an engineer to assist counties and towns (with the agriculture department furnishing one also), to establish rules for prison road crews, and to supply technical plans and advice . . . . The Highway Commission disbanded two years later, with few results to show for its efforts. [Turner, p. 2])

The magazine continued:

Hon. Martin Dodge, director of the Office of Public Road Inquiries, spoke of the advantage of hard roads to the farmer. He said that the Virginia representatives in Congress and the State Legislature should be asked to make appropriations for road improvement, and mentioned Congressman Otey's bill in Congress to appropriate \$100,000,000 for the improvement of public highways throughout the country.

W. A. Land, editor of the *Blackstone Courier*, offered a resolution requesting the committees on roads in the State Senate and House of Representatives to attend the sessions of the convention and explain the objections to the road bill that failed to pass the House on the preceding day, and discuss the advisability of another bill being introduced with the objectionable features eliminated. A committee was appointed to notify the legislators of the resolution.

The magazine estimated that on the second day of the convention, more people were in attendance than the first day ('about 300 were seated in the hall of the Chamber of Commerce, not including the spectators or visitors.'). Senator Daniel "was a prominent speaker." [April 1906, p. 6]

Delegates organized the Virginia Good Roads Association. Resolutions urged the State to adopt a system for permanent improvement of highways, recommended the State Legislature approve a State-aid system, endorsed the use of convict and vagrant labor in the preparation of road materials, and supported any measure to extend OPRI's work. [Bulletin 23, p 83]

### **Charlottesville, Virginia**

The train arrived in Charlottesville on March 24 for the final stop of the Southern Railway Good Roads Train. Dodge and Colonel Moore, who wanted this stop to be special, had invited many prominent officials to attend. *Good Roads Magazine* reported that, "Two special trains on successive days took about 150 congressmen and department

officers down from Washington.” [“The Southern Railway Good Roads Train,” *Good Roads Magazine*, June 1902, p. 7]

The convention, April 2 through 4 in the Monticello Guard Armory, was under the joint auspices of the OPRI, the NGRA, the South Railway, and the Jefferson Memorial Association. The association, one of the earliest “named road associations” (a common feature of good roads promotion beginning in the 1910’s), supported construction of a good road connecting Thomas Jefferson’s home at Monticello to the University of Virginia.

The road experts, supervising a crew of about 100 men, worked on the road, as described in the bulletin:

Despite the fact that several days were lost in the work on account of storms, a large amount of work was accomplished, consisting of grading, stone crushing, and macadamizing, with the building of some culverts. The grading work covered three-fourths of a mile. A stretch of about 1,600 feet, 16 feet wide, was macadamized in the usual manner, an excellent quality of trap rock being used for the purpose. [Bulletin 23, p. 88]

OPRI Bulletin No. 23 listed speakers but did not reprint their speeches. The text noted that, “Many of the visitors took advantage of the opportunity to visit Monticello, the home and tomb of Jefferson.” However, OPRI Bulletin No. 25 was devoted to the proceedings of the Jefferson Memorial and Interstate Good Roads Convention. The introductory letter, presenting the proceedings to Secretary Wilson for publication, stated:

The Jefferson Memorial and Interstate Good Roads Convention . . . was one of the greatest and most successful meetings ever held in this country for the consideration of highway improvement. Its national scope was shown by the fact that fifteen States were represented, including Maine, Oregon, and Florida. The convention was addressed by governors, members of Congress, generals of the U.S. Army, the Assistant Secretary of Agriculture, presidents of universities and of railway companies, and others . . . . These addresses brought out much valuable information relating to highway improvement which will be of interest through the United States, and I hereby respectfully recommend that the same be published as bulletin No. 25 of this Office. [*Proceedings of the Jefferson Memorial and Interstate Good Roads Convention*, OPRI Bulletin No. 25, 1902, p. 3]

The bulletin began with a letter, prepared in December 1902, from R. E. Shaw, civil engineer in charge of the Jefferson Memorial Road, regarding the project:

The idea of building an ideal highway to connect the city of Charlottesville with the home and tomb of Thomas Jefferson originated with Hon. Martin Dodge, in a conversation some two years ago with certain citizens of Albemarle County, Va., who were earnest advocates of good roads. These gentlemen were much

impressed with the vast amount of good which would accrue to their section with such a highway in daily use. Preliminary surveys were made in the early summer of 1901, and a petition for a relocation of the "Old Monticello Road" was placed before the county authorities. Their action was very slow, and it was the middle of autumn before matters began to take definite shape, and the Jefferson Memorial Road Association was formed for the purpose of building this road as a memorial to the great American . . . .

Through the cooperation of the Office of Public Road Inquiries of the Department of Agriculture and the Southern Railway Company, the "good roads train," then touring the South, was listed to make the last stop of its schedule at Charlottesville, and arrangements were made for holding the Jefferson Memorial and Interstate Good Roads Convention.

With only 5 weeks to go before the Good Roads Train, the association undertook to prepare the road for the experts. One of the keys was to make a 5-foot cut through rock within the city limits, sufficient for the width of a single track to save money. It could be further widened to 40 feet when funds "should be more plentiful." Even using convict labor, this would be a costly proposition "but the outbreak of smallpox among the convicts" prevented their use. More expensive free labor would have to be used:

The gentlemen having charge of the good roads train, however, urged the desirability of having the memorial road the proper width, not in the country only, but also for the half mile of its length within the city limits, including this rock cut. It was, therefore, decided to risk the additional expensive and give the roads its proper width from its beginning at the Chesapeake and Ohio Railway station.

The decision increased the cost from the preliminary estimate of \$940 to \$3,641.97:

The good roads train spent a week at Charlottesville and during that time the metal was laid upon about 1,000 feet of the road, which was a very satisfactory result, considering that about half of the time was lost on account of bad weather, rain, and snow. Owing to the numerous springs in this rock cut, the side ditches had to be carried down ahead of the main roadbed. The close proximity of the houses and the shallowness of the cut made blasting unsafe. About 18 inches of cobblestone (the result of 50 or perhaps 100 years of road mending) had to be removed from the old roadbed. All these conditions made the work tedious and expensive.

A good deal of earth excavation was done by the machinery of the good roads train on the first half mile beyond the city limits, and after the departure of the train, this work was carried on by the use of the county road machines, and plows and wheel scrapers, the teams and labor being contributed by the neighboring farmers, so that at present (December 1902), in addition to the completion of the half mile within the city limits, the grading for a large part of the next mile has

been finished, and the right of way has been paid for, the total expense to date being \$4,570.

Much work remained to be done, including two cuts, replacement of the wooden bridge over Moores Creek, and relocation of the roadbed for a quarter mile onto an alignment that “rises gradually along the sunny southern slopes of the hills, thus giving a series of beautiful views, escaping the sharp ascents of the foothills, and finally rejoining the old road high above the valley.”

Shaw estimated that completing the memorial road would cost about \$20,000, but considerably less if the association could purchase its own crushing and metaling outfit. [p. 9-11]

Following Shaw’s letter, the bulletin began the proceedings of the convention with the opening address of General Fitzhugh Lee, president of the Jefferson Memorial Road Association. (Lee, a nephew of Robert E. Lee, had served on the Confederate side during the Civil War. After the war, he was a farmer, writer, biographer of his uncle, Governor of Virginia (January 1, 1886, to January 1, 1890), and Consul-General to Havana beginning in 1896 before being reactivated as a Brigadier General for the Spanish-American War in 1898. He retired from the Army in 1901.) After calling the convention to order, General Lee explained the association’s twofold purpose:

(1) To give the people of this section of Albemarle County and the city of Charlottesville a lesson in making good roads, and to show them the latest modern improvements in road-making machinery; and (2) to connect the home and tomb of Thomas Jefferson and the University of Virginia and Charlottesville with a splendid broad avenue, in which work we have now made a beginning.

Lee saw no need to extol the value of good roads. “We all know that; but the problem is how to secure the funds to build the roads.” He said:

I think the time has come when the National Government should make a great big annual appropriation for public roads in the various States of the Union [applause]; and this is one of the objects in getting these Senators and Representatives here to address us. They don’t know much about making good roads; they could throw stone into a stone crusher; they couldn’t drive a wagon and distribute the stone, nor run a steam roller to compact it. But we want them interested in this subject of good roads so that when a bill is brought before Congress it can receive their support.

He thought the government appropriation should be divided among the States based on population “or in proportion to its desire to be helped in some way to build good roads.” The States would then distribute the money among the counties that were willing to raise a certain amount for the work.

General Lee referred to the appropriation for rivers and harbors:

Now, I am told that nine-tenths of everything that goes either by rail or water transportation goes over the common roads first. Therefore, if you improve the roads, you begin at the foundation of prosperity for the people . . . . Now, inasmuch as good roads are the basis of prosperity both in country and city, why should not the Government appropriate an adequate sum of money annually for road improvement?

Before closing, General Lee returned to the subject of the Jefferson Memorial Road. He knew that some wondered why the memorial road should be the object-lesson road when other county roads needed repair, too. "Very true; but other roads in the county can not get outside money to the same extent that this does, for it is of great historical interest. So, we selected that road for the object lesson, and we think we have made a very wise choice." It was also a practical choice because it illustrated the value of relocation that would apply to many country roads. "We are carrying out this idea between here and Monticello. The old road goes up the hill and down again with a 16-foot grade, but by going around the hill a little way we have got a 4-foot grade." He added:

This road was selected for improvement because some of us, indeed all of us, revere the memory of that great statesman, Thomas Jefferson. We believe that a memorial road to his home and grave will prove an inestimable blessing to all this section of the country. It will bring an increased number of visitors. These visitors will return to their homes filled with patriotic inspiration by the thoughts and deeds of this great statesman. [Applause.] If the great Jefferson, who is sleeping so quietly there at Monticello, could revisit these scenes and find that his countrymen, seventy-six years after his death, are designing this memorial which will stand in lasting attestation to his name and fame, he would surely consider it as the highest compliment that could be paid to him!

. . . Now, then, is it not the duty of those who survive, of all who admire the magnificent character and splendid deeds of that man, to do what they can to connect his university with his home and tomb by a big broad way, over which the pilgrims can annually go and drink at a fountain that never goes dry? [Great applause.] [p. 11-13]

After Mayor C. W. Allen of Charlottesville welcomed delegates to his city, Dr. P. B. Barringer, president of the University of Virginia, spoke on "Lessons from Mecklenburg County, North Carolina." In brief, Dr. Barringer, a native of Mecklenburg County, said:

To make this convention a success we have got to change. That is the long and short of it . . . . If you will do the two things I have said: (1) Declare that you will not waste money on impassable grades and in repairing mud holes, and (2) determine to put in during this next year 2 miles or more of public road well macadamized, you will lay the foundation for future prosperity in this county such as you have never dreamed. [p. 15]

Stuyvesant Fish, president of the Illinois Central Railroad Company, addressed the delegates on “Importance of Getting Together.” Fish, who served as president of the railroad company from 1887 to 1906, was a strong backer of good roads; his company had sponsored the first Good Roads Train. Born and educated in New York, Fish said that he had been devoting his time to railroad interests in the South of late. Therefore, he had a basis for comparing the North, where “everything requiring considerable capital was done by a community of interest and a community of capital,” and the South, which “inherited the ideas and traditions of large landed properties without proper means of transportation from one to the other, where on each great property the whole work of a town or a village had to be done.” He was struck by the lack of a community of interest:

I have been trying for years to get our friends in the extreme South, in the Lower Mississippi Valley, to combine their capital and combine their efforts on these various matters of common interest. You people of the South have opportunities for advancement which are superabundant. You have soil, you have climate, you have standing timber, you have iron and coal in your mountains, but you lack the capacity of getting together in your combined strength and seizing the opportunity. [Applause.]

He explained his interest in good roads:

True, I have labored as the representative of a great railroad corporation, but as such I have always known that no means of transportation, be it a navigable river, canal, railroad, or toll road, can live in prosperity unless its patrons are prosperous, unless the farmer, the miner, the manufacturer, and the proprietor of the sawmill shall continue to produce in increasing quantities valuable commodities for shipment . . . . We do not need more wagon roads, but we need better wagon roads.

Noting that at the time George Washington was elected President of the United States he was serving as president of a transportation company (the Chesapeake and Ohio Canal Company), Fish concluded:

Now, surely the business of transportation is something worthy the attention of intelligent, patriotic, high-minded citizens of this Republic. [p. 15-16]

Martin Dodge was the next speaker, addressing delegates on “Removing the Burden of Bad Roads.” He started by mentioning that he had heard Captain Alexander, author of the Mecklenburg County road law, speak of the difficulty of convincing people that the benefits of good roads outweighed the difficulties:

You simply deceive yourselves when you imagine that you bring burdens upon yourselves by undertaking to improve the highways in a stable and scientific manner. We know very well from the testimony of all persons who are informed upon this matter, that instead of bringing burdens upon the community improved roads invariably raise these burdens from the community. You have these

burdens, but you can overcome them. The most encouraging part of the system we are advocating is that these beneficial results can be obtained much more easily than you imagine.

Despite spending millions of dollars on roads in the early 19<sup>th</sup> century, Dodge said, the Federal Government more recently had “done very little, making only small appropriations from year to year for the purpose of securing useful information and disseminating that among the people.” He explained how he came to be involved in the Jefferson Memorial Road work:

I see Lieutenant [C. P.] Shaw [U.S. Navy, retired] sitting in the audience here, and I will say that he first called my attention to the desire on the part of citizens of this vicinity to have something done in highway improvement. He asked me if we could not build an object-lesson road here that would display the essential principles of such work; and I replied that I thought it would be very useful if such an object-lesson road could be built from your city to Monticello. He agreed at once with that, and I sent an expert here to make an examination . . . . He found that the road running up to Monticello had a maximum grade of 16 per cent, and we determined right away that it would be a waste of money, and a display of ignorance, for us to recommend or assist in the improvement of such a road. So I stated that we would not undertake to do anything on the part of the Government unless there could be a relocation reducing the grade to a reasonable maximum. A skillful engineer was employed, and he had made a relocation of that road so that it will be possible to make the ascent with a maximum of only 4 feet in 100 instead of 16 as heretofore. That relocation having been made, I was very glad to do everything in my power to aid in the construction of this road which will become an object-lesson to people in distant places as well as to those in this vicinity . . . .

(Shaw had been an early convert to the cause of good roads. On November 12, 1892, an article in *The New York Times* reported that reading about General Stone’s activities in the *Times* had prompted him to write to the General. The article said, “Lieut. C. P. Shaw, (retired.) United States Navy, who lives in Albemarle County, Virginia, wrote to Gen. Stone that he had read the article in the *Times* relating to good roads, and he asked in his communication that he might become a member [of the National League for Good Roads formed by General Stone and associates during a convention in held in October 1892 in Chicago], saying also that he wanted to subscribe to the magazine *Good Roads*, and would do all in his power to carry out the aims of the league.”)

Dodge acknowledged the cooperation of property owners who “have been liberal in giving the right of way,” the City Council members and County Commissioners who appropriated funds, the road-machine companies that furnished the equipment, and the Southern Railway Company, which transported the machinery free:

We did not expect to be able to accomplish the entire result of building this road from Charlottesville to the gates at Monticello, but we did expect to locate and

begin it so that it will be possible to complete it in the most admirable way . . . . I am greatly encouraged by what I see. I am ready to believe that the results will be more beneficial than almost any of us expected.

Although able to help with object-lesson roads, the OPRI is “not able to build roads, but only to assist, through such cooperation as we have here.” In view of the limited appropriations for the work, Dodge explained:

It is said “The Lord helps them who help themselves.” Similarly the Government of the United States is endeavoring to help them who are willing to help themselves.

He discussed a common concern:

There is a feeling in some quarters that the Government might be led to do too much, that it might spend too much money, and that it might do things which the State itself had better do.

In response, he pointed out that the low rates of transportation possible by water and rail were supplemented by millions of government dollars. “We have in fact made less progress in improving our highways than in any other direction, and yet there is more need for improvement along this particular line than in any other.” He favored the principle of State aid, which tended to equalize the burden of taxation among rural and city residents. [p. 16-21]

The next speaker, Colonel Moore, spoke on the “Work of the Good Roads Train,” praising Fish for initially being “the only railroad president having the true conception of the great road problem and the beneficent results that would follow such educational work.” In Moore’s view, “The road question is the biggest proposition before the people.” It would, he thought, be included in the party platforms during the presidential year of 1904 and “when you get these things in the platforms in a short time you will get the best men of the community to take up this road cause and get better results out of the money you are spending.”

As for the road to Monticello, Moore said that, ‘When we came here we found the road to Monticello in the same fix as it was when Thomas Jefferson used it.’ The work to improve this road would inspire memorial roads to the homes of James Monroe and James Madison—encouraging Americans to travel to Virginia rather than spend \$50 million a year in Europe:

I believe that you can make it pay, because you will bring thousands of pilgrims here that will spend hundreds of thousands of dollars in your midst. [p. 21-23]

After Colonel Moore’s presentation, Dodge took to the podium for an introduction:

I now have the pleasure of introducing to you my predecessor in the Office of Public Road Inquiries, Gen. Roy Stone. He was virtually the founder of that Office, and is a gentleman of great experience in all lines of road building and perfectly in sympathy with your cause. [p. 23]

Speaking on “The Necessity of Congressional Action in Road Improvement,” General Stone explained:

This occasion . . . has a peculiar interest for me, for it carries me back through ten years of my life—years which have been devoted almost entirely to the one object for which we are assembled here to-day—and brings to my mind the hope and fear with which I called the first national convention for good roads ever held in the United States, staking my reputation upon its success and risking, out of a slender purse, the entire cost of the venture.

That convention, held in Chicago in October 1892, resulted in formation of the National League for Good Roads, which helped convince Congress to appropriate \$10,000 for the start of the road inquiry in March 1893. Since then, partly because of the agency’s work, the movement had grown with the support of commercial, financial, and manufacturing interests “and in late years the National Good Roads Association has come out of the West to push the movement all over the land.” He cited the users and makers of automobiles as another powerful interest that would promote good roads:

And not only is every material interest in the land concerned in road improvement, but important moral and social interests are deeply involved as well, and even our national pride has begun to take fire at the national shame of our highways.

As for national funding, General Stone cited several ideas he had promoted while serving in the ORI:

The simplest and most obvious one is that of a direct contribution of a certain share of the cost in cases where suitable State and county aid is given to lighten the local burden. This would involve a National and State supervision of location and construction of roads and disbursement of funds which would secure intelligent work, and would stimulate progress.

Another option was a Federal guarantee of county road bonds “upon condition that the State give to the United States the right to take tolls on the roads to pay interest on the bonds in case of default by the county.” Default would be rare because the government backing would result in low interest rates. In addition, he had long favored postal savings banks, an idea that would allow people who did not trust banks to give their spare money to postal banks, which would invest the funds in county road bonds. “Estimating the deposits in the postal savings banks in the United States on the basis of those of Great Britain, we should in ten years have enough to build 1,000,000 miles of stone or gravel roads.”

He also recalled his idea of a great national highway—with one branch along the East Coast and another along the West Coast, with the two connected by a transcontinental road connecting at Washington and San Francisco:

It is often easier to do great things than small ones, of the same kind, and this would be something big enough to excite the imagination and stir the pride and patriotism of the country. The time is ripe for it. The old century went out with the triumphs of war and expansion. Let the new one bring in a triumph of peace and internal development.

He concluded:

But whatever form National aid shall take, whether that of direct contribution, a guaranty of bonds, the postal savings plan, a National object-lesson road, or some other form yet to be devised, the day that sees the Government of the United States fully committed to the improvement of the common roads of the country will mark an era in the progress of the Nation and the prosperity and happiness of the whole people. [p. 23-27]

The next day, April 3, Lt. Shaw gave a talk on “The Jefferson Memorial Road.” After noting that some “fourteen months ago a casual word of Director Dodge . . . started this ball rolling,” Lt. Shaw described the evolution of the project. To determine the need, Lt. Shaw recorded traffic on the existing road—90 vehicles a day, or 45 making the round trip. He then calculated the waste:

The cost of hauling to this point from Monticello is certainly \$1 a load—no man could do it for less than that. That represents an expenditure of \$45 for the teams, wear and tear, time of the drivers, etc., of which sum at least three-fourths are unnecessarily spent or thrown away, because if that road were improved one-fourth the number of trips of the same vehicles would do an equal amount of hauling. That places us in the position of wasting every day nearly \$34, or in the whole year a gross sum of more than \$10,000.

Lt. Shaw had tied his work to the need for better roads throughout Albemarle County and Virginia. Convict labor was a key to his concept. With some 1,000 able-bodied men in the State’s jails, “we ought to produce about 120 miles of good stone roads every year.” If State laws were approved “to give us the benefit of the tramps and vagrants, another thousand laborers would be put on our roads.” He was not optimistic:

I do not think this state of affairs is very creditable to our legislature, and I hope that men will be elected who will recognize the interest of the people at large and give us laws by which we can avail ourselves of this great force, which is misdirected or, worse still, is used for the benefit of a foreign corporation.

He mentioned the “recent act which came so near [to] passing” the State legislature and endorsed its provision “to send all short-term convicts to the public roads.” He lamented the legislature’s failure to approve the bill:

Out of the 540 convicts sent to the penitentiary in 1901, 425 had terms of five years or less, so that one simple amendment to our laws would at once relieve the congestion and would give us a working force. This is a very simple thing to ask of the legislature, and we are going to keep on asking it; and as this movement grows we will demand it [Applause.] The people have rights, and when they rise in their strength and demand them they are going to have them recognized. We are going to fight this out to a finish. This road movement is growing like an avalanche, and will sweep those people out of power who fail to see the people’s rights. [Applause.]

In closing, Lt. Shaw explained the significance of the Jefferson Memorial Road as an object-lesson road:

The road was selected for these reasons: At the end of that road, in that shady spot on the mountain side, lie the mortal remains of the greatest statesman Virginia ever produced. I say that without fear or contradiction. Washington was a hero, a soldier, a statesman; Jefferson was without a peer. Now we can get the means to build the road that leads to the grave of such a man as that. His name is revered throughout the length and breadth of this land. Just at this time, when that great exposition is being prepared for in St. Louis in order to celebrate the famous Louisiana purchase, his name is heard everywhere, for his name is associated indelibly with that movement, and thousands of people wish to come here to pay homage to his genius. They come here to visit that tomb; and do they wish to go at the risk of their lives up that wretched gully that we call a road? [Applause.] I went up there a short time ago with some gentlemen through the snow, and it really seemed like risking our lives. Fortunately our horses were sure-footed, and it kept us in the track. We want to improve this. Strangers come here and say: “These people in Albemarle County appear to be satisfied; they surely are not very progressive.” We want to remove the stigma of having it carried through the country that we are satisfied to call that a road. We must have a beautiful smooth road, and then people will say that we are progressive. Every day these real-estate men will tell you that customers are driven away because the roads are so bad. We propose to remedy this; that is the object of this work. That road may be the best road leading up to Monticello, but at the same time it is so very bad that it works to serious disadvantage of this vicinity. Jefferson was a great believer in the cause of good roads; he advocated it, he worked for it. If he could see us now working on this road I believe it would be an especially gratifying sight for him, and I want to be one of those to carry to a successful end a reform that he worked for, but which he did not live long enough to see. [Great applause.] [p. 27-30]

Following Lt. Shaw, Professor W. M. Patton, Chair of Civil Engineering at Virginia Polytechnic Institute in Blacksburg, presented a technical address on “Location and Construction of Roads.” He began:

This subject of good roads is the most important and far-reaching one before the people of this country to-day. We hear a great deal about money to build these roads. We have already raised the money to build them in the last thirty years. At a low, conservative estimate, we have raised and spent on the roads of Virginia over \$10,000,000, and the roads now are no better than they were thirty years ago. Now the question will be asked, Why is that the case? There has been no corruption, no stealing of that money. It has simply been the want of any uniform system, the want of any directing head, and no great and important development can be made on any such basis as that. And if we go on for another thirty years we shall spend another \$10,000,000 and have no better roads than we have now. The whole point, then, is the proper expenditure of our money. We have waited thirty years for good roads and yet we haven't them. We do not want to wait another thirty years.

He thought the counties must begin the effort, with the States and national aid to follow. “It takes time to bring about these things, but, in my humble opinion, they will come in time.” [p. 30-31]

After Professor Patton discussed road location and grade, the proper surfacing material, and the techniques for building them, the morning session concluded.

*Good Roads Magazine* reported that around this time:

On April 3, a special passenger train of seven coaches arrived from Washington. Among those who made the journey were Gen. Nelson A Miles, Assistant Secretary Brigham, of the Department of Agriculture; M. O. Eldredge [sic], assistant director of the Office of Public Road Inquiries; Willis L. Moore, chief of the Weather Bureau; Congressmen Livingston, Maddox, Rixey, Caldwell, Thomas, Latimer, Sibley, Kern and Smith, and many officers of the agricultural and other departments of the government. The delegation arrived at the armory at noon and filled the platform. [May 1902, p. 19]

The Assistant Secretary of Agriculture, Colonel Joseph H. Brigham, was the first speaker in the afternoon. Secretary Wilson had intended to deliver the address on “Government Aid in Highway Improvement,” but the Assistant Secretary explained that “owing to sickness in his family,” the Secretary could not attend. A native of Lode, Ohio, Brigham was a farmer, State Senator, and master of the National Grange. President McKinley considered him for Secretary of Agriculture, but having appointed Ohio's John Sherman to the post of Secretary of State, he did not want to limit the geographic breadth of his Cabinet by appointing another Ohioan. (Sherman was a former U.S. Representative, Senator, sponsor of the Sherman Anti-Trust Act, and Secretary of the Treasury.) Instead,

Brigham became Assistant Secretary, a post he held from March 1897 until his death on June 29, 1904. [*Century of Service*, p. 442]

Col. Brigham began by explaining that agriculture “must ever be the most important industry in the United States of America.” He said that, “We might survive the loss of some of the professions . . . but if the farmer should refuse to till the soil for a few short months in the year the world would be brought to the verge of starvation.”

He briefly explained how the Department of Agriculture was helping the farmer before turning to the subject of good roads, a topic “that ought to come near to the heart of every farmer especially.” The lack of good roads to get produce to town at a reasonable cost was one of the reasons people were leaving the farms. He knew the cost of bad roads from personal experience:

When a boy I settled in northwestern Ohio. We traveled along that magnificent road built by the United States Government, through the black swamp; on either side the water was from 18 inches to 2 feet deep on the level. There were a few log cabins built out there in the water, and the people had to lay logs from the roadway out to their cabins in order to get back and forth. Now there is the best country in the world right along that pike, and that is saying a great deal in addressing people here from the Shenandoah Valley and the fertile plains and valleys of other States. But that soil is rich, and they can work it in the springtime before they can work the gravelly soil or the sandy soil . . . But they had a time with the road question. It is easy to drain the surface water, but not so easy to build good roads where the material is lacking. I know after we left that Government road, we were frequently stuck in the mud, and had to unhitch to get through. And just before I landed at my little cabin where my home was to be for a few years, we got onto one of those “corduroy roads.” There was no chinking, no dirt thrown upon it, and to travel over a mile or two of that kind of road would settle the best dinner you can find in the State of Virginia. It was a rough road to travel.”

(A corduroy road consists of logs placed perpendicular to the roadway, providing a bumpy but reliable riding surface.)

Col. Brigham continued, “For years we lived in that country contending with the mud and these rough roads, but now we are improving the roads.” The farmers were unsure:

You will learn something as you go along, and you will be surprised to see how the work will extend and expand. I think that is the history of every attempt to improve the public highway. Now the farmers—I do not blame them; I am a farmer myself, lived on a farm in Ohio until I moved to Washington—are opposed to heavy taxation; they are strenuously opposed to it, and indeed, can not afford heavy taxation. That was one of the objections they had to improving the roads when it was advocated by Gen. Roy Stone, and the bicycle men, who

wanted good roads so they could glide along on their wheels without any trouble at any season of the year.

At this point, the text of the speech noted that Col. Brigham was interrupted “by the entrance of several distinguished visitors, one of whom was General Miles, U.S.A.,” the hero of the Spanish-American War and the Commanding General of the U.S. Army. Brigham acknowledged their arrival, particularly General Miles, to applause, noting that he hoped the country never went to war again, but if it did, “we do not want them to travel over the roads where they drown the mules that haul the wagons, as I have known it to happen more than once in war times.”

Returning to his speech, Col. Brigham argued that farmers are “unfairly burdened” by taxation, with highways as an example. “I believe that as every man who uses the highway is benefited by the improvement, the general public should share largely in the burden of expense in constructing these highways.”

Turning to the role of the Federal Government, he believed that “it is always right for the strong arm of the Government to be extended to help her people in every section of this country.” Still, “we can not appropriate money without a limit, without due consideration.” As a result, he supported a government appropriation for roads, to be supplemented with funds from State, county, and the locality where the road is constructed. He also thought a reasonable appropriation should be made for the OPRI “for the purpose of leading on in this work.

Brigham, who was 6 feet, 5 inches tall, concluded his speech by saying, “I want to demonstrate the fact that a tolerably long man can make a pretty short speech when it is necessary.” He ended:

I want to say in conclusion that we are willing, as a Department, through our Office of Public Road Inquiries, backed up by and sustained by the Secretary of Agriculture, to render you any assistance in our power in the effort to improve the highways of the grand old State of Virginia. [Great applause.] [p. 33-36]

General Lee indicated that he was asking the remaining speakers to keep their speeches short “because we want to get [the distinguished gentlemen] up to Monticello this afternoon to see the former home of Mr. Jefferson, and to witness the progress that is being made on this memorial road.” At the same time, he did not want to be disrespectful to the presidents of the two railways that crossed in Charlottesville, both of whom were present:

And I want all of you people here in this vicinity to know Mr. Spencer and Mr. Stevens better, because we are going after them pretty soon for a great big union depot here in your town of Charlottesville . . . We want a big central station, and I think, if you treat these presidents properly and listen to what they have to say, that the station will be the next move after we get the good-roads idea firmly established. [p. 36]

(Samuel Spencer, president of the Southern Railway Company, would address the convention that afternoon, and George W. Stevens was president of the Chesapeake and Ohio Railroad Company.)

Lee's remarks were greeted with "applause and laughter" by those who had traveled to the city by rail, only to disembark at stations "way down there, and another over yonder in the opposite direction," as Lee put it. [p. 36]

Governor Montague was the next speaker, addressing the convention on "How to Secure Good Roads." He explained that, "The people, and the people alone, can secure good roads." The people must convince the legislature to "pass proper and efficient laws. [Applause.]" He would yield to no executive in the country "in my purpose and desire to attach my signature of approval to a good-roads bill of some character." He described the desired bill:

What we need to do in Virginia is to start the enterprise. Build a few miles of good roads in every county in the Commonwealth and then the roads question will take care of itself by its own momentum. I know of no country on either side of the Atlantic that has ever abandoned the improvement of the public highways after once enjoying the benefits and profits of good roads.

He described Virginia's current efforts:

We are expending something over \$500,000 per annum for our public roads. In the past few days I have approved, as executive of the State, a number of bills in which counties have been given the right to bond themselves for road construction and improvement. I beg to accentuate the statement that though we raise a sum for our roads equal to that derived by taxation in New York, yet unless this sum is expended in pursuance of some intelligent design and scientific supervision, we have wasted it. Such design and such supervision has been lacking in this State.

To this end, he favored appointing "a road engineer or a road commission, or both, with sufficient authority." Keep the commission and engineer "out of politics and never let them get into politics." Perhaps the college professors could "select a man or a commission who can build a highway cheaply, honestly, and expeditiously."

Funds could be raised several ways, including bonds and State aid. "I affirm that no county has ever expended its money in the construction of public highways, if intelligently and honestly supervised, that had to increase the rate of taxation either to meet the interest or to pay the principal on the maturity of bonds. [Applause.]" He added that, "We should not, however, overlook National aid." He was confident it would come "in time." The idea that the Constitution prohibited the aid "must fall to the ground."

After endorsing convict labor for good roads, he spoke of Jefferson, quoting a letter he wrote to James Ross:

I experience great satisfaction at seeing my country proceed to facilitate intercommunications of several parts by opening rivers, canals, and roads. How much more rational is this disposition of public money than that of waging war.

(Jefferson wrote this letter on May 8, 1786, while serving as Ambassador to France to James Ross of Pennsylvania, a lawyer who became a United States Senator in 1794. When Jefferson became President in March 1801, Ross, who had worked against Jefferson's election in Pennsylvania, opposed many of Jefferson's initiatives until leaving office in March 1803.)

Governor Montague continued:

Again, he says in a letter to Humboldt that it is more remunerative, splendid, and noble for people to spend money in canals and roads that will build and promote social intercourse and commercial facilities than to expend it in armies and navies.

(This was a reference to the Prussian explorer, Baron Alexander von Humboldt, who had met President Jefferson during a short stay in Washington in 1803 and corresponded with him in later years.)

Therefore, no place and no name can be secured, more properly suggesting the needs and benefits of good roads, than that of Mr. Jefferson.

Governor Montague concluded his presentation with a charge for the delegates:

The people of Virginia should consider this road question, and . . . they should instruct every man who is a candidate for a seat in the general assembly to support a good roads measure. The instant the people show the legislator that their vote is needed to elect him he will be responsive to their demands. Public enterprises of this sort must move slowly but in this Commonwealth they have been moving slowly long enough. I beg you to cooperate with your neighbors and friends to the end of securing the influence and the aid of him who represents you in the general assembly in the passage of such laws as will give this State the unspeakable aid and blessing of good public highways. [Great applause.] [p. 36-39]

General Lee, in introducing the next speaker, General Miles, commented on the need for good roads to move soldiers and artillery. Lee said that:

General Miles has had great experience in all that work. He knows how to build an Indian path; he knows how to make a wigwam; and he knows how to build roads on which to move troops and supplies. I know I represent the sentiment of the people here to-day when I bid him welcome to Charlottesville and to the county of Albemarle. [Great applause.] [p. 39]

*Good Roads Magazine* stated that “when General Miles rose to address the assemblage it was several minutes before he could be heard” because of the “storm of enthusiastic applause.” [May 1902, p. 19]

General Miles, speaking on the “Importance of Good Roads in War and Peace,” began by expressing his pleasure in coming “into this beautiful country, to breathe again the pure air of Virginia.” He recalled his last visit to the State, during the Civil War as part of the Union army in such campaigns as Fredericksburg, Chancellorsville, and Appomattox:

I remember a long time ago, myself and some companions struggled for four long years to see more of your country. We tried to get down here in this part of the country, but we encountered two almost insurmountable obstacles. One was the wretched condition of your roads, especially at a certain season of the year. I remember they were almost impassable for horses, mules, or wagons, or for those of us who were walking. It was almost impossible to make any progress, for the oftener we put down our feet the more of your real estate we took up.

And then we encountered another obstacle. There seems to be a certain prejudice against strangers [laughter], especially those coming from the section from which we came. I thought the people of Virginia at that time were the most exclusive people I ever saw.

General Miles praised Thomas Jefferson, the great statesman whose work included launching the 1803 Lewis and Clark Corps of Discovery that “paved the way of civilization across the continent.” With the continent explored, the Nation built its lines of communication, culminating in “our wonderful system of railways [that] probably almost equals those of all other countries combined.” He said:

Capital, genius, and enterprise have been devoted to building these great lines of communication. Now it is important to turn the attention of our people to improving the roads that are feeders of these great trunk lines. It is estimated that at least 95 per cent of products have to be moved over the common roads before they reach the railroads or the lines of steamboat communication.

In view of the appropriations for rivers and harbors, General Miles thought that it was time to “draw the attention” of State and Federal legislators to the need to improve country roads, “one of the projects that is bound to contribute to your welfare and happiness.” He said:

If there is one thing that indicates the intelligence and civilization of a people it is their means of communication. We find in the ancient cities of the old countries, such as Greece and Rome, the roads there indicate the high intelligence of those people.

After deferring to other speakers on the topic of road making, he concluded his brief remarks:

The safety, the welfare, and the perpetuity of our Republic of eighty millions of people depend largely upon the intelligence of its citizens, and there is no one thing that contributes more to the intelligence and patriotism of a nation than the communication and dissemination of intelligence through the postal department of our Government . . . . Now it is believed that some measure can be adopted by which to promote the construction of better public roads, and thus postal communication and commerce may be still more and more improved.  
[Applause.] [p. 39-40]

The final speaker of the day was Sam Spencer, president of the Southern Railway Company. In introducing him, Chairman Lee pointed out that “the railroads of our country are very intimately connected with our public highways.” Spencer, a Georgia native who had attended the University of Virginia after serving in the Civil War, spoke on “The Roads and the Railroads.”

He began, “I did not know until our distinguished chairman this morning made his opening remarks why I was invited to be present. I now know that it was a union station at Charlottesville. [Laughter and applause.]” He wasn’t prepared to discuss that topic, but was glad to be back in Charlottesville for one of the few times since he had attended the university. His work had given him many opportunities to think about “what is desirable and necessary for the development of the section of country to which I owe my birth as well as my education, and my thoughts have naturally turned to the question of her highways.” If the railways “are its arteries,” the roads were “its veins.” The relationship was apparent to anyone who “devotes his time and attention, as I have, to the building up or the management of those arteries.”

He explained that the convention grew out of “an invitation extended by me last July to the National Good Roads Association to inaugurate a movement by means of a good-roads train that should furnish an object lesson to everyone in the Southern States of good-road building.” He discussed the work of the train:

The movement of that train I hope has done some good. At all events, so far as my observation goes, it has attracted some attention, and in some cases aroused enthusiasm for an improvement which I regard as the most important one now before us in the development of the South and of the whole country. The work of this train is now in its last stage. It has completed 4,000 miles of an itinerary through 6 States; has built, or been the means of building, 14 or 15 sample or specimen highways, adapted to particular sections in which the work was done, and therefore of the highest value to that section as an object lesson of what could be done by the people. Nothing could be more appropriate than that the last work of this venture should be the construction of a highway from the University of Virginia to the historic home of Jefferson at Monticello. [Applause.]

Highways were, he said, “an adjunct to the civilization, the progress, and the wealth of any country.” The good roads issue was “an economic question; it is not a question of sentiment; it is a question of real benefit and progress; and, while there is abundant explanation for the fact, it is none the less true that in the improvement of the highways alone America has lagged behind in the progress of civilization.” He briefly described the role of railroads in advancing the country, but said that now the attention was focused on highways:

It has come late, but we may rest assured that the American people will address themselves to that subject with the same force, the same vigor, the same liberality, and the same resource and ingenuity which have characterized them in everything they have done. [Great applause.]

One of the “leading necessities” was to “let people at large [know] what can be done and what has been done, to show them not only by literature, by addresses, and by arguments, but by practical lessons, actual demonstrations, what is necessary to make a highway, how to do it, and what its benefits will be.” The goal was to show the farmer that his transportation costs could be reduced by good roads:

And the chief purpose of the recent tour on the Southern Railway has been to show that cheaper transportation was available and ought to be utilized between every farmer’s door and his nearest station or market. I know of no better way to bring that question home, and I hope in a measure it has been done.

He discussed the cost of transporting over roads and railways, the latter being much cheaper. “The science of transportation is developed in one case; it is totally undeveloped in the other.” After this example, he concluded:

I thank you for your attention, and I hope that the enterprise upon which you are now engaged will meet with all the success which it ought to have and which you expect. [Applause and cheers.] [p. 41-43]

Chairman Lee introduced George W. Stevens of the Chesapeake and Ohio Railroad Company, who had not prepared remarks, but assured the delegates that “I am heartily in favor of the good-roads movements.” [p. 43]

The second day of the convention concluded a few minutes later, so guests could visit Monticello “upon invitation of the present owner, Jefferson M. Levy.” [*Good Roads Magazine*, May 1902, p. 19]

*Good Roads Magazine* reported that a another “special train from Washington arrived on the third and last day of the convention. It brought 75 persons, among whom were U.S. Senator Mark Hanna of Ohio, ex-Secretary of the Interior Cornelius N. Bliss, and many members of Congress.” The afternoon session “was so well attended, despite a rain storm, that the armory was crowded to its doors.” [p. 19-20]

W. L. Dickinson, president of the Connecticut Valley Highway Association in Springfield, Massachusetts, addressed the convention on Friday, April 4, on “The Improvement of Our Highways.” The technical address discussed the construction of macadam, bituminous macadam, and gravel roads, as well as the importance of maintenance. He concluded, “We should take advantage of the experience of men skilled in this work . . . we shall have in a few years in this progressive and enterprising country the finest system of roads in the world.” [p. 47]

Following Dickinson’s address, the convention adopted a series of resolutions endorsing the work of the OPRI and NGRA and thanking the Southern Railway for its contribution. Other resolutions thanked Governor Montague for his support of the good roads cause, while expressing deep regret that the State legislature had not passed a good-roads law. Resolutions urged the State to provide instruction in road building at all State-aided institutions; encouraged citizens to ask their representatives in the U.S. Congress to support “an amendment to the interstate commerce act” prohibiting State-to-State shipment of prison-made goods in conflict with free labor; endorsed the use of convicts on road projects; suggested that local communities begin the work of improving their roads “and not defer action in the hope of Federal aid”; and thanking the railroad companies for their contributions.

Binger Hermann, Commission of the General Land Office, presented an historical paper on pioneer road building. After discussing the crude roads of his youth west of the Rocky Mountains, he noted that the government for many years had used its resources to help waterways and railways, while roads fell into disuse. He recalled the National Road, which President Jefferson had approved in 1806 and lived to see it achieve its goals:

He lived to see it a success, and saw conveyed upon its well-planned grades and over its smooth and hard surface hundreds of thousands of people and millions of wealth . . . . It was indeed one vast and continuous caravan . . . . Of Jefferson’s historic National road it may be said that, while it has gone out of existence and is largely but a memory, yet the benefits which it achieved in its day in aid of the mighty growth and expansion of our beloved country have left an impress which will continue to the end of time.

He discussed the great Virginians who had contributed to the Nation “whose habitations and associations were all within a radius of not many miles from this spot.” He hoped that the Jefferson Memorial Road would lead to similar roads to the homes of the other great Virginians, such as Presidents George Washington, James Madison, and James Monroe. He hoped that Americans today would be inspired by “the exalted spirit which animated these patriotic forefathers, pioneers, roadmakers, and American empire builders.”

The text noted that Hermann’s speech was followed by “Prolonged applause.” [p. 48-53]

General Lee introduced the next speaker, Senator Hanna of Ohio, by noting, “I was wondering how Mr. Hanna happened to be such a fine good fellow, and I have

ascertained the reason: His grandfather came from Virginia.” Hanna, a native of Lisbon, Ohio, who was raised in Cleveland, had made a fortune as an industrialist. He became a chief advisor to McKinley, helping him become Governor and President. When the new President appointed Senator Sherman to be Secretary of State, the State Legislature selected Hanna to fill the remainder of Sherman’s term. Although he was easily returned for a full term in 1900, his influence was reduced following the assassination of President McKinley.

Senator Hanna began his speech on “Southern Development” by explaining why he was there:

I came here at the very earnest solicitation of Hon. Martin Dodge, who is one of my constituents at home; in fact, I may say that it was not an invitation, but a command—I had to come and that was all there was about it. When I told Mr. Dodge that I did not know a thing about roads, he said, “Well, you see, you don’t need to. I have a lot of hayseed fellows here that don’t know anything else.” [Great laughter.] “All we want of you is to come and show yourself and convince the good people of Virginia that you have not got any horns.” [Laughter.] I was going to tell the story that your chairman has just told. My grandfather was born in Virginia, within 50 miles of your city; so if I have any horns they were sprouted in Virginia.

In a country as large as the United States, he said, “The question of transportation . . . has been a serious one, and especially so on account of the rapid development and the great expense of territory, people going from the East to the West, and the enormous production of cereal products, of which the surplus must find a market.” The goal has been reducing the cost of transportation for “the enormous surplus which we had to send to market in our populous cities and in foreign lands.” This “engrossing subject” diverted attention from the “important question of home transportation—the transportation to the city, to the railroad station.”

He was interested in the development of the South because every business “has known for years the great natural resources in the South.” Although “the subject of roads may seem small in comparison, the interest manifested in this is a demonstration of the fact that the people of the South are awakening to the importance of their own interests.” When he assured the delegates that they would have “my hearty sympathy and cooperation,” his speech concluded to “Prolonged applause.” [p. 53-54]

The next two speakers, U.S. Representatives R. W. Davis of Florida and Charles E. Littlefield of Maine, gave brief addresses. Davis acknowledged he was one of the “hayseeds” Senator Hanna referred to but admitted that while he was interested in the subject of good roads, “I plead not guilty to the charge of knowing anything about it.” He, too, had a Dodge story to tell:

It was my good fortune three or four years ago to induce my friend, the Hon. Martin Dodge, Director of the Office of Public Road Inquiries, to visit my State,

and to talk to my people upon the subject of good roads. I promised him that if he would go there, a convention of people would meet him; and I so arranged it that they did, and he talked to them on the subject of good roads. Down in Florida, although we have a God-given climate, all who have visited us know that we have little or no soil, that sand prevails all over our State, and that good roads are a difficult thing to be secured there, but the visit of Director Dodge put our people to talking. Communities began to discuss this question of good roads among themselves. They began to subscribe, and county commissioners began to vote public moneys in this direction, and to-day Florida with her sandy soil is coming to the front upon the subject of good roads. [Applause.] If we can do it there, what ought you to accomplish upon these historic old red hills in the grand old Dominion? [p. 54-55]

Representative Littlefield cited the example of his town of Rutland, Maine, where a few years ago, people could not cross the street after a rain “without having on rubber boots, and sometimes the mud could get in the tops of the boots.” Rutland decided to pave the streets, despite the concerns of those who objected to the expense. Now, the town has “as fine a lot of streets as you can find in any city or town . . . and there is not a man, woman, or child—because now even the children see the advantages of good roads—that will even harbor the thought of a change back to what existed before.” [p. 55-56]

General Lee introduced U.S. Representative Thomas H. Tongue of Oregon, a lawyer and farmer who had been born in England. After serving as Mayor of Hillsboro and in the State Senate, Tongue had been elected to the House in 1896. Lee informed the delegates that Representative Tongue “has just been renominated and, I hear, is going to be reelected.” (Tongue was reelected, but died on January 11, 1903, in Washington at the age of 58.) Lee explained that, “We have heard from the North and the South, and now we will hear from the Pacific coast.”

Tongue’s speech was on “Beneficial Influences of Good Roads.” He began:

The movement for good roads . . . concerns not only the pockets, but the health, the tastes, and even the morals of the people.

All Nations, he said, considered the problems of transportation to be “of pressing and exceptional importance.” This was reflected in the U.S. Congress, which appropriated millions of dollars for rivers and harbors and aided in development of the Nation’s railroad network. The contrast with roads was stark:

While the government has dealt so liberally, expending hundreds of millions of dollars, and granting a wealth of land for the improvement of water and railroad transportation, it has been painfully parsimonious in its appropriation for the improvement of common highways . . . . It is believed that the tonnage of freight and the number of persons carried over common highways equal, if they do not exceed, the tonnage and passengers carried by every railroad train and steamboat in the land. Yet during the last forty years the Federal Government has expended

for the improvement of these roads the small sum of \$100,000. What has been the result? Just such as might have been expected.

With the encouragement of “the liberal aid extended by the Federal Government,” private corporations had expended funds for rail and water transportation:

In railroad and water transportation we excel all competitors. In the condition of our common roads we are behind the least civilized nations of the Old World.

After discussing the cost of freight shipments, which had declined for the subsidized means of transportation, he said that this decline was essential. “The struggle with foreign competitors in order to preserve our markets and maintain our trade and commerce, has forced us to rapid and unusual improvements in this class of transportation.” At the same time, the cost of wagon transportation had increased:

The most important problems that now concern the great West from which I come, and which produces in such abundance the healthful, nourishing, and luscious foods needed to feed the workmen in your factories and the crowded inhabitants of your cities, are problems of transportation.

That was why “fruits of unsurpassed flavor and healthfulness, so needed in the East, rot under the trees of Western orchards.” Similarly, “timber of unexcelled quality” was “cut down and destroyed.”

To achieve the full benefit of the dollars expended for rail and water transportation, “there should be a corresponding improvement of our common roads.” Representative Tongue explained:

The common road leads to the railroad station and to the wharf upon the bank of lake or river. The stream can not rise higher than the fountain. Without the common highways and the farm wagon, iron rails would rust upon the track and steamboats rot at the wharf.

The source of capital was key:

While great combinations of capital are seeking to monopolize and control the water and railroad routes, for the improvement of which the Government has expended so much, the common highways belong to all of the people of the United States. No combination of capital can monopolize or control them. The benefits, like the dews of heaven, descend alike upon the just and the unjust, the millionaire and the pauper, the child of the poor, as well as the child of the rich. The people’s money expended for the improvement of them will bless all the people. There will be no percentage deducted to increase the full coffers of those already rich . . . . A saving for transportation of persons and property over the common roads would be more widely diffused, would inure to the benefit of more people, and to more people who need it, than a decrease on any other expenditure.

Representative Tongue emphasized that, “Good roads do not concern our pockets only.” They would be “instrumentalities for improved health, increased happiness and pleasure, for refining tastes, strengthening, broadening, and elevating character.” For the “toiler in the city,” the “old and young,” good roads would help “sweeten the daily labor with some pleasure.” He added:

They are as essential to purity of mind and soul as to healthfulness of body. Out beyond the confines of the city, with its dust and dirt and filth, morally and physically, these are to be found, and good roads help to find them . . . . How the mountains pointing heavenward, yesterday battling with storms, to-day bathed with sunshine, bid you stand firm, walk erect, look upward, cherish hope, and for light and guidance to call upon the Creator of all light and of all wisdom. How such scenes as these kindle the imagination of the poet, quicken and enlarge the conception of the artist, fire the soul of the orator, purify and elevate us all . . . . What poor city scenes can so inspire poetic feeling, can so increase the love of the beautiful, can so elevate and broaden and strengthen the character, and so inspire us with reverence for the great Father of us all? But for the full enjoyment of such pleasures good roads are indispensable.

The roads would help reverse the “present tendency of population to rush into the great cities.” After a lengthy list of the benefits of farm life free of the corruptions of the city, he said:

The typical American to-day is the American farmer. The city life, with its bustle and stir, its hurry and rush, its feverish anxiety for wealth, position, and rank in society, its fretting over ceremonies and precedents, is breaking down the health and intellect and the morals of its inhabitants. These must be replenished from the rural home . . . . Nothing will contribute more to this than the improvement of our common roads, to facilitate the means of communication between one section of the country and the other, and between all and the city.

Representative Tongue complimented Martin Dodge. “In proportion to the expenditure of public money, no work is now being carried on by the General Government that will bring so much good to so many people, and particularly to so many of those whom we call the common people . . . .” He invited Dodge and Secretary Wallace to visit Oregon where they would be “surrounded by a wholesome, happy, and prosperous people, while the mountains, like armed sentinels in the night, keep watch and guard over your peaceful slumbers.” [p. 56-50]

That was the final speech, as presented in Bulletin No. 25. Chairman Lee stated:

I want to say a word for the purpose of testifying our great appreciation of the interest manifested in this very important subject by the large audiences that have attended the meetings in the armory, and I now declare this convention adjourned sine die. [p. 60]

## Results of the Southern Railway Good Roads Train

The introduction to OPRI Bulletin No. 23 summarized the 5-month tour:

Sample roads were constructed and conventions held at eighteen places. The total length of completed road made was from 12 to 15 miles, and included samples made of earth, gravel, sand and clay, chert, shell, and macadam. The conventions lasted from one to three days each, and were participated in by large numbers of people. Of these conventions five were State conventions, two were general, and the rest district conventions. Five State and five district good roads associations were organized to carry on active work in creating sentiment for highway improvement . . . . General interest was displayed in the progress of the train and in the conventions held, and a great sentiment was created throughout the South in favor of road improvement. [p. 10]

Perhaps, the introduction said, “no more noteworthy industrial movement has taken place in the United States in recent years and none which will have more effect on the development of one of the great sections of the country.”

*Good Roads Magazine* shared that view. A retrospective in the June 1902 issue called the Southern Railway Good Roads Train “one of the most remarkable and instructive enterprises ever undertaken.” It summarized its two primary purposes:

[To] arouse the South to take an enthusiastic interest in the subject of highway improvement, and at the same time to show in the most practical and spectacular way just how good roads should be made. The secondary objects, of course, included the desire of the machinery makers to promote the good roads movement, and create a larger market for their respective products, and the ambition of the railroad to increase the population and promote the general welfare of the section through which it passes, which will eventually repay the railroad company by increased traffic for the heavy expense to which it was put in hauling the train over its line and permitting the use of its cars and sidetracks during several months.

There can be no doubt whatever that the first primary object was accomplished immediately by each convention. Seldom has the Sunny South been aroused to so high a pitch of enthusiasm over so prosaic a subject as it has been during the past winter over the need of better roads. Every convention held had the sanction and hearty personal co-operation of the Governor of the state and of the mayor of the city in which it was held, and each one was well attended by 200 to 500 or 1,000 delegates and spectators who took a profound interest in the proceedings. All of the newspapers devoted columns daily to the work of the train crew and to reporting the sessions of the convention . . . . In a dozen other ways was made manifest the degree to which our Southern brethren’s common sense and pride were touched. [p. 2-3]

After describing the activities of the train at each stop, the retrospective said that “the immense value of the enterprise will be readily appreciated, but it cannot be overestimated.” It continued:

The double value of combining the theoretical and abstract side of the great question of road improvement with the practical and concrete demonstration as an object lesson will be readily recognized. Long after the enthusiasm stirred up by the addresses in the convention has abated, the memory of the invasion of the Good Roads Train and the dispatch and ease with which the experienced crew constructed the sample stretches of improved roadway will linger, and the improved pieces of road themselves will, by contrast with the old and unimproved, be the strongest argument and most persistent reminder of the necessity of putting all of the main thoroughfares in the immediate vicinity in equally good condition. [p. 8]

The fact that these samples are widely distributed in leading cities of the South will also have the effect of promoting the good roads cause throughout a wide territory, and the discussion of the subject in these principal centers will tend to keep it alive in all.

In OPRI’s 1902 annual report, Dodge printed several accounts from local participants in the expedition. Henry Fonde, President of the Southern Alabama Good Roads Association in Mobile, reported that while enthusiasm “has somewhat subsided, there is still a very healthy interest” in good roads in the State. His association had encouraged each county to create its own good roads association in time for a statewide meeting in Montgomery during the fall before the next meeting of the State legislature.

In Lynchburg, Dr. Charles Minor Blackford, Jr., said that he had consulted residents in the vicinity of the model road. “The traffic varies from the passage of a light buggy or wagon to the heaviest hauling, and I find no dissatisfaction expressed with the road by any class of users.” Although the object-lesson road had not yet inspired additional road construction, “I think the example will tell when new construction is begun.”

S. L. Patterson, North Carolina’s Commissioner of Agriculture and Immigration, also found that “little actual work” had been accomplished since the Southern Railway Good Roads Train passed through the State, but “the increased interest in building and maintaining good roads has been very marked in North Carolina . . .” Numerous inquiries had come from around the State “for information and for copies of the recent road laws passed by our legislature, the adoption of which is optional with the county commissioners.” Overall, he reported an “awakening of our people to the great necessity of road improvement.”

P. H. Hanes, president of the North Carolina Good Roads Association in Winston-Salem, requested a second visit of the train in the fall. “It would do more, in my opinion, to promote the good roads movement than anything that can be done.” The road built north

of the city “is an excellent piece of work, and is standing the travel beyond my expectation; in fact, it is almost a perfect piece of work.” The road and the visit by the Good Roads Train inspired the good roads movement in every part of the State, he said, “and within twelve months, in my judgment, its friends will be organized and ready for work.”

The annual report also quoted State Geologist Earle Sloane of South Carolina as saying that the “short bit of road constructed at Charleston by the good roads train . . . [has] well withstood the test to which it has been subjected” although traffic “has not been of a heavy order.” The interest in good roads promoted by the Southern Railway Good Roads Train “is continually extending, and is worthy of the highest commendation.” Sloane anticipated that, “The greatest benefits are to come to us through ready transportation from the farms to the common carriers.” He added that, “One of the foremost tenets proclaimed in the present gubernatorial campaign is ‘good roads.’” [p. 311-312]

For the 1903 annual report, Dodge again reported on the effects of the Southern Railway Good Roads Train. After summarizing the train’s agenda, Dodge quoted extensively from Senator Daniel’s “itinerant college” speech in Lynchburg, Virginia. He then cited a few of the many “gratifying reports” received “showing the beneficial results following this great good-roads expedition.” He reprinted several comments cited in the 1902 report, but added excerpts from two letters from W. L. Spoon, the road expert employed in the OPRI’s southern division under Professor Holmes. The first was written from Goldsboro, North Carolina, on October 6, 1902:

I was at Winston, N.C., last week and went up to see the first piece of work done by the good roads train, and I am delighted with its excellent condition. It is as fine as any road in North Carolina to-day. It has been extended for nearly 1 mile. I have no doubt you will be delighted to know this.

Spoon also inspected the object-lesson road built at Raleigh. His letter of December 16, 1902, reported that the road “is in excellent condition.” Although the work “was seriously interrupted by the severity of the weather, and had to be left partially incomplete . . . it shows excellent construction in the foundation . . .” This characteristic was “evidenced by the fact that the very heavy traffic it daily bears does not wear the surface into holes or uneven places.” He explained that aside from its traffic service, the road had performed its “greatest value” by exposing visiting delegates, many of whom had never seen a macadam road, to “the actual work of constructing a macadam road upon sound, scientific principles.” Spoon continued:

Aside from the local benefit derived from the good road built as a road of service, by far the greater value to the State was the educational feature, which has a scope of influence commensurate with the size of the visiting delegation, and, since that was very large, it is easy to see how the value of the visit of the good roads train to Raleigh is of incalculable benefit as an educator. Indeed, I may say truthfully that the three stops of the good roads train in North Carolina did more to arouse good roads sentiment throughout the State than any and all agencies heretofore

employed combined. North Carolina will give a good account of herself at no very distant date. [p. 337-338]

### **The Great Northern Good Roads Train**

At the start of FY 1903 on July 1, 1902, Dodge used an increased appropriation to expand the number of OPRI divisions. He appointed Colonel Richardson of the NGRA to be the special agent for the Middle Western division. Jay F. Brown of Cleveland, mentioned earlier as the engineer on the Wooster Pike project, became the special agent for the Central division. (Brown appears to have confined his work as special agent to northern Ohio, where he was aided by Joseph H. Dodge, an OPRI road expert who was also Martin Dodge's brother.)

The Southern Railway Good Roads Train was the most extensive of the good roads trains, but the OPRI and NGRA jointly sponsored one more expedition. With the support of the rail company's President, J. J. Hill, the Great Northern Railway Good Roads Train began on September 1, 1902, at the Minnesota State Fair between Minneapolis and St. Paul. Dodge supervised the train, while Colonel Richardson and OPRI Special Agent Abbott were in charge of promotional work. The train was scheduled to conclude its demonstration in Portland, Oregon, on October 20.

The road machinery had been shipped from Chicago to St. Paul over the Burlington route free of charge, according to OPRI's 1903 annual report:

The machinery companies conceded everything asked for and gave the best and most improved machinery for every variety of work necessary, and also traction engines to haul the earth-handling machinery, so for the first time animal power was dispensed with for such service. [p. 339]

The train consisted of nine cars of machinery, plus a dining car and a sleeping car. The annual report called it "the best equipped good roads train ever sent out." The Great Northern Good Roads Train followed the pattern of the previous trains, featuring construction of an object-lesson road and a good roads convention at each stop, with a goal of organizing good roads associations to promote road improvement.

On the State Fair grounds, the crew built 2,000 feet of macadam road using local materials. The road was considered permanent because "the road leading from St. Paul to Minneapolis will pass through these grounds and over this road."

After a 3-day convention at Institute Hall on the fairgrounds, the train moved to St. Cloud, Minnesota, then a city of about 10,000 residents, for a 2-day convention in the city's Davidson Opera House. The object-lesson team built a macadam roadway on St. Germain Street, the first macadam road to be built in this part of the country, according to the OPRI's annual report for 1903. As was customary for object-lesson roads, the experts used local material, in this case granite from area quarries. The annual report stated:

[It] was thought by many that this material could never be used successfully for the purpose because of the lack of cementing properties. By a slight admixture of powdered clay and gumbo, which operated as a binder, and under pressure of the heavy steam rollers there was presented a most excellent object lesson for that community and for all that section of the country. [p. 339]

The report added that, "About 1 mile of road was prepared, but the macadam was placed on only about one-quarter of a mile." *Good Roads Magazine* explained that the road began at the railroad and consisted of a 16-foot wide roadway, narrowing to 9 feet. In addition, a "portion of earth road was made with graders and packed by a steam roller."

With the weather perfect, "a great many people from town and the surrounding country . . . watched the work with much interest." When the work was completed, it "was pronounced by Director Dodge the best object lesson road he had ever seen made in so short a time." [*Good Roads Magazine*, October 1902, p. 1]

(According to the annual report, special agent Abbott returned to St. Cloud 2 weeks later "to ascertain whether [the object-lesson road] had been injured by the wet weather and heavy traffic." He reported that it was "preeminently satisfactory.") [p. 339]

The train arrived in Fargo, North Dakota, another city of 10,000, on September 14. The next day, the object-lesson team began construction of a macadam road on Eighth Street between Third and Fourth Avenues, a distance of about 450 feet. OPRI's annual report stated that "the soil [is] so sticky when wet as to make the roads almost impassable." The team faced two concerns. The annual report expressed one:

No macadam road had ever been built in this valley, and it was the common opinion prevailing there that none could be because, as claimed, the earth was too yielding to support any superstructure of stone according to the macadam method; but here success was secured in a high degree by using the same kind of granite and by pursuing the same method of consolidation as at St. Cloud. The Great Northern road transported free 200 cubic yards of granite sprawls from the St. Cloud quarries. In addition to this macadam, an equal amount of gravel road was laid in Fargo. [p. 339]

*Good Roads Magazine* expressed the other concern:

It was feared that wet weather would interfere with the work, but after a few showers the skies cleared and fine weather prevailed. The dirt, in its wet state, gave the engineers an opportunity to study its peculiar characteristics to better advantage. The progress of the work was watched by a good number of interested spectators, but the attendance was not as large as had been anticipated, owing to the fact that it was at the season of year when the farmers were compelled to secure their crops.

Similarly, attendance at the 2-day convention in the Opera House “was very fair, everything considered.” [*Good Roads Magazine*, November 1902. p. 2]

The train moved to Grand Forks “an enterprising city of over seven thousand,” as explained in *Good Roads Magazine*. The “second city” of the State, an “important railroad center” and the State’s “chief manufacturing city,” Grand Forks, home of the State university, had “broad, well-paved streets, is well lighted, and has imposing business houses and handsome residences.” The magazine described the object-lesson road:

The rock used for the macadam section was St. Cloud granite, which was brought for the purpose. Three distinct kinds of road were constructed: one of granite bound with clay and finished with fine granite, the second made of granite bed with a four-inch gravel layer on top, the third a stretch of road built of gravel alone, no clay being used. Inclement weather, however, prevented the completion of the work until Monday, the 29<sup>th</sup>. The work was watched with interest by many visitors from the city and people from the northern part of the State and from the State of Minnesota.

The 2-day convention was held in the Pioneer Club Rooms, but the magazine observed, “Could the convention have been held early in the summer when the harvest did not demand the attention of the farmers the attendance would have been much larger.” [*Good Roads Magazine*, November 1902, p. 3]

Even before the Great Northern Railway Good Roads Train reached Great Forks, participants had decided to end the train after the convention in that city. The October 1902 issue of *Good Roads Magazine* discussed the decision:

The reason given for discontinuing the train is that it is at a time when the farmers are especially busy, and it has been impossible to secure the desired attendance. The railroad company, therefore, it is said, did not see its way clear to running the train further for the present. The Government officials, however, have arranged to carry out the programme as arranged so far as holding conventions at Seattle, Portland, and other points is concerned, and it is expected that very profitable results will follow the meetings, as every effort will be made to bring out a large attendance. [p. 18]

The reduced team consisted of Dodge, Richardson, and Abbott; F. H. Hitchcock, chief of the Foreign Market Division of the Agriculture Department, and J. R. Taggart and B. S. Thorp. An OPRI photograph reprinted in the December 1902 issue of the magazine showed the “party at the time of leaving Grand Forks.” Dodge and three others are seated in a horse-drawn carriage, with the two other members of the team standing alongside it. [p. 23]

On October 11, 1902, Dodge wrote to Secretary Wilson from Seattle. The letter, reprinted in the December 1902 issue of *Good Roads Magazine*, [p. 23-24] began:

Dear Sir:--I take pleasure in sending you herewith a large number of newspaper clippings, which contain an abridged report of the work that we have done with the good roads train in the Northwest and of the manner in which it was received.

After summarizing the activities of the Great Northern Railway Good Roads Train in language that would later appear in the annual report, Dodge continued:

When I made application for the train, I requested that it should be sent entirely across the country to the Pacific coast. The request was not acceded to at first, and when the company decided to put on the train, they only agreed to run it through the prairie country, because they said the season would be too short to reach the Pacific slope before the rainy season would set in. I had hoped in the beginning that we should not be required to stop oftener than once in 500 miles, but the railway company insisted on stopping at the places I have named, all of them being within 250 miles of St. Paul. Bu this time a full month had passed, and the distance from Grand Forks to Seattle, our next stop, is fully 1,500 miles, so the railway company concluded that inasmuch as there could be but two or three more stands made at best this year, it would not be wise to run the train 1,500 miles and return it within a short time, making 3,000 miles for not to exceed three exhibitions.

Our main purpose now is to call the people together in conventions at different times and places, and discuss the road question with them, give them such information as we have, and ascertain from them what they desire. In this we have been eminently successful at this place, not only by reason of the great number of persons attending the convention and the remarkable interest manifested in the subject, but also on account of the formation of a permanent state organization for carrying on the work here in the future. Mr. Samuel Hill, who you know is the son-in-law of Mr. J. J. Hill, was chosen president of the new association, and tells me that he is very anxious to have his name identified with the movement in the state and with the permanent improvement of the highways—a thing greatly needed in this section the country.

We go from here to Portland for a full week, and from there to the Inter-Mountain Fair at Boise, Idaho.

Very respectfully,  
Martin Dodge, Director [p. 23-24]

(Samuel Hill, who had married J. J. Hill's daughter Mary in 1888, would become one of the great figures in the Northwest during the Good Roads Era, associated particularly with the Pacific Highway along the West Coast and the Columbia River Highway, now an All-American Road under the National Scenic Byway Program.)

In this way, the final Good Roads Train with OPRI's full support came to an end.

### **James Abbott on the Great Northern Railway Good Roads Train**

The December 1905 issue of *Good Roads Magazine* contained an article by former OPRI special agent Abbott, on “Some Object Lesson Road Lessons.” He explained that General Stone, “a civil engineer, a practical road builder, and a conscientious and enthusiastic official,” had initiated the object-lesson road plan of instruction about 10 years earlier. He explained that General Stone developed a “four-sided scheme of co-operation” under which a community applied for an object-lesson road, manufacturers provided equipment, railroads provided transport, and the ORI provided experts. In practice, the emphasis was on education:

During the building of this piece of road every newspaper published in the vicinity found it a prolific topic of news. Thousands of people came to view the process, many from considerable distances. To all of them the expert explained each process and the reason for it. It was a daily school in the whole theory and practice of road building. A convention was always held, lasting two or more days, at which the subject of highway construction discussed in all its phases—historic, economic, social, legislative, administrative, and to its deliberations the press gave wide publicity. Numerous photographs were obtained illustrating every feature of the work in progress. These were published by the press and made into lantern slides. Widely separated localities were selected for these demonstrations. Professors and students from agricultural colleges and State universities went to them to see and learn and to attend the conventions. Many of them secured the photographs for lantern slides to illustrate lectures in their respective institutions. Mr. Eldridge, the assistant director, went from town to town, all over the United States, delivering instructive lectures, illustrated by views of these object lesson roads and processes.

Abbott considered this original phase of object-lesson road construction a success:

For years this object lesson road method was practiced by the office with unqualified benefit to the whole country. It was undoubtedly an important factor in educating public sentiment in several States, which later established highway commissions.

The original practice of object lesson road plan was judicious and effective. It met the needs of the people and fulfilled the spirit of the law.

The second era of the object-lesson road, Abbott said, was the period of the Good Roads Trains, particularly the trains operated by the Illinois Central and Southern Railway:

They operated in the Southern States, where highway conditions were all very crude, in communities where the majority of the people had never seen a good road, knew nothing of up-to-date road building apparatus or methods—and to whom the spectacular particularly appealed.

During the conventions at each stop, “staff immediately began giving a show entirely novel in those parts,” offering opportunity for “the little social functions which characterize the impulsive hospitality of that southern clime:

It was all refreshingly novel and much good-road seed was planted. The moderate sums exacted from the communities for expenses were generally regarded as reasonable and cheerfully paid.

He gave credit to Colonel Richardson, who according to Abbott had been appointed a special agent of the OPRI “in order that his peculiar talents might be utilized and to him was intrusted the conduct of the campaign.” Abbott added:

If there exists in the United States another man as well fitted by nature and training for such a duty, the writer, in his somewhat extended experience of the good roads cause, has never met him.

Richardson’s talents were especially useful in dealing with critics:

The occasional roars of practical utilitarians, who failed to recognize in the visible results the wonderful stretches of perfected highway pictured in advance to their imagination, were mostly dissipated and rendered innocuous by the genial and tactful Richardson. But for his executive ability and peculiar genius for that work, the short comings, incongruities, and ludicrous features of the plan and its personnel would have usurped the limelight.

Along the trail of the train, people would have laughed at the droll features and largely missed the beneficial lessons.

The Great Northern Good Roads Train launched the third era of object-lesson roads. “It was an ill-advised attempt to transplant to an uncongenial clime and environment an exotic which had thrived in other regions and under very different conditions.” He did not fault the railroads, which “were generous in the extreme”:

No such company of highly skilled, practical road experts was ever grouped together for work before or since . . . . All on the train were the railroad’s guests, and no restriction was placed on their numbers. Every comfort of the modern railroad was furnished, the best chef on the system was detailed for the train and an assistant furnished him. President James J. Hill’s especial train porter was one of the two provided. Every good thing to eat to be had in the market was served in abundance, cooked fit for a king’s table. There was even a conductor, gifted with talent for song and story, who endeared himself to all by his delightful personality.

The train was the “star attraction” of the Minnesota State Fair at Hamline on the boundary between Minneapolis and St. Paul. The object-lesson road, however, did not go smoothly:

After grading had been in progress for two days in accordance with stakes and instructions of the engineer designated by the fair management, it suddenly developed that the stakes and instructions were in error, and instead of a cut there should have been a fill. Activities were reversed and the dirt returned to the place from whence it had been abstracted. Just previous to the transposition act the plow of an elevating grader had severed in twain a water main. Frantic appeals to the fair management to repair the damage before it should be forever too late were responded to by a zeal of movement suggestive of the tortoise.

It requires no heated imagination to conceive the sort of foundation for a macadam road which would be evolved from such complications. To augment the gaiety of the occasion every man, woman and child who visited the fair ground seemed to feel called on to distribute themselves over the right of way, and a constantly recurring tragedy was averted only by stopping the machines every few feet.

Under these conditions, it was not surprising that on Saturday afternoon the general passenger traffic manager of the system, contemplating the accomplishment and measuring the value of the demonstration only by what was in sight, suggested the prompt relinquishment of the train and vigorously asserted that “such demonstrations would set back the cause of road improvement in a region for five years.”

The demonstration at St. Cloud also had its share of problems that “illustrated how difficult it might be for a human being to recognize in such demonstrations any benefit beyond the actual value in dollars and cents of the short piece of road constructed.” Abbott described a member of the local committee that had arranged for the visit as the equipment was being moved from the railroad to the demonstration site:

He saw the crusher break through a rotten culvert, and noted with impatience that it required men and effort and time to put it on to terra firma again. He observed an unavoidable delay which occurred in erecting the bins and making certain needed changes. Noon of the second day had passed and not a pound of road had been crushed. At last the strain upon his feelings was too much, and they suddenly let go, and then and there Mr. Committeeman threw a fit, with most painful and aggravated spasms—such a woeful waste of money was a grievous matter indeed. In his view, the mountain had groaned and not so much as a ridiculous mouse even had yet been brought forth.

At least the city was glad that the project would publicize the crushed granite that was available for projects elsewhere in the State. “This was fully recognized by the alert, practical citizens of the place, and St. Cloud had no kick coming if the short piece of

object lesson made for them did cost a few cents per foot more than it would average in a large contract.”

At Fargo, the experts encountered “several disagreeable rainy days” that “injured the work and greatly restricted accomplishment.” At Grand Forks, “the harvest season made such a demand for labor that the local committee were unable to procure the requisite help, and there also a bad storm intervened to retard progress.”

Abbott summarized the tour:

Four times the circus was unloaded; four different communities were variously edified, then a kindly disposed Providence induced the railroad company to take the train away, thus depriving the office of Public Roads Inquiries of opportunity for perpetrating in Oregon and Washington during the rainy season a most unfortunate record . . . .

At the end of the fourth week it was quite clearly established in the minds of most on that train that the building of a good object lesson macadam road was not a circus proposition.

Abbott had returned to St. Cloud and Grand Forks recently to see the object-lesson roads left behind. At St. Cloud, the road “has sustained the traffic of wagons bringing in enormous loads of granite from neighboring quarries.” The road had not received any maintenance in the 3 years since it was built:

That part of the road which was macadamized for a width of sixteen feet has stood the test wonderfully. Not a weak spot has developed, not a rut appeared. That [part that was] nine feet in width has not been so fortunate; it has both ruts and holes and the edges in places have broken down.

The macadam had not broken through, but “the heaving of frost has disturbed its shape, and made the surface somewhat irregular.” He continued:

Still the portion made wholly of granite, sixteen feet wide and six inches thick, after rolling, has stood and is regarded by the farmers bringing in loads over it as a success.

Fargo was a different story:

At Fargo not a trace of macadam remains. Here and there, a careful search in the mud discloses a fragment of granite to identify the place where the macadam was. Experimental pieces were made in each place of all gravel, and of granite and gravel combined.

Overall in the two cities, “Nothing stood the test excepting all-stone, sixteen feet wide and six inches thick, standard-made macadam.”

One reason for the differences was the soil in the two places. The natural soil in St. Cloud “was largely a granite detritus, quite porous and readily drained.” At Grand Forks, “the soil was that black gumbo so characteristic of the Red River Valley of the North.” The surface is flat, making drainage difficult. “Every one said that no thickness of macadam road could be built on it that would survive one winter when the frost sometimes penetrates to a depth of eight feet.” The Fargo road “was on the same kind of soil and had no sub-drainage.” As a result, “It promptly collapsed the first spring,” as would “any similar road in that country undrained.”

In this article, published after Martin Dodge had left office, Abbott did not mention by name the Director who had been in charge of the good roads train. [“Some Object Lesson Road Lessons,” *Good Roads Magazine*, December 1905, p. 819-823]

### **Martin Dodge’s Other Initiatives**

From the start, Dodge had sought increased appropriations for the OPRI. His first annual report as Director, for 1900, recommended increasing the number of special agents from four to eight, along with four road experts and four scientific aides “so that there may be one of these to assist each special agent, and thereby enable us to greatly multiply the object-lesson work of this Office. He continued:

We shall also need improved machinery of various kinds, and I request an appropriation of \$18,000 for this purpose.

The increased correspondence of the Office makes it necessary to have a skilled and experienced stenographer, for which I recommend an appropriation of \$1,200.

During the past years the usefulness of this Office has been somewhat impaired by insufficient appropriations. The sum of \$10,000, which was formerly appropriated for this Office, is none too much for the ordinary work which presents itself in regular course. In addition to this sum there should be at least \$2,000 appropriated for the purpose of making experiments and traction tests with wide-tire wagons and also to assist agricultural colleges in object-lesson work in the various States.

I therefore recommend that the sum of \$54,320 be appropriated for the use of this Office for the year 1902, as per estimate submitted. [p. 291]

Dodge’s 1901 report continued the pursuit of increased appropriations, recommending an increase to \$75,000 in 1902. He also recommended that the OPRI purchase its own road equipment instead of relying on equipment loans from manufacturers. Appropriations also would be needed for the salaries and traveling expenses of the engineers and experts as well as shipping costs for the equipment. [p. 252]

In 1902, with the annual appropriation increased to \$20,000, Dodge reported that the OPRI had received many requests for object-lesson roads but “we shall be able to comply with only a limited number of them—more, however, than in any previous year, because of the \$10,000 increase in this year’s appropriation.” He explained that, “a minimum appropriation by the General Government is used to accomplish a maximum of good results.” He estimated that “for every dollar expended by the Government the local authorities have been stimulated to expend at least \$10 in this object-lesson and experimental road work.” He recommended that the Department seek an appropriation of \$75,000 for the next fiscal year. [p. 313]

In response to Dodge’s plea, Congress increased OPRI funding to \$30,000 for FY 1903. However, Dodge again sought an increase to \$75,000 for 1904, in part to allow the OPRI to buy equipment. “During the present season . . . this Office has had considerable difficulty in securing sufficient machinery; the manufacturers have not been able to fill their regular orders, and have therefore been unwilling to fully supply the Department.” He added:

The work of this Office appears to be no longer of tentative character. Year after year it has assumed increased importance and wider scope, and there is now a general demand coming up from all sections of the country that it be made a permanent feature of the work of this Department. It appears fitting, therefore, that it be given a more definite legal status, thereby adding dignity and stability to this branch of the Department’s work. I therefore respectfully recommend that the Office of Public Road Inquiries be transformed into the Division of Public Roads, with a statutory roll of officers and employees. [p. 346-347]

Dodge also recommended establishment of a post-graduate school in Washington “where graduates in civil engineering from the land-grant colleges could secure a thorough course in theoretical and practical road building.” With the growing public sentiment in favor of good roads, States and counties were raising funds for roads, but “these funds are being injudiciously expended on account of a lack of intelligent and skilled supervision.” Although colleges were turning out civil engineers, “most of them know little or nothing about practical road building.” Dodge described how the school would operate:

A similar school was established in Paris by the Government of France in the year 1747, and the condition of French roads to-day attests the wisdom of such action. The American school of road building should include a series of lectures by experts of this Office, and some practical work in the road-material laboratory and in connection with the object-lesson road work of the Office in different parts of the country. [p. 332]

Congress appropriated \$35,000 for FY 1904, but took no action on Dodge’s proposal to establish a national school for road building. In the annual report for 1904, Dodge would repeat his appeal for the school, as well as his appeal for permanent status and an annual appropriation of \$75,000. Congress continued the appropriation of \$35,000 for FY 1905, Dodge’s final year as Director.

## National Road Inventory

When Congress appropriated \$10,000 to launch the road inquiry in 1893, one of the goals of the ORI was to gather information “in regard to the systems of road management throughout the United States,” as well as “the best methods of road-making.” Under General Stone and Martin Dodge, the small Office produced many reports on these topics. Dodge, however, would launch one of the Office’s most important and challenging information gathering initiatives by directing Eldridge to gather data on public road mileage, revenues, and expenditures in the United States in 1904. This was the first attempt to measure country road mileage across the continent.

The results would not be compiled in a single bulletin until 1907. In *Public-Road Mileage, Revenues, and Expenditures in the United States in 1904* (Office of Public Roads Bulletin No. 32), Eldridge made clear how challenging the task was:

As no information of this kind has ever been collected before from all the States, the undertaking has been an exceedingly difficult one, and has taken much more time than was at first anticipated. The forms of road taxation and the methods of collecting and expending road funds differ so radically in the various States, and even in the counties and townships of the same State, that it was necessary to prepare and send out a great variety of blank forms, with many variations in the queries submitted, in order to secure the information desired. It was also necessary to send out a large number of type-written letters in order to obtain information which could not be secured by means of printed questions. In the States where road taxes are assessed and collected by county officials, the task was comparatively simple, but in the States where the town or township is the geographic unit for road taxation, it was necessary to correspond with the road officials of each, and some of the States have as many as 1,500 townships. To some of the townships from 15 to 20 letters had to be written before complete reports could be secured, this correspondence extending over a period of several months. The extent of the task may more fully be shown by the statement that about 60,000 communications (including both printed and typewritten letters) were sent out during this investigation, this being an average of about 20 for each county.

As difficult as gathering the information had been, ensuring its accuracy was nearly as hard:

The mileage of roads on the boundary lines of townships and counties may have been in some cases reported twice, and in others not at all. The roads in many counties and townships have never been measured, surveyed, or recorded, and in such cases it became necessary to secure an estimate of the mileage from persons best informed on this subject in the counties. In some instances no permanent records appear to have been kept of collections or expenditures of road funds, and in others the records are kept in such a manner as to confuse rather than enlighten

one in search of information. In a few instances road officials refused to supply the information unless paid for their services, and as the Department had not sufficient funds available for this purpose, it became necessary in such cases to secure the information through postmasters, attorneys, physicians, or other private citizens. In some cases appeals were even made to the governors of States, Members of Congress, and to the Post-Office Department for assistance in securing correct information. [p. 6-7]

Based on this extensive compilation of information, Eldridge reported:

[In] 1904 there were 2,151,570 miles of [rural] public road in the United States. Of this mileage, 108,232.9 miles were surfaced with gravel, 38,621.7 miles with stone, and 6,809.7 miles with special materials, such as shells, sand-clay, oil, and brick, making in all 153,664.3 miles of improved road. From this it follows that 7.14 per cent of all [rural] roads in this country have been improved . . . . A comparison of road mileage with population shows that there was 1 mile of road to every 35 inhabitants, and 1 mile of improved road to every 492 inhabitants. [p. 7]

(This mileage did not include streets or boulevards in incorporated cities or villages. It also did not include roads in Indian Territory (roughly, the eastern half of Oklahoma, with the distinction disappearing when Oklahoma became a State in 1907), or the Territories of Alaska, Guam, Hawaii, the Philippines, or Puerto Rico.)

Only four States had more than 100,000 miles of roads:

Texas:	121,409 miles
Missouri:	108,133 miles
Iowa:	102,448miles
Kansas:	101,196 miles

The fewest road miles were found in:

Arizona:	5,987 miles
Delaware:	3,000 miles
Rhode Island:	2,361 miles

The District of Columbia, the one city included in the 1904 survey, had only 191 miles of road. [p. 7—10]

Eldridge had defined the term “improved road” to mean “a road which not only has been properly graded and drained, but which has been surfaced with a material or combination of materials, or to which some preparation has been applied resulting in a reasonably smooth, firm, and durable surface.” He added:

Macadam or gravel roads may be cited as examples of hard materials applied to earth subgrades; a sand-clay road and tar macadam are good examples of the application of combinations of materials to effect the desired result; while the use of oil and tar, principally on macadam roads, though occasionally on earth roads, illustrated the improvement of a road by the application of preparations. [p. 6]

By this measure, Eldridge listed the States with the most mileage of improved roads:

Indiana:	23,877 miles
Ohio:	23,460 miles
Wisconsin:	10,633 miles
Kentucky:	9,486 miles
California:	8,803 miles

Gravel was the principal surfacing material in about two-thirds of the States, including four of the top five States (excluding Kentucky, which had the largest mileage of stone surfacing at 8,000 miles), while macadam exceeded gravel in eight States. [p. 11-12]

The report tabulated expenditures “by States, counties, townships, and districts, from property and poll taxes, bond issues, and State-aid funds, together with the valuation of the labor expended under the statute-labor law” (referring to the requirement in 25 States that citizens devote one or more days to road improvement each year). Total expenditures amounted to \$79,771,417.87 [p. 15]:

Of this amount \$53,815,387.98 was expended from property and poll taxes payable in cash, \$19,818,236.30 was the value of the labor taxes, \$3,530,470.93 came from bond issues, and \$2,607,322.66 was expended from State-aid funds. [p.16]

These figures worked out to \$37.07 per mile of public road, or \$1.05 per inhabitant.

As for toll roads, Eldridge found that:

The building of turnpike or toll roads by chartered companies was inaugurated in the last quarter of the eighteenth century with the advance of population to the West. In 1811 over 300 turnpikes had been chartered in New York and the New England States, with a combined capital of over \$7,500,000. The turnpike system had proved unsuccessful, however, and with the exception of a few hundred miles of toll roads in Pennsylvania, Maryland, Virginia, and Kentucky, privately owned highways have been gradually abandoned. It is probable that within the next few years the toll road will have entirely disappeared. [p. 21]

(Due to lack of profits, some toll road companies were going out of business, while the States were gradually purchasing the companies and converting the road to toll-free operation. Separately, Logan Page would say of toll roads:

Of toll roads it is scarcely necessary to say anything. They are passing, and we may as well let them go without seeking to multiply reasons why they should go. At one time they undoubtedly were an advance over previous conditions and constituted a stage in the development [of] transportation facilities. A toll road is wrong in principle, as it places a public highway, which belongs to all people, in the hands of a private corporation. It is burdensome, for the toll levied upon the traveler, usually about three cents per mile, is as much as or more than is charged by the railroads for carrying passengers. It is ill-kept for two reasons—one, that the company expects the revenue derived from toll to pay dividends or officials; another, that the mileage of roads under the control of each toll company is not great enough to justify the employment of a skilled engineer or expert necessary to maintain the road in first-class condition. [Page, Logan, “County Road Administration,” *Good Roads Magazine*, November 1906, p. 866])

The report also compiled information on States that had enacted State-aid laws:

At the close of 1904 some form of State aid had been adopted and was in actual operation in 13 States. In Pennsylvania, Delaware, New Jersey, New York, and the New England States the State paid from one-third to three-fourths the cost of the improvement of certain roads, while the balance was paid by the counties, townships, and property owners. In Colorado, Utah, and California the State paid the whole cost of certain roads.

In addition, the report summarized the road laws in every State. For example, in Dodge’s home State of Ohio, the report indicated the following for State laws in 1904:

The road laws of Ohio are so voluminous and complicated that it would take several pages to explain the various provisions related to taxation. Briefly stated, the taxes for the construction, repair, and maintenance of county roads are assessed by the county commissioners, while the revenues for township roads are raised by the township trustees. The county commissioners and township trustees are authorized, under certain restrictions, to borrow money or issue bonds for road purposes.

Every able-bodied male person between the ages of 21 and 55 years, unless by law exempt, is required to perform two days’ labor on the public roads, or in lieu thereof to pay \$3 to the road supervisor.

There are special provisions relating to the formation of from two to four townships into road districts for the purpose of improving and maintaining roads; and to the building of roads by local assessment under the 1-mile assessment and the 2-mile assessment plans, under which plans a large portion of the gravel roads have been built. [This is a reference to the practice of assessing taxes on the basis of proximity to the road and the benefits that would result from access.]

The State-aid law, passed April 18, 1904, provides that the State pay 25 per cent of the cost of improved roads; the counties, 50 per cent; the townships 15 per cent, and the local property owners 10 per cent. No roads were constructed, however, under this law in 1904.

Although the Department could not vouch for the “absolute accuracy” of the figures in Bulletin No. 32, “it is believed that, taken as a whole, they can be accepted as fairly correct, and that they will form a valuable basis for comparison and for future work of this kind.” The data would be collected periodically over the years, leading to the start of the annual *Highway Statistics* series launched in 1945 and still published by the Federal Highway Administration.

### **Fighting for Federal-Aid**

As reflected in recommendations contained in the OPRI annual reports, Dodge wanted a new, permanent role and an increased budget for the OPRI. At the same time, Dodge recognized that some political leaders were afraid of where increased funding would lead. In the OPRI’s annual report for 1901, Dodge began his concluding section on “Recommendations and Estimates for 1902-1903,” by addressing this concern:

It is proper just here to call attention to a misconception which appears to exist in the minds of some to the effect that increased appropriations for this work may lead to National aid. It should be distinctly understood that the work of this Office, like that of many other Divisions of the Department, is purely educational. In requesting an increased appropriation it was not the intention to shift the burden and responsibility of constructing improved roads from the States and counties to the General Government. Such a plan is not feasible, and even if it were, it would not be desirable, for there could be no surer way of postponing the building of good roads than by making them dependent upon National aid. Under such a system States and counties would wait for National aid and little or nothing would be done.

Just such a plan of National aid was soon in the works in what is generally considered the first Federal-aid legislation proposed in Congress. And it cost Eldridge and eventually Dodge their jobs.

Maurice Owen Eldridge, born in 1873 on a farm near Lenoir, Tennessee, became the third employee of the ORI (after General Stone and his stenographer) when he was hired as a draftsman in 1894 at a salary of \$60 a month. Known as M.O., he quickly established a national reputation as a road expert and gifted speaker and writer on the subject.

In a 1911 speech during the Appalachian Exposition in Knoxville, Tennessee, Eldridge described his earliest experience of road improvement during the era when country residents were required to devote several days a year to road work or avoid the labor by paying a road tax:

I used to work on the public roads of this state, as a substitute, when I was a boy, for which service I received a man's wages. We used to turn out in the fall of the year, in September or October, when the roads were hard and dry, and pile up clods, sods and vegetable mold in the middle of the road. If there were any mudholes we would usually haul large stones from adjacent fields and fill them, and that would usually make two mudholes, which were filled in the same way the following year.

One day in November 1902, he was returning to Washington by train when he struck up a conversation with a fellow Tennessean, Congressman Walter P. Brownlow. Brownlow had been a telegraph messenger boy, an apprentice in the tinning business at age 14, a locomotive engineer, and a newspaper reporter. In 1896, he was elected to the U.S. House of Representatives, where he would serve until his death on July 8, 1910.

On that train ride in November 1902, when the subject turned to the deplorable condition of the Nation's roads, Brownlow asked what could be done. Eldridge suggested a Federal program modeled on New Jersey's State-aid plan, under which the State appropriated funds to help counties improve roads on a cost sharing basis (one-tenth to property holders along the road, one-third to the State, and the balance to the county). Brownlow asked Eldridge to draft a bill to that effect, which he did after securing Dodge's approval. (Dodge later claimed he drafted the bill.)

On December 1, 1902, Brownlow introduced the bill, which would create a "Bureau of Public Roads" to administer \$20 million a year in Federal-aid. Grants would be made to any State or county for the improvement of post roads outside cities and incorporated villages, with each State limited to a share of the funding equal to its percentage of the Nation's population. (The term "post roads" was used to make clear to anyone who doubted the constitutionality of such a program that it was permitted by Section 7 of the Constitution, which gave Congress the power "To establish Post Offices and post Roads.") The State or county would pay 50 percent of the cost. The Federal Government would prepare the plans and specifications for the roads, but the State or county would administer and supervise the contracts.

Neither President Roosevelt and his Administration nor congressional leaders endorsed the plan, as were congressional leaders. But Dodge and Eldridge aggressively promoted it. Dodge agreed to cosponsor, with the NGRA, a good roads convention the last week of April 1903 in St. Louis, Missouri, to coincide with dedication ceremonies for the Louisiana Purchase Exposition. The World's Fair was to be held in 1904 from April 30 to December 1 (with over 20 million visitors, the 1904 convention turned a considerable profit).

Seely described the convention:

Moore prepared the program, which included addresses by William Jennings Bryan and [President] Theodore Roosevelt, while Dodge added a cover letter to Moore's invitation, provided 25,000 franked envelopes (Moore wanted 50,000

more), and hired a stenographer to transcribe the speeches into an OPRI bulletin. Afterward, Eldridge exulted that “the idea of National Aid is sweeping over the West like a tidal wave.” [Seely, book, p. 19]

The convention took place in Odeon Hall on April 27. After introductory remarks by St. Louis Mayor Rolla Wells, Governor Alexander M. Dockery, and the president of the exposition, Mr. D. R. Francis, Colonel Moore in his capacity as chairman of the convention announced that the next scheduled speaker, Secretary Wilson, had been detained in Pittsburgh. Therefore, Moore delivered an address on the “History and Purposes of the Good Roads Movement.” He recalled, as he had in North Carolina, the early convention in 1892 (“That was the starter”) and the November 1900 convention during which delegates from 38 States organized the NGRA:

As a result of that convention a committee of 17 was selected to go to Washington, present this subject to President McKinley, and have him present it to the Fifty-sixth Congress. He considered the matter and said to the committee, “I am very glad to tell you now, without going further, that I will include this subject in my message to congress.” That was the result of the Chicago convention and others previously held up to that time. President McKinley did place this matter before Congress.

Moore did not elaborate, but in a State of the Union message delivered on December 3, 1900, that was focused largely on international affairs, President McKinley included the following statement in a section near the end on the work of the Department of Agriculture: “Inquiry into methods of improving our roads has been active during the year; help has been given to many localities, and scientific investigation of material in the States and Territories has been inaugurated.” Moore put the President’s statement in historical perspective:

[President McKinley] was not the first President to present the road question to Congress, as Jefferson, Monroe, and others had wrestled with this subject back in the early part of the century, long before steam railroads were thought of. But Mr. McKinley was the first President of modern days to take up this matter.

After praising Colonel Richardson for his “level-headed management and earnest work” on behalf of the NGRA, Moore discussed the organization’s cooperation with the OPRI:

We [Moore and Richardson] have cooperated with the Government, through its able representatives, Hon. Martin Dodge, the present Director of the Office of Public Road Inquiries, and Gen. Roy Stone, his predecessor, who organized that branch of the public service. When these gentlemen found our organization in the field trying to do something, they said, “What can the Government do to assist you?”

He added that they made this offer despite the OPRI’s limited finances.

The Chicago convention had organized the NGRA and selected Moore and Richardson as its leaders, but had not made arrangements for financing:

Mr. Richardson and I wondered what we could do to bring this matter before the public in such a way as to command attention. You can not pass the hat in local communities and get results sufficient to cope with this question of mud. They have troubles of their own and do not feel like throwing money into a hat to exploit general road organization. So we went to the railroads. Now, I have heard a great many people say that the railroads do not care anything about these common roads. There never was a more mistaken idea than that.

He described the generosity of the railroads in sponsoring Good Roads Trains, with the Illinois Central expending between \$40,000 and \$50,000, and the Southern Railway committing \$80,000. He recalled how the Southern Railway held a special train of Pullman coaches at the NGRA's disposal to bring Washington leaders, such as General Miles, to Charlottesville:

Without the cooperation of the railroads we could not have accomplished the work which has been done. We also feel that the earnest cooperation of the press is responsible for much of the good accomplished.

(At the mention of the General, who was in attendance, a delegate asked that he be escorted to the front of the stage and introduced, which was done as "the delegates rose to their feet and greeted him with prolonged and enthusiastic cheering.")

Moore said he had three plans for securing good roads:

*First.*—If you expect to proceed along the old lines, raising 2 to 5 mills on the \$1 valuation, it will be another century before you have any considerable road improvement in your community. This method will not do.

He estimated that the country had about 60,000 road officials and they "do not give their time for nothing" so "a large part of the money collected goes for expenses." He recommended a direct assessment of at least 7 to 10 mills, "thus securing a comparatively large fund to work with."

*Second.*—If this can not be done, if it seems too oppressive on the farms, I would suggest another plan, which is being adopted mostly in Eastern States.

He described the State-aid concept, which "brings into cooperation all parties interested, from the State down to the individual." He said that, "many States will adopt this plan," but he thought that all should adopt it.

*Third.*—The third proposition I want to speak of is "Government aid." I have heard it said all over the country that this convention is to be devoted almost entirely to Government aid. This is a mistake. Unless you show in the different

States and in the smaller rural communities that you are willing to take hold of these matters vigorously and earnestly; unless you raise local funds and organize the machinery with which to start this work, you can not expect the Federal Government to come and dump a lot of money into your coffers.

If the States showed “a disposition to help yourselves, then I think the Federal Government will come to your aid.”

Next, Colonel Moore turned to convict labor, which he thought all States should consider:

If we do not devise some plan in the several States and Territories to utilize their labor in public improvements, we must continue to let them compete with the honest labor of the country [in other types of work]. We want to throw around this class all the uplifting influences. We want no dark dungeons. God’s sunshine and pure air will benefit them.

Although the economy was booming, good times are typically followed by great crises that result in “more men out of employment than ever before.” He urged the State legislatures to have a plan in place to use this excess labor for public improvements. “The State must provide some means and provide the machinery for putting these men to work. [Great applause.]” [*Proceedings of the National Good Roads Convention*, OPRI Bulletin No. 26, 1903, p. 10-14]

Dodge was the first speaker during the afternoon session. In a speech on “Our National Policy,” he described the Federal Government’s road building activities during the 19<sup>th</sup> century and the origins of his office in the 1890’s. He emphasized that his office did not initiate road projects or give instructions, “but does so only upon invitation, and for the purpose of cooperating with those who have sufficient enterprise, ability, revenue, material, and labor to do something and who mean to do something.” He added:

Many friends of the good roads movement, including a good many members of Congress, think it would be a wise thing for the Government to pay a proportion of the cost of building the roads in addition to what it is now doing. I want to say that in the discussions in Congress and before its committees, we have discovered a good many gentlemen in both Houses of Congress who have expressed an unusual and abiding interest in this matter.

After describing the State-aid plans in New Jersey and other States, he continued:

This leads us to consider the wisdom of extending the principle involved in State aid so as to include the United States Government. As already stated, the United States began by building certain roads and paying the total cost, devoting a large proportion of the total revenues of the Government to this purpose. Later this policy was reversed and the Government did nothing. Now, I believe under the early policy the Government did too much and too little under the later policy. So

I think a policy should be adopted under which the Government will supplement the funds raised by State and local taxation. In States which have adopted State aid, the funds raised locally are supplemented by the State funds. Now, let us on the same principle supplement the funds raised by State and local taxation by a fund contributed by the General Government. I feel more free to recommend this, because I believe that in the distribution of the great revenues of the United States Government, those living in agricultural regions have shared but little in these great appropriations . . . . I am saying that the time has come when justice demands that a larger proportion of these revenues be spent for the benefit of those who live in rural communities. And I know of no better way to do this than by helping the agricultural classes to improve their common roads.

He discussed the success of rural free delivery before returning to the concept of national aid:

I think we are in the same position in regard to the question which we are now considering. There is no real reason that I know of, either in constitutional limitations or wise policy, why the Government should not extend beneficial aid in the improvement of highways, or why it should not have done so forty years ago . . . . But I feel confident that, should the people request their Representatives in Congress to make the same effort to secure National aid to road improvement as was made to secure the rural delivery of mails they will speedily find a satisfactory way to do it.

I desire to have it understood that I am simply suggesting to you plans which seem to me feasible, and I offer them to this convention for consideration . . . . I believe if you have suffered any lack of the things you were entitled to, it is merely because you have been too conservative and backward about asking for what you want. [Applause.]

With the conclusion of the speech, a Mr. Isenmeyer of Illinois asked Dodge “what can we ask from Congress-what part of the cost.” Dodge replied that Representative Brownlow was scheduled to attend the convention but “he may not be able to get here,” so Dodge offered to answer the question. He described the proposed 50-50 aid program, emphasizing a key point:

The bill does not provide that the United States shall go forward and say a road shall be built here or a road shall be built there. The United States shall hold itself in readiness, when requested to do so, to cooperate with those who have selected a road they desire to build, provided they are ready and willing to pay one-half the cost . . . . It is no part of the essential principle involved in this National aid plan that the exact proportion should be 50 per cent on each side. Any other figure can be adopted . . . . The one idea that seems to be generally accepted is that the Government should do something.

Dodge cited the satisfactory cooperative work of the OPRI:

I know of no adverse criticism upon the work done. So I am led to believe that it is a true principle that the Government can do something, and I certainly believe it can do something more than it is doing at present. And whether the Government will pay 25 or 50 per cent is not essential to the principle here involved. It might be well to begin with a small proportion, and if it works well increase that. I am sure Mr. Brownlow is in favor of paying 50 per cent. He thinks that is the proper thing. [Bulletin 26, p. 15-21]

The next speaker was U.S. Senator Asbury C. Latimer of South Carolina, a farmer who had served in the U.S. House of Representatives (1893-1903) prior to his election to the United States Senate in November 1902. He was a member of the Committee on Agriculture and Forestry from March 1903 until his death on February 20, 1908. The unidentified chairman, presumably Moore, introduced Senator Latimer as “a distinguished statesman who has been doing good service for our cause in the National House of Representatives, and whom the people of his State have seen fit to promote to a place in the United States Senate.” The chairman added, “He probably owes his promotion more to his advocacy of road improvement than to any other cause.”

Senator Latimer began:

We have met here to-day to consider one of the most important subjects affecting the American people. A great many of the old men I have come in contact with tell me that the dirt roads are but little better now than they were seventy-five years ago.

Despite progress in manufacturing and other industries, particularly railroads, “we people who live in the rural districts still travel over the same muddy roads.” Now, he said, “it lies in your power to say whether we shall have good roads in the next five, ten, or twenty years, or whether we and our children shall continue to travel through mud during the rest of our lives.” He added:

Hundreds of millions are taken from the Treasury of the United States and spent in the Philippine Islands, while we go on traveling the same muddy roads. Congress has just appropriated \$3,000,000 to be used on the public roads in the Philippine Islands to give these people over there employment.

He suggested that when candidates came before them every 2 years seeking election to the Congress, “ask him if he will vote for a \$20,000,000 appropriation by the Government to improve the roads throughout the country so that your mail can be brought to you by the rural free delivery.” He explained how “a few farmers in Congress” had convinced their colleagues to initiate rural free delivery despite concerns that it would bankrupt the country. “And yet to-day we find the rural free delivery almost self-sustaining.”

Senator Latimer supported national aid for good roads on a cost-sharing basis:

What you want now is to have the principle of National aid recognized. You want the Government to appropriate a fixed part of the money necessary to improve the roads in rural districts. Go to your Representative in Congress and tell him he can not get your vote unless he stands by that principle . . . . We have surplus in the United States Treasury, and yet the poor farmers in the rural districts can not get good roads.

He acknowledged that while city dwellers did not object to being taxed for road improvement, “the hide-bound farmer living out in the country has been protesting.” He had debated the farmers, who felt they could not afford to be taxed any more than they already were. And yet, he said, the increased cost would be minimal, and when the work is done, “It is your road,” and would increase the value of the farmer’s property.

He endorsed the OPRI’s object-lesson road program so the farmers can “drive out of the mud onto a hard good road.” He considered that, “There is more practical common sense in that method than in speech making.”

He concluded:

All we need is the money. What we want is to get down to practical results . . . . And how are you going to get the money? Whether you want the Brownlow bill or not, I am in the Senate, and I intend to make it a part of my mission to build up good roads throughout this country. [Loud applause.] My people live in the rural districts and I want to help them get out of the mud. I intend to work as long as I am in that body, and I want your help. I want you to say to your Representative when he comes home that he must vote in favor of the platform which we adopt in this convention.

A delegate informed Senator Latimer that, “I am living in the country, but have no influence; I live in Arkansas.” The Senator responded that, “Every man who lives in this country has influence.” He recommended that people organize in support of good roads legislation:

First let us get the National Government to set aside \$10,000,000, \$20,000,000, or \$50,000,000 to be used as a good roads fund. Then you will say to your representative in the State legislature, “Here, we want \$500,000 or \$2,000,000 set aside by the State as a road fund.” Then you must talk it around home. You can not get a dollar of this money until your township is willing to raise \$5,000 or \$10,000. Next go to the State and ask it to pay \$5,000 to \$10,000 more. Then, the Government gives \$10,000 or \$20,000 more. You must work it out in your local community. [Loud applause.]

He concluded his response to the delegate by saying:

Let me tell you, gentlemen, how you will help me wonderfully and help Mr. Brownlow. There are about twenty-five or thirty of us in Congress now working for good roads along this line. You must help us at home. Organize in the school-house and adopt resolutions and say to the candidates, "If you want our votes, you must help us." Make it an issue in the campaign.

If all the people who want good roads will go to work and pull together, Congress will pass the necessary legislation. Then get your legislature to pass the same and organize in your township and the whole thing is done. [Bulletin 26, p. 21-34]

General Miles opened the convention on April 28 with a speech on "Good Roads and Civilization." As usual, the delegates greeted him with "Loud applause." Calling the promotion of good roads a "noble enterprise," he said:

I know of no one element of civilization in our country that has been more neglected than the improvement of our roads; yet this is the element that marks the line between barbarism and civilization in any country. The remains of the ancient highways still found in India and Egypt, as well as in the Roman Empire and Peru, indicate the enlightenment that characterized the peoples of those countries centuries ago. In some instances those great avenues were built for war purposes, and yet were of immense industrial and commercial value to the people living in the countries where they were constructed.

These great internal improvements were largely responsible for "the strength, progress, and enlightenment of these nations."

He discussed how America's early leaders understood this relationship. He pointed out that George Washington was the president of a transportation company (the Patowmack Company, which built the Chesapeake and Ohio Canal), while Thomas Jefferson had praised expenditures for roads in letters to Ross and Humboldt (quoted earlier). St. Louis was an excellent site for the convention because in the 19<sup>th</sup> century it had been the hub of western expansion made possible by the U.S. Army Corps of Discovery led by Lewis and Clark, the pioneers crossing the continent in their prairie schooners to Oregon and California, and by the railroads that brought the continent together.

With the Federal Government having expended \$440 million for harbors and waters, General Miles asked if it was not "now most appropriate that the improvement of our roads should receive National attention and government aid?" He contrasted the United States with what he saw during a recent international trip:

Recently I have journeyed over the great Chinese Empire, embracing the largest population of any country on the globe, yet it is in some respects the weakest, as it has neglected one of the most important elements of national strength. The people of one section of that great country are totally uninformed and indifferent as to what is occurring in another part of their own land. Without means of communication and intercourse there can be but little public spirit and patriotism;

as a result of this the flags of all great military and naval powers are now flying in the most important districts of that ancient empire.

In the United States, conditions were the reverse because the Republic depended “on the patriotism and intelligence of the masses.” Anything that brought the daily news of the world to citizens “benefits the entire country, and gives strength and character to the Nation.” He said:

Therefore every measure, whether by the National Government, the State, county, or municipal authorities, that can promote the welfare of the people should be most earnestly advocated. Any road that can be made useful for industrial and peaceful pursuits can be utilized for military purposes. This is not an empire or a military despotism and therefore it is not necessary to construct roads for purely military purposes.

He concluded:

Our greatest strength and strongest safeguards are in the character of our institutions and the sovereignty of our people, and every measure that benefits them and preserves the character and the integrity of our institutions promotes, perpetuates, and magnifies the prosperity and glory of our common country. [Bulletin 26, p. 30-31]

Addressing the convention later in the day, Governor James Hogg of Texas was skeptical about the Federal Government’s possible role. Constitutional obstacles could be removed, “But as this is a movement in favor of the farmer and not of the trusts they may not do it.” He favored using the treasury surplus, with its temptation to corruption, in the United States. “If our Government would confine the expenditures from the public treasury to the United States of North America, and not to the United States of the Philippines, we would have plenty of money to build roads and macadamize them all over the United States.” He added:

It is inconceivable to me that we should have the United States spending millions on Porto Rico [sic], Guam, and the Philippines, while we at home must do without good roads because we are too poor to build them. It is a piece of blundering foolishness that the American people will have to repudiate some day. Wait till we get into a foreign war and it will cost for every gun you fire enough to build several miles of good roads at home. [Applause.] And this is something you had better be thinking of. We have the means if we will only confine the expenditure of them to the United States of America.

Governor Hogg concluded his brief address by saying:

Let us build up the old United States, and build them up in grandeur, and show to the world that we may all be free, leave our children free, and enjoy the blessing of good government. [Applause.] [Bulletin 26, p. 35]

The first speaker in the afternoon session was William Jennings Bryan, a lawyer, statesman, and politician who had represented Nebraska in the U.S. House of Representatives (1891-1895), and been the Democratic Party's nominee for President in 1896 and 1900, losing to McKinley both times. Bryan, one of the great orators of his time, was known as "The Great Commoner" because of his faith in the common people. (He would again be the party's nominee in 1908, losing to William Howard Taft, and would serve as President Woodrow Wilson's first Secretary of State (1913-1915).)

Bryan began by acknowledging a debt to Colonel Moore:

He came out to Nebraska some three or four weeks ago and urged upon me the importance of attending this meeting. I have learned more about good roads from him and from the literature that he has brought to my attention than I ever knew before. I want to thank him for the effort he made to turn my attention to this subject.

Approaching this new subject, he made a decision:

I find there is a new field here, and I have advanced so far that I have made up my mind to build a little sample road near my farm; and not only that, but to do what I can to get my county and my State to do something in the matter of roads.  
[Applause.]

The use of public funds for road improvements, he said, could be justified

(1) as a matter of justice to the people who live in the country, (2) as a matter of advantage to the people who do not live in the country, and (3) on the ground that the welfare of the Nation demands that the comforts of country life shall, as far as possible, keep pace with the comforts of city life.

However, country people received only the general benefits of their tax revenue, while city dwellers "have the advantage arising from the expenditure of public moneys in their midst." The difference was even greater at the Federal level, where the Department of Agriculture's \$5.9 million budget "was insignificant when compared with the total appropriations—less than 1 per cent" of the \$753 million total:

The point is that the farmer not only pays his share of the taxes, but more than his share, yet very little of what he pays gets back to him . . . . The farmer has a right to insist upon roads that will enable him to go to town, to church, to the schoolhouse, and to the homes of his neighbors, as occasion may require; and, with the extension of rural mail delivery, he has additional need for good roads in order that he may be kept in communication with the outside world for the mail routes follow the good roads.

Bryan agreed with the idea that good roads influenced education. Here, again, cities had the advantage of public libraries and graded schools easily reached on city streets. "What can be of more interest to us than the schooling of our children?" Anything that "contributes to the general diffusion of knowledge," should be "a matter of intense interest to every citizen," as was access to church. He favored steps to reduce rural isolation:

It is important . . . for the welfare of our Government and for the advancement of our civilization that we make life upon the farm as attractive as possible. Statistics have shown the constant increase in the urban population and the constant decrease in the rural population from decade to decade. Without treading upon controversial ground or considering whether this trend has been increased by legislation hostile to the farm, it will be admitted that the Government is in duty bound to jealously guard the interests of the rural population, and, as far as it can, make farm life inviting. In the employment of modern conveniences the city has considerably outstripped the country, and naturally so . . . . But it is evident that during the last few years much as been done to increase the comforts of the farm.

He cited rural free delivery, which brought not only letters but the daily newspaper to the farmer's door, as well as the telephone and extension of the electric-car lines. With these advantages, "The suburban home will bring light and hope to millions of children." He continued:

But after all this, there still remains a pressing need for better country roads. As long as mud placed an embargo upon city traffic the farmer could bear his mud-made isolation with less complaint, but with the improvement of city streets and with the establishment of parks and boulevards, the farmers' just demands for better roads finds increasing expression.

How much the Federal Government, the States, and the counties should contribute was a subject of discussion, "but that country roads should be constructed with a view to permanent and continuous use is scarcely open to debate." When a disease is recognized, he said, people find the remedy. "The people now realize that bad roads are indefensible, and are prepared to consider the remedy." He added:

I have enough confidence in the patriotism and intelligence of the American people to believe that in the clash of ideas and conflict of views the best will always be triumphant. Under our form of government people not only have a right to sit in judgment upon every suggestion made, but have the right of suggestion, and it is in the multitude of this counsel that there is safety.

After thanking the NGRA for "this opportunity, this necessity, I may say, of studying a question which had escaped my notice," he said that he was convinced that the subject "seems to me not only a large one, but one that vitally affects all the people of our land."

At this conclusion of the great orator's speech, the transcript noted: "[Loud applause.]" [Bulletin 26, p. 39-43]

General Stone also addressed the convention on April 28, discussing "Good Roads and How to Get Them." He described how much the Good Roads Movement had changed since he first took up the cause. Referring to the convention he had organized in 1892 in Chicago, General Stone said, "In that convention we dared not whisper 'National aid to road building' save in secret; now we can shout it on all the highways and byways." He strongly supported the Brownlow bill. "The people are ready for a measure of this kind, and it will give us good fighting ground." He urged the convention to endorse the bill, but cautioned them regarding the appropriation of \$20 million, an amount that seemed so large, especially when equaled by the States, but "it will be totally inadequate to any prompt realization of good roads for the whole country." He said:

The youngest of you here will never see the work half done, and we veterans will scarce see a beginning. Indeed, such appropriations, liberal as they seem, will not much more than keep pace with the extension of roads in the newer sections of the country, and the great bulk of the undertaking will always be ahead of us, while the record of National and State taxation will pile up against road improvement and make a constantly growing argument for its opponents.

His response was to cite the annual loss due to bad roads, which he had estimated at \$600 million during his years with the Office of Road Inquiry, a figure he believed was still accurate despite the fact that it had "been derided by many wiseacres who are perhaps not to blame for what they don't know."

After discussing steel-track roads and the use of postal savings banks to finance road bonds, General Stone concluded that, "Federal aid is in the air; our young statesmen are eager to promote it, and our oldest no longer have the cold shivers when it is mentioned." [Bulletin 26, p. 46-49]

The following day, April 29, the convention adopted resolutions drafted by the Committee on Resolutions. The resolutions included provisions endorsing the work of OPRI and recommending that it be made a permanent bureau in the Department of Agriculture with sufficient appropriations to extend its work; indicating that delegates considered appropriations for railroads, canals, and the improvement of rivers and harbors to "have been wise and beneficent" but expressing the view that a Federal appropriation improving common highways "has now become necessary . . . as provided for in the Brownlow bill," and directing the NGRA to arrange a meeting in Washington, with one delegate from each State along with representatives of "leading commercial and industrial organizations," to present the resolution in support of national aid to the Congress. [Bulletin 26, p. 53-54]

The afternoon session on Wednesday, April 29, was the concluding segment of the convention. The delegates listened to 5-minute speeches from other delegates about good roads activities around the country as well as short speeches by Assistant Secretary

Brigham, again filling in for Secretary Wilson, and Governor Albert B. Cummins of Iowa. Brigham said he wanted the cost of providing good roads distributed fairly, rather than on the farmer alone:

I hope that this convention will be able to suggest some way of fairly distributing the tax imposed for road construction. What we need in the country districts now is good roads. We have electric lines; we have the telephone; we get the daily newspapers, and what we now want is good roads running by our homes. I think it is the duty of our people to build these roads, because the ideal home of the future will be in the country, where the air is pure and the associations elevating; but you can not have an ideal home when it is surrounded by bad roads a portion of the year . . . . I believe in distributing this burden, as I have said, and I see no reason why the General Government should not appropriate a certain sum of money to be expended in this great work. Of course, the States and the counties and communities would be expected to cooperate; but if the Federal Government will give something to help pay these expenses it will be encouraging to all the people. [Applause.]

To stir up Congress, he said, “We must first educate the people.” When the people favored a national appropriation for good roads, “the Congressmen will be in favor of it, and not until then. [Applause.]” He concluded:

I see no reason why the National Government should not reach out its strong arm and appropriate liberally for the purpose of giving the people of the whole country better means of communication . . . . When we undertake to do anything in the United States of America we do it well; and after a while we are going to have as good roads as can be found anywhere in the world. [Applause.] [Bulletin 26, p. 76-77]

The delegates were awaiting the arrival of President Roosevelt, so Governor Cummins began his presentation by stating that he had accompanied the President’s train across Iowa, but had turned him over “safe and sound into the keeping of the governor of Missouri,” Governor Dockery. The President, Governor Cummings said, “is coming here to you as rapidly as steam will bring him, detained only by the multitudes that gather to hear and applaud him.”

The Governor explained that, “when God came to bestow His favors upon the coming Republic,” He bestowed Iowa with “splendid natural advantages, but it remains for the people of our State to supply themselves with good roads.” He described road conditions:

In our State nine months in the year we have as good roads as can be found anywhere in the country, and the remaining three months we have the worst roads over which a human being can travel.

He was ambivalent on national assistance for the cause. He said, "I do not oppose proper and reasonable aid" but "I fear a little for that magnificent surplus in our Treasury should it be finally determined to devote it to the improvement of our roads." In any event, he did not think the Good Roads Movement should wait for it. "The outcome is problematical, and its propriety is doubtful . . ." Therefore, "I believe that each State ought to take up and carry forward this question for itself without regard to National aid. [Loud applause.]" If, instead of waiting for national aid, the States took up the task, "in a decade this great Union will be blessed with good roads, over which the traffic of the country may move with economy and with regularity in every season of the year, and without respect to the character of the soil which lies adjacent to the highways. [Applause.] [Bulletin 26, p. 77-78]

As Governor Cummins said, President Roosevelt was making his way to Odeon Hall. After stops during the day in Iowa, Illinois, and Missouri, he had come to St. Louis to participate in the dedication ceremony for the 1904 World's Fair. To avoid the large crowds awaiting his arrival at Union Station, Roosevelt had left the presidential train at Forsythe Junction and after a brief reception, took a horse-drawn carriage straight to Odeon Hall. Roosevelt's party was accompanied by throngs along the street. According to *The New York Times*:

The military companies and a platoon of police had been waiting two blocks away, and as soon as the line of carriages appeared a slower march was taken up to cover the three miles to Odeon Hall. People were congregated along the streets and wildly cheered as the President passed. He continually doffed his hat in acknowledgment. The hall was packed with a crowd which had been waiting patiently for hours. ["President Roosevelt Reaches St. Louis," *The New York Times*, April 30, 1903]

The convention Chairman (unidentified, but most likely Colonel Moore) introduced the President by saying, "It is most fortunate that we can say here to-day that we have a Chief Executive, who is able and willing to visit all sections of this country in order to find out what the people need."

President Roosevelt made the final presentation of the convention, a speech on "Good Roads as an Element in National Greatness." He began by saying:

When we wish to use descriptive adjectives fit to characterize great empires, and the men who made those empires great, invariably one of the adjectives used is to signify that they built good roads. [Applause.]

After citing Rome and other historical examples, he said that for a country such as the United States that had spanned a continent "merely from historical analogy, I say, we should have a right to demand that such a nation build good roads. Much more have we the right to demand it from a practical standpoint."

Not long ago, he said, “it was a matter, I am tempted to say, of national humiliation, that there should be so little attention paid to our roads; that there should be a willingness, not merely to refrain from making good roads, but to let the roads that were in existence become worse.” To loud applause, he congratulated “our people upon the existence of a body such as this,” dedicated as it was to “the eminently practical work of making the conditions of life easier and better for the people . . .”

One of the most important aspects of the movement was that good roads would reverse the tendency of young men to leave the farms and move to the industrial cities. Several movements were helping to reverse that trend, including electric trolley lines, the telephone, and rural free delivery. “But no one thing can do so much to offset the tendency toward an unhealthy drain from the country into the city as the making and keeping of good roads. [Loud applause.]”

He concluded:

It is for this reason, among many others, that I feel the work that you are doing to be so preeminently one for the interest of the Nation as a whole. I congratulate you upon the fact that you are doing it . . . . And among all the excellent objects for which men and women combine to work to-day, there are few, indeed, which have a better right to command the energies of those engaged in the movement, and the hearty sympathy and support of those outside, than this in which you are engaged. [Loud applause.] [Bulletin 26, p.79-80]

On that note, the convention adjourned *sine die*.

President Roosevelt’s speech was widely reprinted in good roads journals. However, the President had not explicitly endorsed national aid for good roads.

(As writer and social commentator Michael L. Bromley has pointed out, “The President spoke stirring of the benefits of roads . . . . Not automobiles.” President Roosevelt, as Bromley documented, used automobiles on rare occasions, but he preferred the horse as more befitting his hearty disposition and manly image. Although his predecessor, President McKinley, had been the first President to ride in an automobile in 1899 (a Locomobile steam-powered car) and his successor, the portly President William Howard Taft, would be the first to purchase automobiles for the White House, President Roosevelt avoided automobiles for the most part. [Bromley, Michael L., *William Howard Taft and the First Motoring Presidency*, McFarland and Company, Inc., 2003. Locomobile reference on page 13, speech reference on page 85]

### **The Brownlow-Latimer Bill**

As 1904 began, good roads advocates were optimistic about the prospects for Federal legislation authorizing funds for highway improvement. The 59<sup>th</sup> Congress had begun its second session on December 7, 1903, running through April 28, 1904. A third session

would run December 5, 1904 to March 3, 1905. Those were the key dates for the good roads legislation.

E. L. Powers, the editor of *Good Roads Magazine*, published an editorial in the January 1904 issue expressing his view that the Brownlow Bill was a “starting point.” Senator J. H. Gallinger of New Hampshire had introduced a similar bill, while Senator Latimer planned to introduce a bill with somewhat similar details. The editorial continued:

Whatever may be the outcome of the bills the fact that they have been introduced and will be up for discussion will be educational and serve to still further bring the matter of national aid more thoroughly before the people in every part of the country. The fact Senator Gallinger is a republican and Senator Latimer a democrat puts the measure beyond the charge that the question is in any way partisan. This is as it should be for since the question is an industrial one the matter should be developed along non-partisan lines similar to the way in which the rural free delivery of mail has been developed. [“National Aid in the Senate,” p. 26]

In a separate article the magazine listed the amount each State would receive from the \$24 million provided for in the Brownlow Bill. New York would receive the largest amount (\$2,108,000), while the minimum amount allowed (\$250,000) went to 16 States with populations less than 700,000 inhabitants. [“The Brownlow Bill,” p. 28]

Senator Latimer introduced his bill to establish a Bureau of Public Highways in the Department of Agriculture. The bill appropriated \$24 million “out of any moneys in the treasury not otherwise appropriated,” at a rate of \$8 million a year, with the funds apportioned among the States on a population basis. The bureau would consist of three commissioners, two of whom would be appointed by the President, with the advice and consent of the Senate, from the majority and largest minority party. The third commission would be an officer (Captain or above) of the U.S. Army Corps of Engineers.

Under the Latimer Bill, States and territories would apply to the bureau for aid, on a 50-50 matching basis, “in the improvement or construction of the public roads or sections thereof.” A State or territory may not request aid “until it shall have established, to the satisfaction of the said commissioners of highways” that the road “is of sufficient public importance,” the right-of-way has been secured, the road will be improved in accordance with the bureau’s rules and regulations and “will be maintained and kept in repair without recourse upon the United States,” and the State has provided for its share of the funding.

In introducing the bill on January 14, Senator Latimer had delivered an address in the Senate. He cited five reasons why the Federal Government should aid in road building, summarized here:

1. History demonstrated that a complete system of public roads had never been constructed without aid of the general government.

2. Since taxes are raised from all people, and all people should pay to improve roads, only the Federal Government could accomplish this goal. The Federal Government had a responsibility to pay its just proportion for roads that were used for the delivery of the mail, for military purposes in time of war, and at all times for interstate commerce.
3. Better roads are a national necessity that closely concerns the general welfare.
4. And the surplus of \$260 million “lying idle in the treasury” should be expended for the greatest good for the largest number, a goal that could be accomplished by Federal-aid.
5. Good roads would contribute many benefits, including a reversal of the trend pulling rural folks to the cities.

He concluded:

I am convinced that it is only by federal aid that we will ever have good roads uniformly throughout the country. The government must stimulate and aid the people in the work. It is the history of road development in every country. Small sections of roads may be built in various sections, but we can never advance in this respect in proportion to the needs of the people unless we can secure government aid. [“Good Roads and Road Building,” *Good Roads Magazine*, April 1904, p, 172-174]

Powers also quoted President Roosevelt’s annual message to Congress, dated December 7, 1903, which included a passage in support of rural free delivery. “While a due regard to economy must be kept in mind,” the President had said, in establishing new routes, “yet the extension of the rural free delivery system must be continued for reasons of sound public policy.” He knew of no governmental movement that had such an immediate benefit for residents of the country districts:

Rural free delivery, taken in connection with the telephone, the bicycle and the trolley, accomplishes much toward lessening the isolation of farm life and making it brighter and more attractive . . . . It is unhealthy and undesirable for the cities to grow at the expense of the country, and rural free delivery is not only a good thing in itself, but is good because it is one of the causes which check this unwholesome tendency toward the urban concentration of our population at the expense of the country districts.

He added:

It is for the same reason that we sympathize with and approve the policy of building good roads. The movement for good roads is one fraught with the greatest benefit to the country districts. [“The President on Good Roads,” *Good Roads Magazine*, January 1904, p. 29]

Again, he endorsed good roads, but was silent on national aid.

On January 23, the Automobile Club of America held a dinner at the Waldorf-Astoria hotel in New York City. Dodge, Eldridge, and Abbott of the OPRI were among the guests, along with Congressman Brownlow, Senators Latimer and Gallinger, General Miles, and Colonel Albert A. Pope, whose bicycles had launched the bicycle craze in the 1870's and who had long advocated Federal funding for good roads.

W. E. Scarritt, the club's president, offered a toast:

The Automobile Club of America stands for three things—good roads, good law and good behavior. The automobile is the last word of engineering skill. Yesterday it was the plaything of a few, to-day it is a servant of the many, to-morrow it will be the necessity of humanity.

Senator Gallinger recalled the funding for rivers and harbors, noting that, “Why, we have made appropriations for streams in the United States that ought to have been macadamized and made a playground for the automobiles.” His views came down to this:

I am in favor of good roads, and I shall count it a great privilege to be permitted, as the representative of a generous and progressive people, to vote, if I have an opportunity, for a liberal appropriation from the public treasury for the purpose of aiding the towns, the cities and the states of this Union in procuring better roads than they have at the present time.

The account of the meeting in *Good Roads Magazine* pointed out that, “Three rousing cheers were given Representative Brownlow, of Tennessee, author of the famous Brownlow bill,” as he rose to speak. He, too, cited the rivers and harbors money in addressing the constitutionality of funding for roads. “If they could appropriate this money under the constitution for the purpose of doing this, why may they not go into the interior and relieve the farmer?”

Senator Latimer also addressed the gathering:

The heaviest tax that the American people pay to-day is the mud tax. Why have we not changed this miserable condition that exists from one end of the country to the other? . . . It takes the combined effort of the American people, just as it has taken in every civilized country; the combined effort of the government to accomplish the great results that we all long to see in this grand country of ours. [“Good Roads at the A.C.A. Banquet,” *Good Roads Magazine*, February 1904, p. 67-68]

A few days later, on January 26, the special committee appointed by the NGRA in St. Louis met at the Raleigh Hotel in Washington for what *Good Roads Magazine* called the “most enthusiastic gathering of good roads advocates that has ever assembled in the city of Washington, D.C.” Colonel Richardson of the NGRA led the discussion of the resolutions adopted in St. Louis. Dodge, who attended with Senator Latimer and

Representative Brownlow, was appointed to the committee that would wait on President Roosevelt to arrange for a meeting. Other committees were appointed to call on Speaker of the House Joseph G. Cannon and the Agricultural Committees of the House and Senate, while another was dispatched to invite Secretary Wilson to address the meeting.

Representative Brownlow said that although he had submitted a bill, “I stand primarily on the broad proposition that Congress should grant national aid, and I am not a partisan of even my own bill.” He would support the bills introduced by Senators Latimer or Gallinger or any measure that appropriates funds for good roads:

I think it would be unwise for this committee, or for the National Good Roads Association, to advocate any particular bill. We all want the same thing, and will be satisfied with nothing less. Let us, therefore, all work to the common end, disregarding any particular bill that may come before Congress.

Senator Latimer agreed. “I want this committee, when it goes before the committees of congress, to say nothing at all about the Latimer bill, the Brownlow bill, or any other bill, but to tell them you are here for the purpose of getting good roads, representing the farmers of this country.” He added that since he and Representative Brownlow represented different political parties, “we have thus cinched the elimination of politics at the outset,” joking:

The democrats will say this is a rotten republican scheme, and the republicans will say it is a rotten democratic scheme, and there the political argument must end.

He concluded:

You are here with a solid constituency standing for aid to the common people. The man who stands in the way of this measure must be retired to private life. Warn him that the people are organized at home, and that if he refuses they propose to send somebody to congress that will represent the people in this country.

At that point, the committee dispatched to invite Secretary Wilson arrived with the Secretary. After State Senator Thomas G. Harper, president of the Iowa State Good Roads Association, made a formal greeting, Secretary Wilson said, “I merely came over to bid you welcome to the Capitol City of our country, and to look you in the faces, to see how you size up with other conventions of farmers that come here to look after the interests of the farm.” If he hadn’t known better, “I would not have known the difference” between this group and a group of Senators or Representatives.

Secretary Wilson mentioned the importance of farmers to the Nation, saying “they have to have good roads to go on.” He acknowledged that legislators have been “a little shy at the road problem,” but authorized an inquiry into the problem in the form of the OPRI:

Great progress has been made in the work of this division in ascertaining and demonstrating how to build good roads, and in distributing literature to the people most interested in this subject. All this has tended to create a sentiment in favor of having better roads, and in keeping up with the march of progress in the United States . . . .

He did not commit to support the pending legislation, but said:

It is the special mission of the Department of Agriculture to do all in its power to aid the farmers of this country in every respect, and you may rest assured that whatever law may be enacted on the subject of good roads, if it is entrusted to that department to see to its execution, it will be ably and speedily carried out, I assure you.

Representative Brownlow responded to Secretary Wilson that advocates in Congress “have endeavored to make it non-partisan as far as possible.” He noted that Congress appropriated funds for relief of the sufferers of Martinique and Ireland, to suppress the Spaniards in Cuba, “and now the people of this country are coming to congress with the determination that it shall do something to aid the farmer in shaking off the shackles of his investment in the way of bad and impassable roads.”

The following day, January 24, the special NGRA committee testified before the Committee on Agriculture and Forestry of the U.S. Senate on “Roads and Road Building.” The hearing was formally designed to consider the Latimer, Gallinger, and Brownlow Bills.

Committee Chairman Redfield Proctor of Vermont conducted the hearing. He was a lawyer who had fought in the Civil War, served in the State Senate and House of Representatives, as Lieutenant Governor (1876-1878) and Governor (1878-1880), and Secretary of War under President Benjamin Harrison before resigning to become a U.S. Senator in 1891 where he served until his death on March 4, 1908. Senator Proctor began the hearing by acknowledging that he had not examined the Latimer or Brownlow bill carefully, “but I see that \$24,000,000 is the sum proposed to be appropriated in each. I suppose that is the main idea.”

Senator Latimer began the hearing by introducing special committee chairman Harper, who presented the NGRA convention’s resolution in support of national aid. After explaining the value of good roads in war and peace, Harper said, “History but repeats itself. No country now enjoys improved roads without the General Government’s aid in their construction. We do not believe ours will prove an exception.” He introduced the other members of the committee who made statements in support of the cause.

Chairman Proctor asked Harper for statistics on road methods in other countries. Although Harper did not have the statistics, he thought the OPRI could submit them to the committee. (The OPRI information was reprinted in the hearing report.)

Senator Joseph V. Quarles of Iowa asked Harper, “What provision have you in your scheme for determining, for instance, in the State of Iowa, where the first road should be built?” When Harper said he had not worked out that detail, Senator Quarles informed him that it was a matter “of very great importance.” He asked if the scheme involved taxation. Harper replied that it did. Will not, the Senator asked, the people whose roads are not improved be dissatisfied? Senator Latimer replied that most States were considering appointment of a highway commission to cooperate with the Washington bureau:

The location of the roads will be left entirely with that commission, as to where it shall be constructed and on what plan.

Senator Quarles pointed out that the plan had three jurisdictions—the Federal Government, State government, and the local government. “How are you going to distribute those several jurisdictions so as to have no conflict or hostility?” A member of the NGRA committee, W. A. Walker of Racine, Wisconsin, responded:

I will state that we are going to begin where and when the local community first begins and says it is ready to contribute its part. The local community can not participate either in State or National aid until it is ready to do its part. Then it can get its per capita portion of both State and National aid.

With the hearing in its final moments, Harper told the committee, “We wanted you to see that we come from the people. We are of the people whom you represent.” Chairman Proctor assured Harper that the committee was “glad to see you and to hear from you, and your case has been presented very intelligently.” Senator Quarles added, “And very ably,” to which Chairman Proctor amended, “And effectively.” Harper concluded, “We leave the matter now in your hands, and we have a feeling that you will do what is right in the matter.”

With the hearing concluded on page 24, the 115-page Senate hearing report reprinted the lengthy brief submitted by Harper’s committee, including statements and other documents in support of national aid. [58<sup>th</sup> Congress, 2d Session, Document No. 204]

At 4 pm, the NGRA special committee went to the White House to see President Roosevelt. The President said:

Mr. Chairman, I wish to greet you particularly, and I am sure I need not say how entirely I sympathize with the movement that you are championing for better means of communication. The road is the symbol of communication. The road is the symbol of civilization. Take our great provinces of Alaska; I doubt if there is anything more needed for the development of Alaska on permanent lines than the building up of a proper system of roads and, where it is impossible to make wagon roads, trails in Alaska. Throughout the country our citizens will have to turn their energies toward improving the means of intercourse—that is, the

roads—between community and community, because we are a civilized people, and we cannot afford to have barbaric methods of communication.”

Like Secretary Wilson, the President endorsed good roads, but again was silent on Federal legislation on the subject. Nevertheless, the special committee returned to the Raleigh Hotel after the reception and closed the meeting “in a general handshaking and congratulations among each other upon the great success with which their efforts had been crowned.” They all pledged to meet again at the NGRA’s May meeting in St. Louis and “in the meantime [to] give time and energy to the subject of national aid to good roads.” [“National Aid Committee Meeting,” *Good Roads Magazine*, February 1904, p 60-65]

In an editorial, Powers emphasized the diversity of the special committee, which represented nearly every State in the Union, with people from a wide range of trades. “It is seldom that representatives of so many important interests have assembled for the purpose of advancing a cause, and the results accomplished mark a milestone in the history of the movement for good roadways.” Advocates from around the country were “rejoicing over the cordial words of sympathy with the movement” by President Roosevelt:

While the chief executive did not definitely commit himself to the policy of federal aid, yet his unqualified endorsement of the efforts of the men whom he was addressing, in the full knowledge that they were striving to the utmost to secure an adequate appropriation by congress, may fairly be construed to imply a promise of his assistance in this important phase of the problem of highway improvement . . . .

We believe that the words uttered by President Roosevelt were entirely frank and ingenuous, and that he will put no obstacle in the way of the enactment of the national aid bills now before congress. He is, moreover, in a position to show just how deep his interest in the matter is; for if he should throw his influence into the scale in favor of those bills, it would greatly increase their chance of passage. May his deeds in this matter completely fulfil [sic] the promise of his words!

Regardless, Powers said, if any of the bills made it to the House or Senate floor for discussion “the adoption of some measure will, we believe, hardly fail of passage.” In short, “Certainly, the outlook never looked so bright.” [“A Milestone” and “Words and Deeds,” *Good Roads Magazine*, February 1904, p. 78-79]

On February 3, Representative Brownlow introduced a new version of his bill that conformed for the most part to the Latimer Bill.

On February 10-11, 1904, Horatio Earle’s American Road Makers met in the Assembly Chamber of the State Capitol in Hartford, Connecticut, for its annual meeting. Senator Latimer addressed the convention during the first session. Upon his introduction, the attendees “heartily applauded” the Senator, who spoke in support of Federal-aid. He

objected to politicians who opposed the measure because of the presidential election coming in November 1904. He expressed the view that since this was the only time farmers had ever asked for something from the United States Treasury, their plea should be heard.

Earle pointed out the \$400 million that had gone into rivers and harbors, and expressed the view that some of the tax revenue should go into the making of highways that belong to all the people. Because farmers paid taxes for a wide range of activities, he said, "Let the state practice reciprocity by aiding in improving the roads that all use." The expenditure would be returned:

Build a good road into the rural district, then daily papers will be bought, books, furniture, new house[s], new barns with silos and all kinds of labor-saving devices.

Martin Dodge addressed the convention on lowering the cost of transportation. "It is for lack of cheap transportation primarily and mainly that the country people suffer." He emphasized the broad nature of the Good Roads Movement:

[But] now a voice is heard through chambers of commerce and boards of trade and executive offices of the great cities to the effect that they are willing to pay money into a general fund the same to be used in improving the highways of the country and no part of it to be used toward paving the streets of the cities. Concurrently with this we find the southern statesmen coming rapidly to the front with a proposition for national aid in road building, and, for the first time in two generations, we have the very remarkable spectacle of a distinguished southern statesman offering in the United States Senate a bill authorizing the United States government to co-operate with the different states or civil subdivisions thereof in the permanent improvement of the public roads. Senator Latimer of South Carolina is the author of this measure, and says that it is generally supported by the statesmen of the south. So we have now for the first time the northern farmers, the southern statesmen and the representatives of concentrated wealth in the great cities all favoring a new plan of co-operation in road building by which the people in the rural districts shall be relieved of a portion of the burden and the entire cost distributed so that all shall bear their just proportion.

The convention concluded with the adoption of resolutions, including resolutions in favor of national, State, and local cooperation for the improvement of public highways. ["American Road Makers' Convention," *Good Roads Magazine*, March 1904, p. 105-113]

Participants in a wide range of good roads conventions discussed the pending legislation. Dodge, Senator Latimer, and Horatio Earle addressed the State good roads convention in the hall of the House of Representatives in Columbus, Ohio, on February 15. Dodge contrasted his experience in 1893 on Ohio's first State good roads commission with the present, and recommended creation of a permanent road commission. Earle, Latimer,

and others supported Federal-aid. Leaders of the Minnesota Good Roads Association endorsed the legislation during the association's convention on February 23. Colonel Richardson addressed the convention in support of Federal-aid. He also addressed the convention of the Iowa State Good Roads Association on February 24.

Earle and Senator Latimer joined Colonel Pope at the first annual convention of the New York and Chicago Road Association, another of the early named trail associations (dedicated to establishing a continuous road between the two cities) on March 16 and 17. They and others endorsed Federal-aid, as did the convention as a whole. Similarly, the Southern Good Roads Convention, sponsored by the NGRA and the Progressive Union of New Orleans, adopted a resolution in favor of national aid on the final day of the New Orleans convention, April 18.

The NGRA and OPRI attended, along with Senator Latimer, the Illinois State good roads convention in Springfield, May 3 and 4. Senator Latimer discussed his bill, citing statistics showing that from a purely business standpoint, Federal-aid was a good investment. "We are," he said, "building the Panama Canal to cheapen the cost of transportation, and yet in transportation on our country roads we are paying an annual 'mud' tax' of over \$500,000,000." In the discussion that followed, Professor Ira O. Baker of the University of Illinois disputed the Senator's statistics and attacked the Federal-aid bills. According to an account in *Good Roads Magazine*:

Among those who took issue with the speaker in the discussion which followed were Senator Latimer, Col. R. W. Richardson and M. O. Eldridge, and the several arguments advanced by Professor Baker were convincingly answered by these gentlemen.

The convention adopted resolutions in support of State and Federal-aid. ["The Illinois State Convention," *Good Roads Magazine*, June 1904, p. 290]

Despite this support, neither House of Congress took up the Federal-aid bills before the session adjourned on April 28. Looking on the bright side, Powers stated:

There is little question, however, in the minds of the leaders of the movement . . . but that a bill granting national aid will be passed at the next session of congress.

Given the broad support from people around the country, he said, "it goes without saying that the members of both branches of congress will follow the wishes of their constituents." As further evidence, he cited an "important victory" when "the friends of the Office of Public Road Inquiries" in the Senate secured an appropriation of \$45,000 for the OPRI in the Department of Agriculture appropriations act, approved April 23, 1904. Chairman James Wadsworth of the House Committee on Agriculture had threatened the increase in late January or early February, but had relented. [Seely, Ph.D., p. 97, footnote 54]

The funds would allow the OPRI to continue its many activities, including construction of object-lesson roads:

The work of the Office is virtually national aid on a small scale and is of great importance from an educational point of view. What is wanted, however, is a great many times larger appropriation in order to secure the best possible results in road improvement throughout the entire country. [“The Progress of National Aid,” *Good Roads Magazine*, April 1904, p. 176]

### **58<sup>th</sup> Congress, 3<sup>rd</sup> Session**

Advocates of Federal-aid began to focus on the third session of the 58<sup>th</sup> Congress, which would begin December 5, 1904 and run through March 3, 1905. To that end, the May 1904 issue of *Good Roads Magazine* contained articles by Senator Latimer and Representative Brownlow. Senator Latimer began by quoting Thomas Jefferson’s 1786 letter to James Ross about the use of public funds for rivers, roads, and canals as an introduction to a discussion of the constitutional question involved in Federal-aid. Having addressed the constitutional authority, he asked, “Why is it that Congress does not pass this legislation?” His response:

There is only one answer that can be given, and that is “Politics.” Many ingenious and refined arguments are advanced to shield those opposed to this measure, but not only is there nothing in the arguments themselves, but they are made for the sole purpose of avoiding the responsibility of meeting this question fairly. Some say it is unconstitutional, and when asked if they did not vote for this or that appropriation which was on all fours with this, they answer, “Yes, but one violation of the Constitution does not justify another.” The literal truth is that every one recognizes that Congress can pass this measure in such form as will be perfectly Constitutional, and the opposition to it is on political grounds entirely. The party in power [says] that a Presidential election is approaching, and that they cannot afford to take the chance of increasing the appropriations. And so it is that the men who are responsible for the administration of the Government are playing politics while the people drag their weary way through the mud at a loss of millions of dollars annually.

What, he asked, is the best course to pursue? Fortunately, he said, “the people are the source of power.” If they have the facts, “they will see to it that consideration of the subject is had.” He continued:

We should make the proposition of national aid one of the main issues of the campaign, and commit every man who offers himself for the suffrages of the people to work for the passage of this legislation. Let us have no equivocation. It is only in this way that we can ever win the fight . . . .

[If] all the friends of the movement will unite in carrying on the campaign of education so auspiciously begun, we need not fear the ultimate result. [“The National Aid Cause,” *Good Roads Magazine*, May 1904, p. 212-215]

Representative Brownlow used his article to respond to criticism of Federal-aid in the national press. Overall, the daily and weekly press “has been remarkably favorable to the national aid plan.” Nevertheless, one paper “of national reputation,” namely *The Washington Post*, “has persistently attacked all bills introduced into Congress, making appropriations for road improvement.” He said:

The *Post*’s principal charge against the national aid plan is that it is “stupendous paternalism.” But I have watched in vain for any serious attempt to substantiate the charge.

He explained that the term “paternalism” was hard to define; there was “no clear and recognized line between that which is paternalistic and that which is not.” He thought that as popularly used, the term meant: “Paternalism is a club with which public men try to kill off measures to which they are opposed.” If national aid for good roads was objectionable paternalism, critics should also kill off river and harbor funds, government aid to irrigation, and many other appropriations that are “unconstitutional, undemocratic, paternalistic, etc.”

The *Post* had predicted, Brownlow said, “that the South will eventually oppose national aid to road improvement” as it had a few years earlier opposed Federal aid to education. He responded that the *Post* editors should know that the two forms of Federal-aid were not comparable since, in the case of education, “this opposition arose from the more or less definite connection between that bill and the race question.” Moreover, the South had not opposed Federal-aid for maintaining agricultural colleges. He asked:

Has the South opposed this “federal aid to education?” Not that I ever heard.

Brownlow welcomed criticism because it provided opportunities for discussion that would “lead to convictions and finally to definite action.” [“A Reply to Some Criticisms,” *Good Roads Magazine*, May 1904, p. 215-216]

In June, Powers recommended that good roads advocates introduce Good Roads Planks at the national political conventions. He reasoned that, “the political party which ignores committing itself in favor of one of the greatest needs of the country will go into the campaign greatly handicapped.”

On May 16, the NGRA called its annual convention to order at Music Hall in St. Louis, during the Louisiana Purchase Exposition, the World’s Fair held from April 30, to December 1, 1904. Speakers included Governor Dockery, Senator Latimer, General Miles, Colonel Moore, Colonel Richardson, Colonel Pope, Horatio Earle, Martin Dodge and Secretary Wilson.

Secretary Wilson addressed the convention on May 19, which had been declared “Good Roads Day” at the exposition. Speaking in the Missouri Building on exposition grounds, Secretary Wilson said that the convention was called to discuss “one feature of agriculture, that which pertains to getting about.” He congratulated Colonel Moore and the NGRA for taking up “one of the great specialties pertaining to our future welfare, and . . . pushing it with such vigor and such success.”

However, it was not the only science that pertained to “the man who works in the field with his coat off; he is my fellow, and I am his helper.” For the farmer, meteorology was vital, as it was for roads. Drainage was vital to both. “We need to know more about the atmosphere before we know enough to be road engineers.” Domestic animals were also important. “What is the value of a good road if you haven’t anything to run over it?” And, a better understanding of materials and soils, which varied around the country, was needed. The OPRI, through its experimental and demonstration work, was making progress, and Secretary Wilson said he was pushing the scientists in his department to find answers. He closed with praise of the American farmer and, according to *Good Roads Magazine* “was loudly applauded” and “given a vote of thanks by a rising vote of the convention.” As quoted in the magazine, he did not endorse or discuss the pending good roads bills in Congress.

As might be expected, the NGRA adopted resolutions in support of Federal-aid for the construction of public roads, as well as an increase to \$150,000 for the OPRI, which should be advanced to Bureau status. The NGRA also resolved that in the 1904 election all candidates should be asked to take a stand on the subject.

A note in the August 1904 issue of *Good Roads Magazine* stated that “Senator Latimer’s roads bill will be among the first to engage Congress at the next sessions.” [p. 399] Meanwhile, the NGRA continued to promote the cause. It participated in the Southeastern Kansas Good Roads Association meeting at Iola, Kansas, on July 19. The association adopted resolutions similar to those approved in St. Louis. The NGRA also held a good roads institute in Shreveport, Louisiana, on September 6 and 7. Colonel Richardson addressed the attendees, as did Eldridge, who delivered his stereopticon lecture on the roads of the world. The meeting concluded with adoption of resolutions, including one supporting Federal-aid.

Colonel Moore submitted proposed Good Roads Planks for the national political parties but they declined to adopt them. (According to Seely, Dodge probably submitted a plank to the Republican platform committee, but Moore claimed authorship of both planks. [Seely, Ph.D. footnote 57, p. 97]) In October, Powers acknowledged his disappointment:

It is an encouraging sign and shows that the subject is constantly taking hold of the people who insist that their representatives shall be in favor of improved roads in order to secure their suffrage. It was a disappointment to many of the earnest advocates of good roads that the two great national parties did not declare themselves in favor of good roads at their late conventions. This failure is due no doubt to the fact that the question had not been before the people longer. A year

or two hence we predict that the situation will be greatly changed. [“Good Roads Planks,” *Good Roads Magazine*, October 1904, p. 497]

Powers also commented that “in some sections political capital has been made out of the Brownlow bill in the campaign for the election of congressional candidates.” He knew of one instance where a candidate, whom he did not name, claimed “the bill is a political clap-trap.” Powers said, “Such statements are of the sheerest folly, and are designed for political capital only.” He expected the candidate “will be literally snowed under when the votes are in and counted.” [“The Brownlow Bill,” p. 497]

(The Republican Party had included a good roads plank in its 1900 platform:

Public movements looking to a permanent improvement of the roads and highways of the country meet with our cordial approval, and we recommend this subject to the earnest consideration of the people and of the Legislatures of the several states.

Although neither major political party adopted a good roads plank in 1904, both included a plank in the party platform for 1908. The Democratic Party adopted a “Post Roads” plank reading:

We favor Federal aid to State and local authorities in the construction and maintenance of post roads.

The Republican Party, in its plank on “The American Farmer” included this statement:

We recognize the social and economical advantages of good country roads, maintained more and more largely at public expense, and less and less at the expense of the abutting owner. In this work we commend the growing practice of State aid, and we approve the efforts of the National Agricultural Department by experiments and otherwise to make clear to the public the best methods of road construction.)

On October 1, Colonel Moore’s NGRA was along for another good roads train, this one sponsored by the Frisco Railway Company. It would leave St. Louis for stops planned in Alabama, Arkansas, the Indian Territory, Kansas, Louisiana, Missouri, Oklahoma Territory, Tennessee, and Texas. The train consisted of six carloads of road building machinery provided by the manufacturers, a work crew, two Pullman coaches, and OPRI experts, notably Charles T. Harrison, to supervise object-lesson roads. *Goods Roads Magazine* summarized the plan:

It is planned to visit over sixty towns in the different states and territories through which the train will pass and build sample roads of macadam, telford, gravel, or dirt, in some places, and hold good roads conventions at all of them for the purposes of education and arousing enthusiasm to secure good roads legislation. [“Frisco Good Roads Train,” *Goods Roads Magazine*, October 1904, p. 498]

Independent of the NGRA, other good roads associations endorsed the Federal legislation. On September 29, for example, the Washington Good Roads Association convened in Bellingham for its second annual convention. It adopted resolutions in support of “a liberal appropriation” for the OPRI and “passage of a federal law embodying the principles of the Brownlow bill (H.R. 15369), introduced in the National House of Representatives, December 15, 1902.” Joseph H. Dodge and James W. Abbott represented the OPRI, with Dodge speaking on “Good Roads to Farmers.” Abbott was to deliver Eldridge’s illustrated lecture on “The Roads of the World,” but had to cancel the speech when his lantern projector failed. [“The Washington State Convention,” *Good Roads Magazine*, November 1904, p. 552-553]

As the Frisco good roads train hopped from city to city, different OPRI officials joined it for the series of conventions. Colonel Richardson was on hand, often in his capacity as a special agent of the OPRI. Eldridge was in DeKalb, Illinois, on September 16, Rolla, Missouri, on September 20, and Lebanon, Missouri, on September 21. Martin Dodge addressed the convention in Joplin, Missouri, on October 18; Fredonia, Kansas, on October 26; and Oklahoma City, Oklahoma Territory, on October 28.

In November, Powers published another editorial on “The National Aid Measure.” With the 58<sup>th</sup> Congress assembling for its third session on December 5, he expected the Latimer-Brownlow Bill to be brought up and debated in Congress and around the country:

Interest in this measure is constantly growing, and in the good roads conventions and meetings that have been held throughout the country within the past few months the principle of national aid has been universally indorsed. There will, it is likely, [be] some opposition to the plan develop, but this will only serve to make its advocates more strenuous in their efforts to carry the day. So far as we know there is no organized opposition to the principle of government aid, but if there are valid reasons why congress should not adopt such a measure and thereby help every person in the United States, it is devoutly hoped that these arguments will be brought to light. We hope the matter will be presented fairly on its merits, and that those honestly opposed to the plan will not hesitate to let their reasons be known. In this, as in every other great public question involving the appropriation of the people’s money, the fullest and freest discussion should be given, and in the end there can be no doubt concerning the result. [p. 548-549]

In the election of November 1904, President Roosevelt won his election bid. He defeated Alton Brooks Parker, who had resigned as Chief Judge of the New York Court of Appeals to run for President. Roosevelt secured 7,630,457 votes to Parker’s 5,083,880. (After losing the election, Parker returned to the practice of law in New York.)

On December 5, the lame-duck Congress returned for the Third Session of the 58<sup>th</sup> Congress, primarily to complete work on the appropriations acts for FY 1906 and a few other matters, such as tariff reciprocity with Cuba. An overriding concern was the

budget, with expenditures for the upcoming year projected to exceed revenue. After the session ended on March 3, Congressman James A. Hemenway, Republican of Indiana and Chairman of the House Committee on Appropriations, said:

I am advised by those most competent to judge that the deficiency in the revenue of the Government for the current fiscal year will not exceed \$18,000,000. This deficiency is brought about by unforeseen expenditures in two directions, namely, \$13,000,000 on account of new ships for the navy, and also in the probable excess of \$5,000,000 or \$6,000,000 of expenditures for the postal service over the postal receipts for 1905.

Hemenway acknowledged that the appropriation of \$818,478,914 was more than in the previous year (\$781,172,375), but he added:

These figures represent indeed a large sum of money, but they likewise represent a great and rich Nation of people. The wisdom and the honesty of the appropriations are not challenged, and the absolute integrity of their expenditure is guaranteed by the presence of Theodore Roosevelt at the head of the Government.

Representative Leonidas F. Livingston, of Georgia, the Ranking Democrat on the Committee, referred to the projected FY 1906 deficit of nearly \$93 million as “a broad enough expanse between the buckle of expenditures and the tongue of revenues to startle the plain and common people, who bear the burden of taxation.” [“Defend and Assail the National Budget,” *The New York Times*, March 9, 1905]

In the House, Representative Brownlow’s national aid bill was the first bill introduced. “The proposition,” he explained, “is to provide a method of co-operation between the Federal, the State, and the municipal Governments on the matter of road building. The money of the Government is to be spent only when an equal amount is put with it by the locality in which the road is to be built.” He added that he had modeled the bill on the New York State law. [“Bills in the House,” *The New York Times*, December 2, 1902]

The Senate Committee on Agriculture and Forestry approved the Latimer-Brownlow Bill shortly after the session began. However, as Powers mentioned in his editorial in the January 1905 issue, the session was interested in “the question of economy.” He feared the bill would not pass. On December 10, 1904, *The New York Times* reported that Senator Latimer shared the concern:

Senator Latimer has given up hope of the passage of his Good Roads bill at the present session of Congress. In every quarter where effort has been made to obtain support for the measure the question of legislative extravagance has been raised. [“Economy Order of the Day,” *The New York Times*, December 10, 1904]

Powers was already thinking ahead:

It is confidently expected, however, by the friends of the measure that either this bill, or some other embodying the principle of National aid will be introduced and carried to a successful issue at the next session of Congress. The sentiment of the press throughout the country is very generally in favor of the passage of such a measure, and under the circumstances the outlook is most encouraging. We are advised that other bills will be introduced at the next session differing considerably in detail but favoring the general principle of National aid. [“The National Aid Measure,” *Good Roads Magazine*, January 1905, p. 28]

On January 19 through 21, Martin Dodge was in Jacksonville, Florida, for the NGRA’s midwinter meeting. He discussed rural free delivery and its dependence on the advance of good roads. He also discussed OPRI’s work in testing road materials to help communities identify the best material for road building. He acknowledged the division of opinion on the role of the national and State governments in regard to the improvement of the highways. This was, he said, a legislative issue, but that his Department would implement any law enacted.

Senator Latimer was on hand as well. *Good Roads Magazine* summarized his speech, in which he discussed why he supported good roads and a Federal role in their construction. He cited the appropriations for rivers and harbors:

He did not object to the appropriations because they all greatly helped the country, but he insisted that comfort and prosperity should first be given to the millions of people who are the producers of the nation. He asserted that the government had ample precedent in giving its aid to road building. He also explained the provisions of his bill now pending in Congress and said that the convicts in the various states ought to be put to work on the public roads. He declared that there is a majority in Congress which favors the bill and that the opposition comes from some of the leaders who claim that there is not money enough in the treasury. Senator Latimer, however, said he favored cutting other appropriations in order to give the people what they are justly entitled to.

The convention adopted resolutions endorsing the OPRI’s work as well as Latimer Bill. [“Midwinter Convention of the N.G.R.A.,” *Good Roads Magazine*, February 1905, p. 78-80]

Despite the agitation by the NGRA, Dodge, Powers, and many others, Congress did not approve the Latimer-Brownlow Bill during the third session of the 58<sup>th</sup> Congress, which adjourned on March 3 just before President Roosevelt’s inauguration. *The New York Times* offered this assessment of the 58<sup>th</sup> Congress:

The Fifty-eighth Congress, which adjourned the morning of the president’s inauguration, is notable for the large amount of important legislation proposed to it and the insignificant amount which it enacted. [“Congress and the President,” *The New York Times*, March 6, 1905]

After the failure of the Latimer-Brownlow bill, dozens of bills would be introduced on roads through the mid-1910's. Many bills proposed designation and construction of a specific road or an "interstate" highway system, with the routes specified in the bills and, in some cases, given names. Most of the bills, however, proposed a Federal-aid type of program. Several proposed to distribute the surplus in the Treasury of the United States to the States, Territories, and the District of Columbia to improve their roads. Several others proposed variations of the Federal-aid concept once championed by Brownlow, Dodge, Eldridge, and Moore.

All would fail until 1916, when concerns about constitutionality, the view that the States should take responsibility for roads, and the fear that the program would grow too large were finally overcome in favor of a Federal-aid highway program that in many ways followed the Federal-aid plan outlined in the Brownlow Bill drafted by the OPRI.

Meanwhile, the 58<sup>th</sup> Congress had one last surprise for Martin Dodge.

### **Congressional Revenge on Martin Dodge**

Although Congress did not approve the Latimer-Brownlow Bill, key Members of Congress were aware of the OPRI's role in advocating passage. As Seely pointed out, Congress "resented the intrusion of this executive office." [Ph.d., p. 47]

In the drive for national aid, Eldridge committed what Seely called "the worst indiscretion." At the request of A. R. Shattuck, who headed the Automobile Club of America, Eldridge agreed to work, outside his official duties, on a \$10,000 campaign to promote the Brownlow Bill. His campaign, directed from a New York City office with the help of a publicity agent, included having copies of Brownlow's January 1903 speech on the bill printed at government expense and mailed by friendly congressmen in franked envelopes to 1 million people.

On December 1, 1904, as Members assembled for the third session of the 58<sup>th</sup> Congress, Dodge wrote to Shattuck:

[Many] members of Congress thought last winter that we went a step too far in the circulation of literature. The skyrocket which you fired made a greater commotion in the halls of Congress than, perhaps, you are aware of yourself. The effect of this reached the secretary in many ways and I am sorry to say annoyed him greatly. As a consequence of this, he thinks it best to be extremely conservative. [Seely, book, p. 20]

Quoting this letter, Seely described Secretary Wilson's reaction differently: "The secretary of agriculture exploded at Dodge's disregard of directives to limit ties to the NGRA because it advocated a particular legislative proposal." [Seely, book, p. 19] Secretary Wilson instructed Dodge to limit OPRI assistance to conventions and good roads trains sponsored by the NGRA to avoid linking Federal employees to resolutions endorsing the Brownlow Bill or other similar measures.

When Eldridge's role in the campaign was discovered, he was fired. He was soon reinstated, thanks to the intervention of friends in Congress such as Brownlow, but at a reduced salary and with loss of his rank as Assistant Director of the OPRI. He also lost his chance to succeed Dodge as Director. As noted in *America's Highways 1776-1976*, Eldridge ". . . had pushed a right idea before its time." [p. 216]

The Secretary's reprimand reflected a broader problem with the relationship between Dodge and Moore. Given the limited appropriations for the OPRI, Dodge had adopted the same approach as General Stone in reaching out to the private sector to supplement the work with funds and donations. However, Dodge, perhaps reflecting his background as a politician, had extended his work into legislative affairs without support from his Administration. Further, he had linked himself to a man, Colonel Moore, whose ethics were questionable.

Seely described some of the problems with Colonel Moore:

Dodge, and to a greater extent Moore, seemed to see the movement as an opportunity for personal gain. Moore attempted to collect organization dues and speakers' fees from each town in which a Good Roads Train stopped, a move forbidden by the Agriculture Department. This led the secretary of agriculture to halt OPRI involvement in the trains after 1902, yet Dodge worked around this. Incredibly, in 1905 the OPRI chief aided Moore in a fraudulent scheme to collect fees for future object-lesson roads that both men knew would not be built. [Seely, book, p. 18]

Although the OPRI no longer sponsored good roads trains, Moore continued to mount them with OPRI participation. For example, when the Frisco Good Roads Special began its 3-month run through the Southwest at St. Louis on September 20, 1904, *Good Roads Magazine* reported that in addition to NGRA officials, the train included OPRI officials who worked on the object-lesson roads built on the trip and gave speeches at the conventions held along the way. The magazine published a photograph of the train at Rolla, Missouri, and two photos of the object-lesson road built at DeKalb, Illinois, all provided by Eldridge. [November 1904, p. 531-532]

Dodge maintained close ties with Moore's group, apart from the Good Roads Trains:

Dodge earlier had served as an advisory director of the NGRA, and he and other OPRI engineers aided its meetings by delivering talks. Dodge's name appeared prominently on the association's letterhead and surely conveyed an appearance of official sanction and approval. Finally, Moore had earned Dodge's gratitude by unstinting support for the director's plans to raise the OPRI budget. [Ph.D., p. 45]

Seely explained:

Moore's efforts to help Dodge secure money began in 1900 and probably laid the groundwork for all future cooperation. His National Good Roads Association held a National Good Roads Convention in 1900, with OPRI help. That meeting endorsed the plan to raise the Road Inquiry's budget to \$150,000. Moore followed this by leading a delegation to President McKinley and the Secretary of Agriculture, testified on the bill's behalf before Congress, and canvassed railroad presidents and commercial clubs for support. Their success was limited, but the link between Moore and Dodge was lasting, for when the 1904 appropriation increase was threatened by the chairman [Proctor] of the Senate Agriculture Committee, Dodge's assistant [Eldridge] wrote to Moore's secretary [Richardson], "Could you not at once write to 'Dave' Mercer and get him to use his influence with Mr. Wadsworth and the conferees?" [Ph.D., FN 54, p. 96-97]

(Wadsworth, as noted earlier, was Chairman of the House Committee on Agriculture. Eldridge's letter was dated February 3, 1903, while the Agriculture Department's appropriations act for FY 1904 was under consideration.)

Aside from his ties to Moore, Dodge "did not seem to appreciate the need to avoid endorsing private groups, products, or materials," Seely observed:

In at least three instances, Dodge became involved in schemes to recommend patented methods of road construction, a clear violation of department rules.

The difficulties presented by Dodge's close involvement with individual manufacturers became apparent when one remembers that the Office of Public Road Inquiry [sic] received so many inquiries on various methods of construction because people assumed the OPRI was neutral. A United States Army engineer considering use of a steel track roadway for a Potomac River bridge wrote that his superior "attaches considerably more importance to your unbiased opinion on the subject than to the naturally somewhat prejudiced views of the manufacturers." Yet the manufacturers who Dodge helped were very pleased with the OPRI's director, since "the public recognizes you as an advocate of a Steel Track System." Certainly a fundamental conflict existed in the differing public views of Dodge's position on this particular matter. Dodge did not aid the situation by his failure to avoid conflicts of interest. [Ph.D., p. 49-50]

Seely offered several other examples:

Dodge attempted to secure permission to publish a circular on a brick-track pavement that was patented by the author. Even when the Department of Agriculture refused, the inventor placed articles in newspapers misquoting Dodge, but conveying the endorsement of the director of the OPRI. Dodge had also approached the bounds of propriety in his eagerness to assist the Steel Highway Track Company secure publicity and trials with state highway departments. He even entertained overtures from another businessman who desired to start a company producing another steel track patent. [Ph.D., FN 63, p. 98]

Still, the Good Roads Trains proved to be Dodge's undoing. "The final straw," Seely wrote, "may been a Good Roads Train run entirely by the National Good Roads Association during the early part of 1905." The NGRA ran the Good Roads Train on the line of the Missouri, Kansas, and Texas Railroad System beginning on January 9, 1905. Seely continued:

Dodge accompanied the train, improperly lending it an official air. Moreover, the director of the OPRI apparently aided W. H. Moore collect fees for the NGRA at each stop. The money was supposed to guarantee later construction of object-lesson roads that the NGRA never intended to build; instead, Moore pocketed the collections.

Seely quoted from a letter dated November 11, 1905, that former special agent Abbott wrote to Dodge's successor, Logan Page, describing the Moore-Dodge combination at work on that train:

Moore . . . always conveyed the impression that this was a government commission, at large in the land to redeem the people from Bondage to the mud. As the countenance of Dodge always beamed 'Amen' to the most grotesque promises, pretenses, and phillipics of these confidence artists the communities were prone to accept them at face value . . . . Only the mighty Dodge, representing the majesty of this supreme government and its beneficent Dep't of Agriculture, enabled this crafty gent to work his schemes upon honest people and avoid the jail. [Seely, book, p. 18]

Seely added that, "The Secretary of Agriculture repeatedly tried to limit the ties between Dodge and W. H. Moore's National Good Roads Association, without success." [Ph.D., p. 93, FN 38]

Congress would soon exact its revenge on Dodge, in bittersweet fashion, for his improper advocacy of the unsuccessful Federal-aid bill and his close ties to the NGRA. The 1906 Agriculture Appropriation Act approved by President Roosevelt on March 3, 1905, fulfilled his hope by combining the OPRI and the Division of Tests of the Bureau of Chemistry under the name Office of Public Roads (OPR), giving the new agency the permanent status Dodge had sought by providing for a statutory roll, and increasing its annual budget to \$50,000. It would now include a Chief of Records, an Instrument Maker, and six clerks.

However, the legislation specified that the new OPR was to be headed by a Director "who shall be a scientist and have charge of all scientific and technical work." Congress had aimed this language at Dodge, who was a lawyer and, therefore, excluded from serving as Director of the new Agency he had fought to create.

On March 21, 1905, Dodge was in Elmira, New York, for the second annual meeting of the New York and Chicago Road Association. By this time, Dodge knew that his days as

Director soon would be coming to an end under the new appropriations act. As a result, his afternoon address to the association took on the feel of a summing up. He began:

It has been my duty for the past six years to represent the United States Government in the public office having charge and jurisdiction of the inquiry authorized by Congress in reference to whatever may be thought best and proper for the government of the United States to do. In connection with the improvement of the public roads, we have no settled policy in that respect, but we are trying to ascertain if we can [do] what the people want.

After discussing the possibility of a transcontinental road, and the role of the New York and Chicago Road Association, he said:

The bills passed by Congress from time to time have never established a Department of Highways; but, from year to year, they have carried small appropriations of money authorizing the Secretary of Agriculture to make investigations, and he has turned the matter over to me, but without definite instructions, and, as I say, the nature of the bill was so indefinite that we have never known just exactly what we were authorized to do or what we were expected to do. I have always felt like encouraging all associations and all road officers to go forward and do the best they could. I have been authorized to give some little help, which I have done in the way of building object lesson roads. We have adopted a policy that "God helps them who help themselves." And the government will only help them who help themselves. Therefore, we have only gone where the citizens in the place were sufficiently advanced in their ideas to go ahead and do something.

Speaking of the 83 object-lesson roads built in 30 States, he said:

I have found that the people have joined heartily in this operation. I have found that the roads were instructive, encouraging the people in making extensions of these roads; and that it has done great good and has especially stimulated a very earnest feeling among the citizens to have more of it done.

As for national aid, he said:

If the state can do all the work alone, all right. As to what share the United States should bear, I am not particular what the proportion should be, except to say it should not be less than one-fourth. Bills have been introduced, but these mostly provide for the payment of one-half by the United States. I want to say in this connection as giving us encouragement and support is the thought that the good example set by the State Aid in the East has been followed until seventeen of the states of the Union have taken steps in imitation of these pioneer State Aid states.

He point out that, "More than half of our people are concentrated in cities and villages, more than seven-eighths of the wealth is concentrated or controlled in these cities." As a

result, “all of that population, being more than half, escapes from any share in bearing the burden or expense of this necessary improvement.” And yet, improving country roads benefited not only the farmer, but “gives a great gain to the people living in the cities.” He concluded:

Let all unite, and on the principle that many hands make light work, we shall accomplish what otherwise could not be accomplished and what never was accomplished in any civilized country of the world without the aid of the general government of that country. [*Good Roads Magazine*, April 1905, p. 211-212]

On June 21, Director Dodge was at Festival Hall in Portland, Oregon, for the NGRA’s annual convention, which was held just a few days before he would leave office at the end of the month. He spoke the following day on “What the Government is doing for Good Roads.” He said, in part:

[We] find that the people generally, throughout the entire country, are taking an unusual interest in this subject and they are assembling in great numbers and in many places to listen to their educators and statesmen in regard to this great question, and the time is soon coming when the people’s representatives in the legislatures of the various states and in congress will be instructed to give friendly aid in the solution of the question. Many methods have been tried, but none have fully succeeded . . . . We have all imitated the prisoner in the story of the “Forty Thieves,” who said, “open wheat, open barley” to the door that obeyed no sound but “open sesame.” The real open sesame to the good roads problem is co-operation. Instead of appealing to the petty officers, the county officers, the state officers or the general government of the United States singly to do this great work, we should appeal to them all at once, asking the property-owners to pay a portion of the cost, the county a portion of the cost, the state a portion of the cost, and the United States government a portion of the cost. Co-operation in this great work is the proper thing because [it is] the necessary thing which corresponds to the composite nature of our government. Co-operation is the sign by which we shall conquer.

On the final day of the convention, delegates adopted resolutions in support of county, State, and national aid; favoring convict labor, and praising Martin Dodge. [“The National Good Roads Convention,” *Good Roads Magazine*, July 1905, p. 447-452]

Seely discussed Dodge’s legacy. “Dodge’s carelessness, naivete, or connivance clearly created the difficulties, for many men would have limited their relations with the NGRA after its self-serving nature became evident in 1902.” [Ph.D., p. 49] At the same time, Seely takes a broader view:

Despite this series of near-scandals, Martin Dodge did very little to harm the Roads Office. No serious public outcry followed the last Good Roads Train [in 1905] or the federal-aid legislation episode. In fact, he left the Office stronger than before, with a larger budget, a more diverse set of activities, an enhanced

reputation as a source of technical information, and an enlarged public visibility. Martin Dodge's tenure at the Office of Public Roads [Inquiries] must be considered successful in the long run. [Ph.D., p. 52-53]

### **Logan Page Takes Charge**

Unlike Martin Dodge—the lawyer, developer, and politician—Logan Page considered himself a scientist. In this respect, he was the embodiment of the Progressive Era. Dating to the 1890's, the Progressive movement was a response to disparities of wealth, transformation to an urban, industrial society, and a time when, as historian H. W. Brands put it, the “United States produced more than its normal quota of demagogues and dedicated reformers, scoundrels and paragons of goodwill.” Brands explained that:

The Progressives had a wide and varied agenda, including political reforms such as the initiative and referendum, social reforms such as child labor laws and prohibition, economic reforms such as utility regulation and trust busting, and consumer protection reforms such as pure food and drug laws. But what most of the items on the Progressive agenda embodied in common was a desire to remedy the ills consequent to the industrialization and urbanization that transformed American life during the last half of the nineteenth century. [Brands, H. W., *The Reckless Decade: America in the 1890's*, St. Martin's Press, 1995, p. 98, “normal quota,” p. 5.]

To achieve these goals, the Progressives placed their faith in scientific experts such as Page to solve society's problems. The experts, the Progressives believed, could apply judgment based on facts and data, free of political taint and corrupt influence.

As Director of the renamed OPR, Page quickly reorganized the agency to carry out the provisions of its new charter. He divided the OPR's work into four classifications: construction, tests, information, and instruction. In June 1905, Page appointed Eldridge to be Chief of Records on the statutory roll established by Congress. In addition, as explained in the FY 1905 annual report, the “former system of carrying on office work and administrative details was found to be inadequate to meet the broadened scope of the work involved in the plan of reorganization.” He selected J. E. Pennybacker, Jr., to be Chief Clerk to supervise the office force. Page explained:

The Office force was accordingly reorganized . . . and such disposition was made of the force as to provide a larger number of stenographers and to specialize the duties of the various clerks in order that responsibility for work to be done might be fixed and greater efficiency secured. At the same time care was taken that no stenographer or clerk should be assigned exclusively to one official, but by having the entire clerical force of the Office a unit under the direction of the chief clerk the time of each clerk might be utilized to the fullest extent. [Annual report, FY 1905, p. 430-431]

In FY 1906, Page reported that this new arrangement had secured “a uniform distribution of the work, increases the efficiency of each individual stenographer, and makes it possible to dispose of a much greater amount of work than would otherwise result.” He also reported that replacing the old system of alphabetical filing with “modern vertical subject files” had brought filing to “a high state of efficiency.” The OPRI’s mailing list of 10,000 names had been pruned to about one-third that number, with the names arranged by subject “thereby avoiding the promiscuous distribution of all classes of publications.”

Further, Page had moved the OPR into a new headquarters, constructed in accordance with OPR plans, on February 1, 1906. The OPRI/OPR main offices had been on the fourth floor of the Department’s main building, while the laboratory work was conducted in the basement of the Bureau of Chemistry building—an “absolutely inadequate” arrangement that “seriously embarrassed the work.” The new four-story building, leased at \$2,000 a year, contained “a testing laboratory and machine shop on the ground floor, executive and clerical offices on the second floor, library, property room, chemical and petrographical laboratories on the third floor, and drafting room and assistant engineers’ office on the fourth floor. The library was a Page addition, with a wide range of material, including journals in English, French, and German, for reference. (When the Department of Transportation (DOT) went into operation on April 1, 1967, the collection Page had begun became one of the largest core components of the DOT Library.) [Annual Report, FY 1906, p. 19-20]

Page continued some of the promotional activities initiated by his predecessors, General Stone and Martin Dodge. Page worked with the States, as Stone and Dodge had, to develop model State-aid legislation and to encourage its adoption by the State legislatures. Page, even more than his predecessors, launched the OPR on a scientific evaluation of road building and gathering the technical data—the lifeblood of the Progressives—on which sound conclusions could be drawn. The collection of data on national road conditions, taxation, sources of revenue, road laws, and total expenditures was part of the effort.

The object-lesson road program was expanded, as was the experimental road program General Stone had initiated. However, Page put the process on a more formal basis that would exclude NGRA conventions from featuring object-lesson roads. He issued a circular letter containing instructions on securing advice from the OPR. It said, in part:

Ín order to obtain the assistance of this office in supervising and demonstrating methods of construction it is necessary for the properly constituted local authorities who have legal control of the roads in their community to make application in the manner herein provided . . . . The regular form on which all applications for the detail of road engineers and experts are to be made gives the exact conditions that must be complied with on the part of the local authorities before this office can co-operate with them to the extent of taking charge of actual construction or making arrangements for supplying machinery.

Before detailed estimates of the cost of any proposed improvement can be made it is desirable that plans, profiles, and cross sections of the road should be prepared in accordance with the regulations of this office. The cost of making the necessary surveys for these plans will in general have to be borne by the local communities, but all estimates of cost and specifications will be made by this office. [Quoted in "Expert Advice in Road Building," *Good Roads Magazine*, November 1905, p. 766-767]

As with other transformations as the agency shifted from the OPRI to the OPR, Page's circular letter put the process of securing object-lesson road projects on a rational, efficient scientific basis.

Page was a foe of all methods of road building and maintenance that could not be supported by scientific research. For example, to examine why macadam pavements deteriorated under automobile use, Page conducted scientific analyses that included filming automobile speed runs on macadam roads to document and analyze the impact of the tires on the surface. These tests spelled the end for macadam pavements by demonstrating that they could not survive under auto tires.

Given his scientific frame of reference, Page was impatient with the county and township officials who had dominated road building for decades and who had wasted millions of dollars on old-fashioned, time-worn building techniques that did not work. In 1912, for example, when Governor Walter R. Stubbs of Kansas suggested to Page that a county surveyor could supervise road construction as well as a highway engineer, Page replied, "It would be just as sensible to appoint an astrologer to build the good roads."

He also objected to the "nonscientists" in the road community who advocated patented products and techniques that he considered worthless. In the OPR's annual report for 1910, Page's impatience was clear. After several pages describing his scientific testing and application of the results, he observed that:

Many worthless road preparations have been and are at present being manufactured and sold to the public through ignorance on the part of both producer and consumer . . . . These materials are sold under trade names, and as a rule carry no valid guarantee of quality. Specifications for such materials are therefore needed for the protection of the public. [p. 785-786]

Page worked with the scientific community to develop specifications that would spell out how best to build roads. While building the OPR into the national leader in the science of road building, he had no patience with those who failed to live up to his standards.

Soon after taking office, Page began to separate the new OPR from Dodge's questionable practices, particularly the link with Colonel Moore and the NGRA. He noted some of the changes in the annual report he prepared in September 1905, covering FY 1905, which ended on June 30, 1905, while Dodge was still in office. Assistance to road organizations "by encouraging road conventions and taking part in such meetings" was curtailed

somewhat during Dodge's last year "in order that the services of the experts and special agents might be utilized to a greater extent in supervising road-construction work." Page did not mention Secretary Wilson's admonitions to Dodge on this point, but added:

The propriety and value of Government participation on a large scale in road-convention proceedings has often been questioned. During my connection with the Office my observation and experience have led me to believe that such participation may be questioned when the main object of the convention or meeting is agitation for the purpose of influencing legislation. Moreover, the results achieved through speeches by Government employees at popular gatherings of this nature can scarcely be considered as having any marked influence upon the progress of road improvement in the United States.

He acknowledged "a field of real usefulness" that OPR speakers and lecturers could provide, as well as the "useful purpose" that road organizations served. He added:

The problems that are most serious to rural communities, and those which it should be the province of specially equipped employees to explain at meetings of local officers and taxpayers, are *what they need, how to go about getting it, and what their roads will cost*. These speakers should be so well equipped that they could give definite and concise information on which the local communities might act with safety. [Italics in original.]

Page continued that, "Much of the work embraced in the scope of the Office is of a scientific and technical nature and involves original thought and investigation." He expected "properly qualified members of the Office" to keep in touch with organizations "having under consideration matters bearing in any way upon the purposes for which the Office was established."

These veiled criticisms were directed at Dodge. Although Dodge had difficulty complying with Secretary Wilson's restrictions, Page would have no such problems.

OPRI Bulletin No. 26, covering the National Good Roads Convention sponsored by the NGRA in St. Louis, would be the last bulletin to publish convention proceedings. Future OPR bulletins under Page would be scientific, data-based, and directly related to "the purposes for which the Office was established." [P. 429-430]

Seely summarized:

Reacting to Dodge's loose ethical standards, blatant political lobbying, and lack of professionalism, Page placed limits on convention appearances by OPR representatives and frostily denied any interest in legislative promotion. He also severed all ties to the NGRA, the good roads group with which Dodge had worked closely, and even started a mail fraud case against its head, W. H. Moore, that reflected the moral outrage of a typical Progressive. Page later boasted, "I fought Colonel Moore in the public press and he finally dropped his road work . . ."

. . . As you well know, there are a lot of human vultures feasting on the road movement. [Seely, book, p. 26]

As Page put it in November 1911:

The entire movement for better roads should be so systematized and everywhere placed on so high a plane of honest and earnest effort that the cheap charlatanism of the professional promoter and the bungling efforts of the well-meaning but uninformed citizen should be no longer permitted.

### **Logan Page and the Road Improvement Trains**

From June 1, 1909 to October 16, 1909, the OPR displayed an exhibit at the Alaska-Yukon Pacific Exposition. The exposition, classified as a World's Fair, was held in Seattle on the future grounds of the University of Washington to celebrate the Pacific Northwest. Congress authorized a government exhibit at the exposition and specifically provided for OPR representation, according to *America's Highways 1776-1976*:

For its part of the exhibit, the OPR prepared a series of scale models, complete with miniature machinery, showing every aspect of roadbuilding. They were supplemented with a handbook, a series of moving pictures and stereopticon slides and a lecture on roads. [p. 76]

Page's annual report for FY 1909 modestly stated that, "The exhibit attracted general attention and undoubtedly did much to stimulate interest in the subject of road building." [p. 6] The exhibit proved so popular that OPR began shipping it to other expositions and fairs, as summarized in the annual report for FY 1910:

An elaborate and thoroughly successful exhibit was installed at the Alaska-Yukon-Pacific Exposition at Seattle, and the same exhibit was afterwards taken to Omaha, Nebr., to the Corn Show and the Omaha Exposition. From that point it was shipped to Washington, D.C., where the models were on exhibition at the Builders' Exchange Exhibit Company; later, the exhibit was installed at the Appalachian Exposition, Knoxville, Tenn.

By March 1913, when OPR published its *Descriptive Catalogue of the Road Models of the Office of Public Roads* (OPR Bulletin No. 47), the exhibit, augmented with new models, had been displayed at:

- Chicago: National Land and Irrigation Exposition
- New York City: Travel and Vacation Exposition
- New York City: Domestic Science Exposition
- Atlantic City, New Jersey: American Road Congress
- Lethbridge, Alberta, Canada: International Dry-Land Congress
- Buenos Aires, Argentina: International Agricultural Exposition
- Turin, Italy: International Exposition

- “and at various other expositions and fairs.”[p. 7]

An OPR road expert accompanied the exhibit to show the slides and present lectures.

The exhibit proved so popular, according to *America's Highways 1776-1976*, that OPR “arranged to transfer a professional model maker from the Smithsonian Institution to augment the OPR’s effort.” [p. 76] OPR Bulletin No. 47 described the models used in the exhibits:

The models illustrate standard types of road construction and represent the modern ideas of highway engineers. All of them are built on the scale of 1 inch to the foot, or one-twelfth of the full size. With the exception of the brick model, they represent roads with a hardened surface 16 feet wide and with earth shoulders on each side about 6 feet wide . . . . Among the [types of modern construction] are models showing brick, concrete, asphalt block, macadam, sand-clay, gravel, and earth roads. There are other models showing the process of maintenance, resurfacing, and bituminous macadam construction by the mixing, penetration, and prepared-filler methods. One model shows the various methods of draining and strengthening unsuitable bases for road foundations, while another shows a typical method of treating gravel or macadam roads to make them dustless and to prevent their disintegration under automobile traffic.

In addition, the exhibition included a historical displays illustrating Roman roads, French roads, and the road theories of Pierre-Marie-Jérôme Trésaguet, Thomas Telford, and John Loudon MacAdam.

The success of the exhibits prompted the Pennsylvania Railroad Company to propose a Road Improvement Train in 1911. According to a contemporary article by Dean John Price Jackson of the College of Engineering at Pennsylvania State College, the purpose was two-fold:

First to urge the progressive citizens of the Commonwealth to aid in promoting the adoption of more efficient methods of expending the local township road taxes; and, second, to gain support for more efficient and business like road legislation such as that contained in the admirable proposals of [State] Senator Sproul and his associates. [“The Good Roads Train,” *Journal of the Engineers' Society of Pennsylvania*, March 1911, p. 107]

(The Sproul Act, introduced by State Senator William C. Sproul, established 296 routes between county seats as the State Highway System. Under the law, which was enacted on May 11, 1911, the State Highway Department was responsible for maintaining and improving Legislative Routes, as they were called, totaling 8,835 miles. The act also bolstered the State Highway Department’s engineering force. Although amended many times, in part to increase the number of Legislative Routes, the Sproul Act would be the basic highway law in Pennsylvania for decades. Sproul, who would serve as Governor

from January 21, 1919, to January 16, 1923, was known as “Father of Good Roads” in the State.)

These were the types of goals Page endorsed—efficient construction techniques and focused State highway legislation. Despite his objections to the Good Roads Trains of the Dodge era, he agreed to cosponsor the Pennsylvania Road Improvement Train. The Engineering School of the Pennsylvania State College organized the educational work of the train.

Page, in his annual report for FY 1911, described the train:

The train consisted of an exhibit car, which contained not only the models . . . but also a large number of enlarged photographs, illustrating various features of the road subject, and a set of pictures furnished by the Pennsylvania highway department.

A lecture car was provided in which stereopticon lectures were given during the day and evening at each stopping place by representatives of this office, of the State highway department, and of the State college. Two other cars were provided with exhibits consisting of full-size road-building machinery, including crushers, elevators and bins, and a number of homemade devices, such as split-log drags and concrete rollers. [p. 42]

Page designated Donald H. Winslow, OPR’s Superintendent of Road Construction, as OPR’s representative to the train, which began in Harrisburg on January 25, 1911, and completed its run on March 28 at State College. Page boasted of the train’s success:

During that time, it stopped at 165 places, where the exhibits were displayed and 174 lectures were delivered. The success of this project is shown by the fact that approximately 53,000 people attended the lectures and examined the exhibits. In many places, the crowds were so large that the lectures were repeated. At other places, where the car would not accommodate the audiences, the meetings were held in courthouses, opera houses, etc. [p. 42]

The success of the Pennsylvania Road Improvement Train prompted the OPR to cooperate with the Southern Railway on a similar venture, which ran from May 1, 1911 in Mobile, Alabama, to October 28, 1911, in Richmond, Virginia. W. W. Finley, president of the Southern Railway, described the purpose of the train in a letter to *Good Roads* (formerly *Good Roads Magazine*):

The purpose of the operation of this train is to arouse increased interest in the subject of improved roads in the territory traversed by the lines of the company; to teach farmers and road officials the fundamental principles of road building and maintenance, and to encourage the organization of local good road associations. [“A Good Roads Train in the South,” *Good Roads*, May 1911, p. 196]

The railway company sponsored the train in cooperation with the OPR and the American Association for Highway Improvement. Page had formed the association in November 1910 when he invited approximately 30 State and interstate organizations (highway agencies, railroads, and good roads associations encompassing all aspects of the Good Roads Movement) to meet in Washington. Page, who was elected president, intended the association to be an umbrella organization "to harmonize and correlate all efforts for the improvement of the public roads." The final stop of the Southern Railway Road Improvement Train was the association's first annual American Road Congress in Richmond.

(In 1912, the association shortened its name to the American Highway Association. Given the strength of groups such as the American Automobile Association, the American Association of State Highway Officials, and the American Road Builders Association after creation of the Federal-aid highway program in 1916, the Board of Directors of the American Highway Association voted to dissolve the group on October 30, 1917.)

*Southern Good Roads* magazine contrasted the road improvement train with previous trains, run since the original Southern Railway Good Roads Train, noting that considering the sponsors, "the tour will be no cheap advertising scheme, promoted and designed for the purpose of boosting the Southern." The Southern Railway would, of course, receive valuable publicity, but in the magazine's view:

The Southern has come to the realization of the vast economic importance of the good roads movement and is ready and willing to spend many thousands of dollars to further it.

The magazine also quoted the *Atlanta Journal's* description of the contents of the train:

In the coach provided with stereopticon equipment, will be views showing all the advantages of good roads and disadvantages of bad ones. There will be shown, for instance, the manner in which doctors are caught in the ruts of bad roads while on their way to patients; undertakers' wagons delayed on the way to the cemeteries; automobilists thrown on the road by a boulder in a bad road; and two loads of cotton, one from a bad road territory, and the other from a good road territory, the difference in weight showing the profits and losses that come from good and bad roads.

In the second car, there will be large photographs showing some of the finest roads in the world, including the well-nigh perfect roads of France. These photographs will illustrate nearly every phase of the good roads movement. For the farmers and experts, there will be working models in this car, showing materials that make the best roads; the way a soggy clay road can be improved by the mixing of sand; the way macadam and other hard roads are built; and practical suggestions which will be of benefit in the case of each individual. If the farmer has been at a loss how to improve his road, he can find out all about it by

attending the train exhibit. Arrangements may even be made so that the persons in each town along the route to be traversed may send in specific questions before the train arrives, they being answered in the lectures that will be given. The aim of the Southern Railway company and the government is to aid each individual case as much as to stimulate general interest in the good roads movement. [“Good Roads Train for the South,” *Southern Good Roads*, May 1911, p. 15]

According to Page’s annual report for FY 1912, the train “visited 210 counties, and stopped at 251 towns, where 288 lectures were delivered to 46,733 persons. [p. 38]

In FY’s 1912 and 1913, the OPR participated in several road improvement trains covering all parts of the country. The final road improvement train identified in the OPR’s annual reports was operated by the St. Louis and San Francisco Railway from March 25, 1912, at Brownsville, Texas, through August 31, 1912, at Morocco, Indiana, although the reports continued to mention the travels of the OPR exhibits by other means.

Good Roads trains were operating as late as 1916. On January 2, 1916, *The New York Times* reported that, “A number of the States are planning to send out good roads trains this Winter, to reach the farmer at a time when he is not busy with his crops.” The automobile was the “great missionary” for good roads, as evidenced by the fact that “50 per cent of the machines disposed of last year were bought by farmers.” The article added:

It is odd but true that the farmer when seated in his new automobile sees the need of better roads much more readily than when on the front seat of a four-horse wagon hauling a load to town.

The *Times* continued:

Railroads are co-operating with the State Highway Departments in sending out good road trains. One of the States that will operate a train of this kind is Tennessee. It will make the trip in January. Representatives of the Federal as well as the State Department will be on board. Miniature models of various kinds of roads will be exhibited. At all points of community importance along the route lectures, illustrated by moving pictures and lantern slides, will be given. [“Good Roads’ By Train Loads,” *The New York Times*, January 2, 1916]

The decline of the Good Roads Trains/Road Improvement Trains occurred while the Good Roads Movement was succeeding in convincing the Federal Government to increase its role. The Post Office appropriations act of August 24, 1912, provided \$500,000 for an experimental post-road construction program. The idea was for the United States Post Office and Department of Agriculture to experiment with the idea of Federal-aid for roads on which rural delivery was or might be established. The Federal share was one-third of the total cost, with State or county governments providing the balance. *America’s Highways 1776-1976* pointed out:

This was a very large assignment for both Departments and one that was to test their negotiating skills to the utmost. Unfortunately, Congress failed to provide either agency with administrative funds to carry out the Act, so they had to secure the necessary engineers and postal inspectors by cutting down on other activities. [p. 81]

The experimental program was beset by difficulties, including lack of interest on the part of some States. *America's Highways 1776-1976* summarized the results:

The first post road to be completed was opened to traffic in 1914. It was a direct road, extending 14½ miles west from Florence, Alabama, to Waterloo. This program, with congressional extensions, dragged on for four more years, until the last post road, in Dubuque County, Iowa, was opened in 1918. From the start, this program was a very considerable burden on the Office of Public Roads, yet in carrying it out, the OPR learned valuable lessons which Director Page was able to pass on a few years later to the framers of the Federal Aid Road Act of 1916. The most important of these recommendations was that Federal aid should be dispensed only through the 48 States, avoiding the complexities of dealing with the Nation's more than 3,000 counties. [p. 83]

When President Woodrow Wilson approved the Federal Aid Road Act of 1916, he launched the Federal-aid highway program on a framework that, years earlier, Martin Dodge and M. O. Eldridge had imparted to Congressman Brownlow in his ill-fated bill.

### **Martin Dodge's Later Years**

After leaving office, Dodge remained in the Washington area, living at 1513 O Street, NW. He had purchased land in Prince George's County, Maryland, where he built a home in 1903, but the O Street address remained his primary residence. Naming his property Dodge Park, he reserved a portion for his family and developed homes on the remainder for sale. Dodge Park is still shown on State maps in the Glenarden area near the intersection of U.S. 50 and State Route 202 (Landover Road), not far from the Capital Beltway (I-95/I-495). According to the Geauga County Historical Society, Dodge "spent the remaining years in study and real estate operations in and around Washington."

While pursuing business activities, Dodge retained his interest in good roads, appearing for speeches and congressional testimony as late as the 1920's, but initially in conjunction with the NGRA. On September 25 and 26, 1905, he was in Cincinnati for a convention sponsored by the Cincinnati Associated Organizations in conjunction with the NGRA. He was in Hamilton, Ohio, on September 27, 1905, for a convention sponsored by the NGRA, and in Springfield, Ohio, for another NGRA convention, this one in cooperation with the Commercial Club. Dodge addressed the convention on the "National Good Roads Movement." The NGRA sponsored conventions in other Ohio cities with Dodge in attendance through October.

On November 8 and 23, Colonel Moore wrote to Powers, the editor of *Good Roads Magazine*, regarding the organization's future. The NGRA executive board had met on November 8, but the absence of a quorum prevented some unspecified business from being conducted. Nevertheless, the board decided not to hold the NGRA's annual convention in St. Louis, where the organization was based in the Laclede Building:

It was decided not to hold the National Convention in St. Louis this year, as the question of raising the funds to meet the necessary expenses is a most important one and it is believed the funds cannot be raised in St. Louis at this time. In the last two years St. Louis has raised \$10,000 to meet the expenses of holding two great National and International Good Roads Conventions. It is not considered just that St. Louis should raise the funds to pay the expenses of all the National Conventions.

Moore's November 23 letter recounted the election of officers for the NGRA on November 15. Moore would remain president. Arthur C. Jackson of Damariscotta, Maine, was elected secretary in place of Colonel Richardson. Colonel Moore predicted that "in 1906, this association will enter upon the most extensive campaign of education for good roads that has ever been inaugurated in the United States. ["The National Good Roads Association," *Good Roads Magazine*, December 1905, p. 844]

Colonel Richardson submitted his resignation from the NGRA in a letter to NGRA members dated December 20, 1905. The letter began:

Not feeling myself in harmony with the plans, methods and policies of President W. H. Moore in the management of the National Good Roads Association, I herewith, through the *Good Roads Magazine*, tender my resignation as secretary of said Association, to take effect January 1<sup>st</sup>, 1906.

He indicated that he would continue to support the cause of good roads, emphasizing that he believed the Federal Government should play a growing role:

It is a subject for the General Government, as well as for the States. The roads must be classified into National, State, and County, and their cost, construction and maintenance apportioned according to classification.

We must break away from the common conclusion that the roads are solely for the agricultural districts. All interests, commercial, industrial and agricultural, must unite under the instrumentality of the general and state governments to secure such a system of public roads as this country demands. ["Resignation of R. W. Richardson," *Good Roads Magazine*, January 1906, p. 40]

Dodge was in Columbus, Ohio, on January 16-17, 1906, for the first convention of the Ohio State Good Roads Association, which he had helped organize in October 1905. He had established a committee of 100 members (one from each of Ohio's 88 counties, plus 12 at large), each of whom committed to asking at least 10 other people to attend, with a

goal of at least 1,000 participations. Attendance was somewhat less, but several hundred participants adopted resolutions supporting State aid (\$500,000 for the present year, and \$1 million in 1907), recommending the use of convict labor in manufacturing road materials; and urging that tax revenue for roads be distributed equitably among the towns and agricultural areas. They also approved a permanent organization for the association, with Dodge as president. [“Ohio State Good Roads Convention,” *Good Roads Magazine*, January 1906, p. 41, and “The Ohio State Good Roads Association,” *Good Roads Magazine*, February 1906, p. 126]

In mid-1908, Jackson replaced Colonel Moore as president of the NGRA. Martin Dodge was one of several vice-presidents of the organization, which continued to stage conventions, encourage the creation of local good roads associations, and promote direct Federal involvement in funding road projects. For example, the NGRA, during its National Good Roads Congress in Chicago on June 15, 1908, adopted a resolution stating, “That it is the sense of the congress that the general government of the United States should pay at least one-fourth of the cost of constructing and maintaining a permanent system of highways.”

President Roosevelt, who was not running for reelection in November 1908, sent a letter to the convention that summarized themes from his 1903 speech in St. Louis. He explained that good roads were a hallmark of permanent greatness. By analogy, therefore, the United States, which had spread across the continent and will rise to “leadership such as no other nation has ever attained,” should “have a right to demand that such a nation should build good roads.” As he had said in 1903, he saw good roads as part of the effort to halt the flow of population to the cities:

It is a good thing to encourage in every way any tendency which will serve to check an unhealthy flow from the country to the city, and the building of good roads will minimize the isolation of the country districts, the same as the trolley, telephone and electricity. [“The National Good Roads Congress,” *Good Roads Magazine*, July 1908, p. 243]

The April 1910 issue of *Southern Good Roads* contained Dodge’s article on “State and National Aid in Good Roads Construction.” Recalling the longstanding practice of requiring the people along a road to bear the cost of its construction and maintenance, he said:

It is a notable fact that there is no state or nation in the world that has ever produced a permanent system of highways so long as the burden of cost rested entirely on the local inhabitants. Accordingly new plans have been devised and introduced within the last ten years in many of the northern states, and a few southern states, whereby aid is brought to the local communities so as to lighten the burden . . . . This new plan which has superceded [sic] the old theory and practice to a greater or less extent in about half of the states of the Union, is known as the state aid plan, and has worked better than any other introduced up to the present time.

After discussing the State aid programs in several States, Dodge turned to the idea of national aid:

The improvement of our highways is a necessary and beneficial thing. It cannot be done by the local communities without aid. It would be unjust to call upon any state without great cities or concentrated wealth to give this necessary aid; and especially so when for every dollar of public money she has in her hand the general government is holding in trust, as it were ten times that amount which must be disbursed for public purposes, and will be disbursed by the representatives in congress as they are directed by their constituents.

He quoted Senator Daniel's comments in Lynchburg during the Southern Railway Good Roads Train regarding the "universal public benefaction" of good roads, adding:

But there should be added to it this further fact, that the road is not alone for the use of those living in the locality. Any person coming from any part of the country or of the world, for that matter, has an equal right with every other to use the highway, and we find that there is an increasing tendency on account of the introduction of automobiles to put the public highways to a more extended use than ever before.

He dismissed the constitutional argument against a Federal role as "a sort of tradition of the elders." With millions of dollars authorized for internal improvements other than highways, "the whole thing has become an exploded tradition." He was not talking about Federal construction:

It is not proposed, however, to revive the policy which prevailed when the national road was built, because that involved a change of jurisdiction from the state and local authority to the national authority . . . . But the proposition is to extend the principle of state aid . . . so as to include national aid to the extent of one third or possibly one half of the cost of construction.

He described how a national aid program would work:

The aid given by the general government should be of a contributory nature only[,] available, however, on condition that the states or civil subdivisions therein should contribute their proportion. The local authorities should initiate all proceedings. The matter of construction and expenditure of the money should remain as now with the state or local authorities, and the supremacy of the state in its legal jurisdiction should be upheld and remain.

He assured readers that there was "no difficulty and no mystery" about how the program would work. New York had "given a complete demonstration of how the matter works by co-operation of the state, and the county and the smaller sub-division adjacent to the

road.” This principle could be applied “without difficulty” by the United States. He concluded:

In a composite government like our own [,] concentration of authority is not desirable. Therefore the only feasible thing which is left us is cooperation and that should be our “cloud by day and our pillar of fire by night.” Let us follow this and we shall come safely out of the wilderness of mud where we have wandered for more than three times forty years.

(The quoted phrase is from Exodus 13:21-22:

By day the Lord went ahead of them in a pillar of cloud to guide them on their way and by night in a pillar of fire to give them light, so that they could travel by day or night. Neither the pillar of cloud by day nor the pillar of fire by night left its place in front of the people.)

The article concluded on page 7, which reprinted “Praise from High Source,” namely Mr. Martin Dodge of Dodge Park, Maryland. On March 17, 1910, Dodge had written to the editor to praise the second issue of the magazine. Saying he was familiar with all the good roads magazines, “you have excelled the most excellent.” Acknowledging that “most of the good roads magazines have not succeeded,” he encouraged the editor by saying, “yours is so much superior that I feel sure its days will be ‘long in the land.’”

On May 25, 1911, Dodge delivered a speech on similar themes to the Fourth National Good Roads Congress, held in Birmingham, Alabama. The Southern Railway Road Improvement Train operated in cooperation with the OPR had arranged to be in Birmingham for the congress. *Better Roads* described the train and its contents upon its arrival in the city:

The train contains models of all kinds of roads, models of road machinery, the finest photographs of roads which have ever been taken, lantern slides showing all kinds of roads, and a lecture room where talks on road building are delivered.

The train is in charge of W. J. Hurlbut, agent of the Land and Industrial Department from Washington, D.C., with D. H. Winslow and Mr. H. C. Wells, superintendents of road construction, United States Department of Agriculture, who are two of the best experienced experts in highway construction.

Since the train started from Mobile on the first day of May, twenty-two towns were visited and some thirty lectures given by the government experts, followed in each case by demonstration lectures in the exhibit car, where the models showing roads constructed of different materials are explained, together with exact working models of the most modern road-working machinery.

A fine series of stereopticon views showing many comparisons between good and bad roads, has been of great interest to the people in attendance. Thousands have

attended the lectures and demonstrations during the tour of Alabama, and have expressed their determination to more strongly advocate the construction of permanent public highways in the future and to be built under the supervision of competent highway engineers. [June 1911, p. 77]

Page delivered an address on the progress of the good roads movement in the Southern States. (The speech was widely reprinted in good roads journals.) However, the congress was cosponsored by the NGRA, which was still a target for Page even without Colonel Moore at its head. On October 1, 1911, the *Washington Herald* reported that:

Declaring that his organization is not authorized, that his motives are actuated by his own interests, and that whatever funds he obtained would go into his own pockets, officials of the Office of Public Roads of the Department of Agriculture last night denounced President Arthur Jackson, of the National Good Roads Association, following the announcement from Chicago that the latter had started a campaign to raise \$1,000,000.

The charges made against President Jackson came like a bombshell to the automobilists of this city. It is stated that post-office inspectors are already on his trail and are making determined efforts to run him down. This action was brought against him by the complaint of the public roads bureau and other associations . . .

Director Logan Waller Page . . . stated last night that there was nothing in this plan that was not self-centered and purely in the interests of Mr. Jackson. "I have known of Mr. Jackson for some time," said Mr. Pages, "and I know his motives perfectly. His plan is intended to benefit no one but himself, and the funds are to go to no one but himself. I can assert that Mr. Jackson's plan of operation is not one that will meet with the approval of any law-abiding citizen."

Jackson's plan, announced during the National Good Roads Congress in Chicago, was that he would seek subscriptions for a road improvement fund from railroads, farmers, automobile companies, and manufacturers. He would open a national office in Chicago and operate the fund "along 'sane business' lines, and that the fund would be held at the disposal of the society as a whole," according to the newspaper article.

Page was skeptical even of the Chicago convention:

"We are reliably informed," said a high official of the bureau last night, "that the . . . convention in Chicago was attended by about three persons, and that none of these had any say in the outlining of the campaign. The same scheme was tried in Baltimore about three years ago without success. This man Jackson has used the publicity given the good roads movement as a means to further his own ends. He is the kind of a man, from all we can learn, who would stop at nothing. Most remarkable is the fact that his organization, which is unauthorized and in co-operation with no recognized organization, could be allowed to continue this long.

He visited Washington some time ago and reserved a room in the New Willard [hotel] to hold a meeting for the benefit of the good roads movement. As far as we have been able to learn, about three persons attended this meeting. This is about the caliber of all of his actions, and this is why complaint has been made against him.” [Reprinted in “Is the National Good Roads Association a Fraud?” *Southern Good Roads*, October 1911, p. 15]

Dodge was at the Hotel Raleigh in Washington on December 11, 12, and 13, 1911, for formation of the United States Highway Association. The association was dedicated to promoting Federal-aid in highway construction through passage of legislation in the present session of Congress. A description of the meeting in *Good Roads Magazine* stated:

A bill providing for the appropriation of money by the federal government to be used in the construction of state and interstate roads was actually drawn up and was introduced in congress Dec. 12. It is stated that a request will also be made for the creation of a new federal department with a cabinet officer at its head, which will have under its direct supervision the highways, and electric and steam railroads of the country.

The bill called for a 50-50 Federal-State partnership “for the construction of State and interstate trunk-line highways in or through said State.” Federal engineers were to survey, locate, and decide upon the trunk-line highways “cooperating with engineers of the State government.” Further, the trunk highways “shall be selected as to connect with surveys through other States to form transcontinental highways.”

Dodge addressed the group and was elected fourth vice-president. General T. Coleman du Pont, the well-known wealthy road advocate from Delaware, was elected president.

Also in December 1911, *Better Roads* carried a short article by Dodge titled “Senator Cullon’s \$148,000,000 Bill for Federal Aid to Road Building.” Senator Shelby M. Cullom of Illinois was a former Governor of the State (1877-1883) who had served in the U.S. House of Representatives (1865-1871) and was elected to the Senate in 1882, serving in the position through March 1913. He was a long-time good roads enthusiast who had helped secure Senate passage of General Stone’s 1892 bill to create a temporary National Highway Commission to formulate plans for a national school to teach road and bridge building, study good road building techniques in the States and foreign countries, prepare a road exhibit for the 1893 World’s Columbian Exposition in Chicago, Illinois, and make recommendations for a permanent commission. (The bill failed in the House, but the \$10,000 appropriation in 1893 set the ORI in motion.)

Dodge explained that the saying “all roads lead to Rome” referred to the idea in ancient Rome that “all roads radiated from the golden mile post in the Roman Forum and in their conception and construction proceeded outward and not inward.” Senator Cullom, Dodge said, “has imitated the Roman plan by introducing a bill in the United States

Senate which provides for seven great national roads to radiate from the city of Washington to the various parts of the country.”

The bill spelled out the destinations and intervening cities to be connected via “the most direct route practicable.” It also gave each route a colorful name:

- Washington National Interstate Highway to Portland, Maine
- Roosevelt National Interstate Highway to Niagara Falls, New York
- Lincoln National Interstate Highway to Seattle, Washington
- Jefferson National Interstate Highway to San Francisco, California
- Grant National Interstate Highway to San Diego, California
- Monroe National Interstate Highway to Austin, Texas
- Lee National Interstate Highway to Miami, Florida

The proposal involved construction of macadam roads with a combined length of 12,000 miles. This mileage would pass through all but six States (Kansas, Michigan, Missouri, Oregon, Vermont, and Wyoming), but backers thought that slight deviations in routing could bring these States into the network as well. At an estimate of \$12,000 a mile, the plan would cost \$148 million. Revenue was to be raised by issuing bonds, with tolls collected to repay their cost and cover maintenance. [“Vast Road System,” *Better Roads*, September 1911, p. 29-31]

Dodge, in December 1911 article, considered the names an important feature of the plan:

The rhetoricians speak of monuments more lasting than brass and more solid than marble, but there can be no more lasting monument than a great road built and used by a great people, that bears the name of any distinguished citizen.

The bill’s features, he said, were even more remarkable because of who sponsored it, Senator Cullum:

He is a stand-pat republican senator of great length of service in the Senate, and much greater length in the public service . . . . During all these years of public service he and those most closely associated with him have not looked with favor upon legislation of the kind now introduced, and the fact that a conservative stand-pat republican senator would introduce this bill shows in the highest degree the trend of public sentiment which most certainly is strongly in favor of federal aid to road building. [*Better Roads*, December 1911, p. 38-39]

Senator Cullom introduced the plan at the request of former Representative J. Floyd King of Louisiana who said that he had the backing of prominent Members of Congress and businessmen “who are preparing to push the bill to passage as quickly as possible.” Mr. King expected opposition from some quarters, but was “confident of overcoming it.” [*Better Roads*, September 1911, p. 29-31] Nevertheless, Senator Cullom’s bill, like the bill conceived by the United States Highway Association, went to committee and never emerged.

On January 16 and 17, 1912, the American Automobile Association sponsored the First Annual Federal Aid Good Roads Convention in Washington, D.C. Martin Dodge addressed the convention on January 17. He indicated that he had come to listen to the speakers, not to give a speech, but had asked for the opportunity after a delegate from Ohio had objected to adoption of a resolution in support of national aid. Governor Judson Harmon had appointed the delegate, Mr. O. C. Barber of Barberton, Ohio. Barber had said this was his first good roads convention and while he understood the value of good roads, he could not give advice as others have “because I do not know about many things they have discussed.” However, he had little confidence in Washington:

I can't say today whether I would approve of governmental aid, of Federal aid to good roads. I think we ought to be independent enough in our respective homes, to get up spirit enough to build our roads . . . . So when you go home, don't trust too much on these fellows in Washington. They have kept us in trouble for many years and they will keep on.

Barber also had speculated on what would happen if a bill made its way through Congress:

I wouldn't undertake to get a bill through Congress that would be any relief to us whatever . . . . Why pass this money through an agency that has a faculty of distributing, according to their judgment I suppose, and some of it drops by the side? Go home and get our own county thoroughly enthused with improving your roads; go to your state and get them thoroughly enthused with improving the state roads and helping you to that extent, and I think you will accomplish more than as though you stayed in Washington for a year or two all together.

In response to these comments, Dodge said he had heard several speakers state that “the time for education in reference to public sentiment had passed away,” but that was “news to me” especially in view of Mr. Barber's comments:

[In] view of the fact that the gentleman from Ohio, certainly an enterprising man and coming a long distance to participate here, should arise and say there was no advantage in such a plan; which would indicate that there are many yet who will stand in need of information about this question.

He reminded the delegates that he had been fighting for good roads for 20 years, beginning in his home State of Ohio, “and I entered into this vineyard when the harvest was great, but the laborers few.” He reminded them of the bill “I prepared as director of the Good Roads Office” and introduced by Congressman Brownlow. “All of the other bills” spoken of during the convention “have been copies of it with certain other features, many of which clearly should be eliminated.”

The great shift of people to cities that had occurred within the last generation involved a redistribution of wealth as well as population. Relying, as States and counties did, on the “ancient policy” of expecting rural residents to pay for good roads was insufficient:

Therefore, if we would secure the support and revenue of all of the people to build the roads for the use of all of the people, we must change our laws, as we have wisely done in many states, so as to raise a general fund, of money out of which we draw some, and possibly in some cases all of the revenue necessary to build up and maintain the roads.

The same was true at the national level. Although wealth and population were not concentrated in Washington, “the great public money of our people is concentrated and is in the hands of your members of Congress here.” Where the States expend \$1 per capita, Washington’s expenditures amounted to \$10 per capita. With such an “abundance of this fund,” Dodge concluded, “we have the right to expect, and I think we have the necessity to demand that we should have a portion of this applied” to good roads.

### **Testifying on the Townsend Bill**

On July 11, 1916, President Woodrow Wilson approved the Federal Aid Road Act establishing the Federal-aid highway program. As Dodge had advocated, it followed the State-aid pattern by providing Federal-aid funds to pay 50 percent of the cost of projects selected by the State highway agencies. In choosing the Federal-aid approach, Congress had rejected calls from many in the good roads movement for Federal construction of national highways. The agency he once headed was elevated to bureau status when it became the Bureau of Public Roads (BPR) on July 1, 1918.

The Federal-aid highway program floundered in its early years, partly because entry into World War I in April 1917 limited the availability of engineers, workers, and materials for road construction projects. The biggest structural problem, however, was that the law allowed the States to use Federal-aid funds on any “rural post road,” defined as “any public road over which the United States mails now are or may hereafter be transported” in rural areas. With this broad definition, the States tended to spread the funds among their political subdivisions for short stretches of road rather than continuous cross-State roads connecting at the borders with roads in adjacent States. The definition also focused funds on farm roads—the limited network of interstate roads was rarely used for mail distribution; railroads carried the mail over interstate distances.

The program’s difficulties gave renewed strength to advocates for Federal construction of national highways to support long-distance travel by automobile. However, with the 1919 amendment and the stabilization of the economy in the post-war period, the States began to make increasing progress in developing Federal-aid highway projects.

Senator Charles E. Townsend of Michigan, who had become Chairman of the Committee on Post Offices and Post Roads when Republicans gained control of both Houses of Congress in 1919, had introduced bills for Federal construction of interstate highways.

He held hearings on the subject, but had not been able to build support for the measures in Congress. On April 29, 1921, Senator Townsend introduced S. 1355, which proposed establishment of a “post roads and federal highway commission” consisting of five members appointed by the President with Senate consent. The commission would establish an interstate system of highways following the most practicable routes. Agricultural, commercial, postal, and military needs would be considered in selecting the network.

By this point, the Senator has abandoned the idea of Federal construction. His new bill authorized \$200 million for a 2-year period, with the funds apportioned to the States, which would construct the system. (He later reduced the funding to \$100 million for 1 year, without the second year.) All contracts would be subject to a strengthened maintenance requirement. The Senator had added this provision in response to a call by new President Warren Harding. In a special address to Congress on April 12, 1921, just 5 weeks after taking office on March 4, he had said:

I know of nothing more shocking than the millions of public funds wasted in improved highways, wasted because there is no policy of maintenance. The neglect is not universal, but it is very near it. There is nothing the Congress can do more effectively to end this shocking waste than condition all Federal aid on provisions for maintenance. [Applause.] Highways, no matter how generous the outlay for construction, can not be maintained without patrol and constant repair. Such conditions insisted upon in the grant of Federal aid will safeguard the public which pays and guard the Federal Government against political abuses which tend to defeat the very purposes for which we authorize Federal expenditure.

The 1916 Act had provided that the States were responsible for maintaining roads built or improved with Federal-aid highway funds. If OPR determined that a road was not being properly maintained, the State had 4 months to restore the road. If the State highway agency did not do so, the OPR would not approve further projects in the State until the road was restored to a condition of proper maintenance. Townsend strengthened the maintenance requirement by providing that if a State did not restore the road, the Federal commission would take measures to restore the road and deduct the cost from the State’s apportionment of Federal-aid highway funds.

On May 13, 1921, Chairman Townsend held a hearing on S. 1355. Martin Dodge was one of the witnesses summoned for the hearing. Chairman Townsend, Senator Kenneth McKellar of Tennessee, and Senator J. Thomas Heflin of Alabama questioned Dodge. When the Chairman asked Dodge for his views on the proposed legislation. Dodge replied:

I think one element or item has been overlooked or not fully considered, and that is that all the former legislation, both in the States and in the Nation, pertaining to this matter has always been based on the idea of giving aid and not on the idea of control. The idea of aid to road building did not originate in the Government here, but it originated in the different States, and it was after many years of

experience that it was thought practicable to extend the same benefits in a general way to the States that the States, many of them, had already extended to the counties. The idea from first to last has been to bring aid to the counties, and it worked so well that we thought it was possible to extend that principle.

After discussing the history of roads in the United States, Dodge continued:

Twenty-three States adopted the State-aid plan under my jurisdiction, and nearly all of the principal States came in at that time. The others have been rather induced to come in later on account of the provision in the present law which requires them to have a State system by which they can participate. [The 1916 Act required each State that wanted to participate in the Federal-aid highway program to have a State highway agency capable of carrying out the provisions of the program.]

But what I want to say is that in all of these years I met all of the arguments—you speak of the arguments in Congress; I went into all of the States but three and held great conventions, built object-lesson roads and organized from the good-roads trains . . . . [In] those days we argued before conventions of taxpayers and not before conventions of tax eaters. Everybody that is now called upon to discuss the question, as far as I observe, is under pay. But we appealed to the God of Hosts, and the result of that appeal was as you expressed it; arguments were put forward in Congress, and finally the idea of giving aid prevailed, but not until it was abundantly assured that the aid given would not be coupled with control to be taken in the counties and in the State by national aid. I might say that I drew the original bill, the first ever introduced in the American Congress, introduced by Mr. Brownlow, of Tennessee, a Republican Member of Congress . . . .

And all the other bills that have ever been introduced in the American Congress have been copies or slight amendments. In the first instance several years elapsed before there were any amendments at all; it was an actual reproduction of the same bill. But we did not have enough votes to pass it, and we did not get enough until this matter had been argued and these assurances given that whatever was done was an aid to be given and not a burden to be borne. We could never have succeeded at all in gaining consent to go into the States to build roads except as we were wanted, and should never expend any money except under the direction as well as the selection of the State officers.

In response to a question from Senator McKeller, Dodge said that he considered the present system “a very wonderful success, and that its success rests upon the good will and cooperation of the people as a whole.” He considered that S. 1355 was not a bill to provide aid, as was the 1916 Act, but a bill for construction, with nothing about aid. In many respects, he said, “it seeks to put a burden on the State instead of taking one off.” He believed that “discontinuance of the present method would be very harmful in many respects.”

Dodge was particularly concerned about the strengthened maintenance provision:

It was brought out to-day that the oldest roads built under Federal aid are only three years of age and do not show much wear nor call for any immediate necessity of repair. Now, we should have failed entirely in all of our endeavor had we coupled that one feature that you now emphasize so much in the matter of repair. Our main effort was to get the thing, to get the road, believing that when the benefits of the road were shown by an object lesson, the benefits would be recognized as so very great that the people would be well satisfied to bear any reasonable and necessary expense to build, extend, maintain, and improve them. Had we coupled our propositions with the further proposition that in addition to the cost there would be another element of repair it would have defeated the purpose of our endeavor.

He referred to an earlier witness who, in Dodge's words, said "it is just as wasteful to build too expensive roads as to build those that are less expensive." Noting that "we are not assured of any immunity against waste," he cited two large States:

[When] representatives of great States like New York and Pennsylvania plan for building roads that cost more than \$60,000 a mile, planning to accommodate trucks 8 feet in width, with a proportional width of 30 feet for three to pass, it becomes very wasteful indeed. All these gentlemen are impressed—including the chairman, I presume—with the idea that the more money that is spent in such enterprises the less liability there is of waste, but that is by no means true.

He pointed out that the country abandoned the National Road "almost in the day of its glory" when railroads took its place for long-distance transportation. Dodge continued:

Now, I think that we are on the eve of other discoveries and the introduction of other means of transportation which would render these expensive roads a great loss—a much greater loss than is anticipated by those who are discussing this bill, who think the loss will be greater by reason of the fact that too perishable roads are liable to absorb money. We can not be certainly assured about this; but there is a fundamental error which has not been considered by the committee, I believe, in the whole system, and that is that the vehicle, which is put upon these roads weighs as much or more than it can carry.

This fundamental error was behind "this mistaken idea of building such heavy and such lasting roads with a view of carrying such heavy burdens over them." The fallacy was that "even with this great expenditure of money the cost of transportation over these roads, being built at Government expense, is not much lower than it was." He recalled his service in Ohio:

The first report that I made to the governor of Ohio was devoted partly to the consideration of the cost of transportation over the various means of transportation. Now, if we can not produce means of transportation that will

cheapen the cost, then our labor is in vain; and there is such a very slight reduction in the cost at best, under prevailing conditions, that if you add to the tonnage the cost of construction—which, of course, nobody does add, but economically speaking we should—if you add those two items together, you find you have made a very small progress.

Although everyone assumed that if “we are going faster we are going cheaper,” this was a “harmful error.” He said:

I am perfectly confident that such roads as are recommended by the commissioners of the great States, and provided for by this bill . . . are being determined more with a view of through traffic and of high speed than of cheap traffic and the concentration of food to feed the already concentrated people . . . . It is said that this automobile truck will make a cheaper means. It will in some respects, but not at all for long distances . . . . We are now considering more or less the introduction of the air service, and many people think that the air service will furnish an even cheaper means of transportation for freight. I do not myself see how that is possible, but I do not deny its possibility.

He did have a suggestion on how to reduce freight costs to a lower construction cost than “any existent means”—steel track roads. He displayed photographs of his demonstration at the Omaha exposition. He had seen similar demonstrations “many times, but I have not seen it applied practically as I would like to see it, and as it ought to be applied.” Senator Townsend asked if Dodge had an interest in the system. Dodge replied:

I am not interested in the method, and there is no patent on it, but it is a patent fact that we are not utilizing the powers that God and nature have put within our reach for the benefit of our people. We are not providing the cheap means of transportation for food products—and I do not want to be misunderstood; it is for food products and for short distances that I am contending.

He considered discussion of long-distance road transportation to be a waste because “long-distance transportation is well taken care of,” namely by railroads. He explained:

But the long-distance transportation is a marvelous success, and it is the short distance, as I told you before, in which we have made practically no progress, and the reason why we have made no progress is partly the fact that we neglected it for more than 50 years, thinking that the other method would be sufficient and ample. But we have found out finally that it is not, and we have undertaken, and very beneficially, to introduce another means, and it is a marvelous success also; but that success is based upon the improvement of the roadbed in such a way as to bring it to the door of the farmer, or near, and so as to cover that short distance . . . . I think it is idle to talk about long-distance transportation with automobiles, because the very fact that we can not cheapen the cost, but are constantly increasing the cost, is the very thing which ought to deter us, if nothing more. But I say again that it would not be possible for any system that anybody is interested

in to successfully introduce vehicles on costly roads that can only carry a burden equal to their own weight . . . . I say that all of your experts, Mr. Chairman, are not able to show any vehicle that is put on these roads for the transportation of freight that will carry much if anything more than its own weight.

When Senator Townsend asked Dodge to confirm whether he was opposed to the building of highways for long-distance traffic, Dodge did so. He said it “would be very injurious, and not only because they would not serve the purpose, but would be a very wasteful expenditure; but most of all, it would shut off all improvements by other means.”

At the request of Senator McKellar, Dodge confirmed: “I favor the present law.” Senator Townsend asked, then, if Dodge favored “turning this money, the Federal money, over to the States without any control by the Federal Government . . . and letting them spend it as they please?” Dodge replied:

I would limit it as it is now limited, and probably with greater safeguards; but you have heard it testified here to-day that the three-year limit of the roads already built does not require any repair.

Dodge did not explain what additional safeguards he favored, but debated with Senator Townsend whether the roads built thus far under the Federal-aid program needed maintenance. The oldest roads, Dodge repeated, were only 3 years old. “Any good road that is substantially built does not require any repairs for the first three years.” Dodge quoted a witness from Pennsylvania who said “the roads they are building would not require much [maintenance] for 20 years.”

Townsend disputed the summary, saying, the witness testified “that the road should endure as long as the bonds [issued to finance construction], but it should be maintained to do it.” When the Senator observed that, “I do not think anybody has maintained that you could build a road and go off and leave it without keeping it in repair,” Dodge replied, “Time makes the test. That is the only test we need—time.”

Senator Townsend asked if Dodge had any other objections to S. 1355 (“please be as brief as you can”). Dodge reiterated his primary concern:

. . . that it does not provide for the necessary and proper cooperation between the State and the nation, and in view of that fact it takes away from the State its sovereign and necessary rights, and would likely result in a burden upon the State instead of a benefit to the State, whereas the entire theory and the entire practice in the past has been to come with aid and not with burdens, and leave control with the people and not take it away . . . .

I certainly hope that nothing will be done by the committee or by the Congress that will cut off the wonderful and beneficial results that have come, and

especially I hope that nothing will be done that will cut off that enterprise which has made it possible to bring about what we have already done.

He also was concerned that “the committee seems to be dominated by the idea that everything is going to remain, and that they must build for the present existing circumstances, believing that they will be permanent”:

My own idea is that that would be like making provision always to maintain wooden ships when iron ships have demonstrated their utility; and I am very sure that if we do not leave the door open so that enterprising individuals and States can introduce beneficial means, more suitable and cheaper, and possibly of greater extension, we would commit a great error.

He did not indicate which beneficial means might be introduced.

Senator Heflin asked Dodge how much would be accomplished if the present Federal-aid law remained in effect for 12 years. Dodge replied that he had not “figured that, but it would be a very great addition to the present system.” He added that “would be only a small proportion of the mileage of the entire country.” Heflin asked what percentage of roads would be improved in 12 years, which would be 16 years since enactment of the 1916 Act. Dodge estimated that it would be less than 25 percent of all roads. When Heflin asked if that would not be a “great deal for a big country” like the United States, Dodge agreed:

Yes; I think so. Gen. Sherman said that he had seen in 40 years more improvement in California than they had made in a thousand years in England. We are going at that rate in very many respects. That is what I contend for, and I do not want to cut it off.

He reiterated his concern about reducing transportation costs:

I am not at all in accord with the idea that seems to be prevailing that because wages go up transportation must go up. I say that you can keep wages high and transportation low, provided you introduce the proper means; but it is not a proper means to introduce vehicles that can only carry a burden equal to their own weight. You will never make any progress in that manner.

Senator Heflin asked if Dodge thought that progress “under the old road law, the present law” has been pretty satisfactory to the people in the States. Dodge replied:

Well, I was greatly satisfied. I am the author of the bill [the Brownlow Bill] under which the whole thing is brought about, and under my jurisdiction 23 States adopted the State aid plan, and, of course, it is gratifying to me and I would be very sorry to see it abandoned. I have fought a good fight, but I have not finished the course entirely yet.

So, Senator Heflin asked, “you feel . . . that it would be a mistake to change it now?” Dodge thought so. “If it should prove to be so beneficial as gentlemen think, it would be time enough to do it later on, I think.” The Senator followed up by asking if Dodge agreed that letting the States build “these intercounty roads, serving the needs of the people in the State first” was better than “abandoning this cooperative work along that line and devoting the funds to building interstate roads?” Dodge replied:

I think this: That if the great States should abandon it, as they might—and both of the commissioners of the great States have testified to the fact that it is of no benefit to them; that they put into the fund more than they take out—if they should decide to abandon it on that account, and the other States, the smaller States, should decide to withdraw their influence because they are not consulted, the whole idea will fail. I would be sorry to see that. Now, it is not at all necessary to make these changes at once, and unless, as I have suggested, you could agree so as to divide this fund and keep the two going, you might lose both very easily . . . .

Now, of course, you all assume that you will always have that support and that vote for this appropriation. That may be so or may not be. I have seen the time, most of my life, when it was not so, and I would see it now if we had not pursued the policy which I have explained to you, by assuring the people that we would give aid and not take away control.

Senator Townsend did not prevail. In 1919, Congress had adopted a compromise suggested by BPR Chief Thomas H. MacDonald, who had been appointed following the death of Logan Page on December 8, 1918. The amendment, included in the Post Office Appropriations Act for 1920 (February 28, 1919), refined Federal-aid eligibility by incorporating interstate roads into the definition of “rural post road”, which now read:

. . . any public road a major portion of which is now used, or can be used, or forms a connecting link not to exceed ten miles in length of any road or roads now or hereafter used for the transportation of the United States mail.

Under the Federal Highway Act of 1921, which President Harding approved on November 9, 1921, Congress limited Federal-aid funds to a designated system of up to 7 percent of all rural public roads in each States, with three-sevenths of the system consisting of roads that were “interstate in character.” Each State could spend not more than 60 percent of its Federal-aid funds on the interstate routes. This compromise satisfied advocates of long-distance roads (“interstate in character”) and farm-to-market roads, while retaining the Federal-State partnership that was at the heart of the 1916 Act.

As President Harding had requested, the 1921 Act strengthened the maintenance requirement of the 1916 Act. BPR would give the State highway agency 90 days to repair a Federal-aid highway. If the State did not do so, BPR would proceed immediately to place the road in a proper condition of maintenance. Further, BPR would not approve

any other Federal-aid projects in the State until the State had reimbursed the Federal highway funds for the amount expended.

President Harding signed the Act on November 9, 1921. It settled the dispute between those who wanted Federal construction of long-distance roads and those, including Martin Dodge, who favored Federal-aid. Moreover, the system basis of the revised program has remained a feature of the Federal-aid highway program ever since. Thus, the ideas that Dodge and Eldridge had proposed in the Brownlow Bill are still elements of the program.

### **Looking Back**

On October 21, 1929, President Herbert Hoover was in Cincinnati, Ohio, to dedicate a monument commemorating completion of a \$125 million lock-and-dam system on the Ohio River. In the October 1929 issue of *National Magazine*, Governor Myers Y. Cooper wrote about the construction project, emphasizing that enterprise always went hand in hand with Ohio. (Three days after the President dedicated the monument, the stock market crashed, followed by the catastrophic crash on October 29 that launched the country into the Depression.)

Governor Cooper's article prompted Dodge to write a followup article in *National Magazine* (Vol. 18, No. 8) titled "McKinley—Pioneer of Roads." In it, Dodge looked back on his long fight for good roads. After summarizing the lock-and-dam program, he said:

Concurrently with this great enterprise in aid of water transportation, there has been developed in our state a system of overland transportation of much greater importance than river transportation. I refer to the substitution of inanimate power for animal power for the purposes of transportation on the highways. This is a new and wonderful means of transportation which Ohio was the first to introduce.

He recalled how Governor McKinley's first annual message in January 1892 had called attention to the need for better roads. Following a reiteration of the message in 1893, the State legislature had approved a resolution that established the Ohio State Highway Commission, which Dodge would chair.

Dodge summarized the resulting report, which "was followed by such extraordinary results as to work what has finally appeared to be a revolution as to the means of overland transportation on our public highways, by substituting inanimate power for the animal power which had theretofore been in universal use." This "new and wonderful means of transportation" for passengers and freight could "carry and deliver all persons, and all things, to all places."

This progress, he said, had "taken its beginning from the recommendations of the great governor and President, William McKinley." Dodge added:

It was my good fortune to have a part in planning and a hand in executing this new method of transportation now so universally in use. This was not easily done but required many years of labor and experiment to make a complete and final demonstration. This was commenced ten years before Henry Ford put out his first model "T" [1908] which proved to be so successful. Discovery had to be supplemented by invention and invention by construction.

Dodge recounted Governor McKinley's promise to bring his highway commissioner to Washington, which he did after Dodge completed his term as State Senator.

Dodge turned to 1898 and the Omaha exposition where he demonstrated that a single horse could pull weight on a steel track road that would require 20 horses on an ordinary road. He reprinted photos of the event. After noting his similar demonstration in Paris in 1900, he described his work as Director of OPRI:

In pursuance of my duties I visited every state in the Union but three, making addresses before good roads conventions, legislatures, chambers of commerce and agricultural associations. I contended for the introduction of state and national aid whereby we could secure a general fund out of which smooth, hard and durable roads could be built and maintained. In connection with this crusade I introduced the good roads trains carrying machinery, experts and engineers, and built many object lesson roads of a mile or so in length during the progress of the three day conventions which were held concurrently with the event.

I call these object lesson roads "Silent sermons in stone preaching the gospel of good roads free." It worked like a charm for everybody was really charmed by the beneficial results that came from this demonstration, and in every case the object lesson roads were extended to greater lengths.

Dodge observed that a change had taken place in society "whereby the government, or the public, furnishes the right-of-way and 'the track' while the individual furnishes the vehicle and the power." This was "the natural and original division of labor between the state and the individual," but this division had been interrupted by the railroad:

"For] the first time in the history of civilization, the right-of-way, track, the vehicle and the power were all furnished in their entirety by the carrier. Before the advent of the railroads no state or government undertook to do more than furnish the right-of-way and the track or pavement . . . .

It seems to be natural and beneficial for now after a lapse of practically one hundred years we are returning to the original principle by which the state furnishes right-of-way, builds and maintains the pavement, and the individual furnishes the vehicle and the power. This is so natural and so just that it is certain to be continued with the most beneficial results.

He wanted to clarify the relationship between the road and the automobile. “Remember that the automobile has but little value without the good road over which it can run.” Although many people “think the automobile made the good roads system,” he believed that “the good road is the mother of the automobile.” He added:

During my administration of the United States Road Office, twenty-three states passed legislation providing for state aid, and this all happened before the good roads trains were operated over the Illinois Central Railroad, the Southern Railroad, the New York Central Railroad and the Great Northern Railroad reaching the North and the South, the East and the West.

To illustrate, he pointed out that “Henry Ford has lately offered to build at his own expense, both in Egypt and in India, 150 miles of improved road.” The mileage would be “an object lesson, supposing and believing that when the advantages of the improved roads are demonstrated that the people would insist upon introducing the new method as a universal means of transportation.”

Dodge concluded the article by pointing out that while cheap water transportation “has existed since Solomon,” cheap overland transportation “is a thing of our own day and our own generation.” While most of the human race was still dependent on animal power for overland transportation, “I speak of this that we may more fully appreciate that enterprise to which Governor Cooper refers and which has been manifested so largely in the state of Ohio, and in our other great commonwealths.”

Martin Dodge died on April 23, 1931, at his O Street residence. He was 79 years old.

Hal P. Denton, in his November 1931 *Cleveland Plain-Dealer* article, observed that Dodge “passed away in Washington a couple of months ago, and with no one to sing his praise.” Denton reviewed Dodge’s career—real estate operator, newspaper owner, State Senator, good roads advocate, Director of the OPRI, and builder of object-lesson roads. Denton referred to good roads trains, Dodge’s advocacy of State and Federal aid, and the 1898 demonstration at the Omaha exposition, saying, “He had photographs made of this demonstration and these were published generally in reports and newspapers.” The article concluded:

On his last visit to his birthplace, a few years ago, he was rewarded by sitting on the front porch of the old homestead and seeing automobiles and trucks and busses [sic] flitting back and forth on the main market road between Cleveland and Youngstown, which in his boyhood days was nothing but a lane of mushy and viscous clay.

This nation should rear a shaft in memory of Martin Dodge. What he accomplished for his fellow men and women is priceless.

Colonel William H. Moore, who had worked closely with Dodge, for good or ill, in the early 1900’s died on September 15, 1937, at the age of 81 in Ontario. According to a

Canadian Press account published in *The New York Times* the following day, Moore “was fatally injured tonight when struck by a motor car almost in front of his home.” Gordon Dill, a 20-year old from Embro, was charged with reckless driving. The brief article mentioned that Colonel Moore, who it said spent more than 40 years in the United States, “devoted nearly all of his life to development of better and safer highways.”