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U. S. DEPARTMENT OF AGRICULTURE
OFFICE OF EXPERIMENT STATIONS
BULLETIN No. 14

PROCEEDINGS

OF A

CONVENTION OF THE NATIONAL LEAGUE FOR GOOD ROADS

HELD AT

WASHINGTON, D. C., JANUARY 17 AND 18, 1893

AND

HEARING BY THE COMMITTEE ON AGRICULTURE OF
THE HOUSE OF REPRESENTATIVES,
JANUARY 19, 1893

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LETTER OF TRANSMITTAL.

U. S. DEPARTMENT OF AGRICULTURE,
OFFICE OF EXPERIMENT STATIONS,
Washington, D. C., March 11, 1893.

SIR: I have the honor to transmit herewith reports of the proceedings of a convention of the National League for Good Roads, held in this city January 17 and 18, 1893, and of a hearing accorded by the Committee on Agriculture of the House of Representatives January 19, 1893, to the delegation representing that convention. The manuscript reports of the same were furnished this office at the request of Secretary Rusk and Assistant Secretary Willits, who were by invitation present at the meeting, and I respectfully recommend their publication as a bulletin of this Office. It was largely through the efforts of those interested in the movement that Congress appropriated \$10,000, which the Secretary of Agriculture was authorized to expend in conducting experiments to ascertain the best method of constructing and maintaining public roads.

Very respectfully,

A. W. HARRIS,
Director.

Hon. J. STERLING MORTON,
Secretary of Agriculture.



OFFICERS OF THE NATIONAL LEAGUE FOR GOOD ROADS.

President,

Hon. CHARLES F. MANDERSON, Nebraska.

General Vice-President and Acting Secretary,

ROY STONE, New York.

Treasurer,

WILLIAM H. RHAWN, Philadelphia.

Counsel,

CHAUNCEY B. RIPLEY, New Jersey.

Executive Committee,

E. H. THAYER, Iowa,

PHILIP D. ARMOUR, Chicago,

LELAND STANFORD, California,

CLEM. STUDEBAKER, Indiana,

AUGUST BELMONT, New York,

CHAUNCEY B. RIPLEY, New Jersey,

AUG. T. GILLENDER, New York,

W. SEWARD WEBB, New York,

CHARLES L. BURDETT, Connecticut,

GEO. PEABODY WETMORE, Rhode Island.

Finance Committee,

SAMUEL S. HOWLAND, Chairman,

AUG. T. GILLENDER,

JAMES M. WATERBURY,

WINTHROP CHANLER,

WILLIAM H. RHAWN.

Temporary headquarters: 45 Broadway, New York.

PLANS AND PURPOSES OF THE LEAGUE.

The National League for Good Roads was formed at a convention called by one hundred of the road improvement associations, boards of trade, and other organizations and prominent individuals concerned in the subject of good roads, and held at Chicago during the dedication week of the Columbian Exposition in October, 1892—

(1) To combine, as far as practicable, the efforts of all persons now engaged in the work for road reform.

(2) To awaken interest in the subject among the people at large.

(3) To receive, publish, and discuss any well-considered plans for local, State, or national action or legislation.

(4) To urge the passage by the House of Representatives of the Senate's bill for a national highway commission of inquiry.

(5) To aid in providing for a proper road exhibit and for free instruction in road-making at the World's Fair in Chicago.

(6) To establish the league on the broadest possible basis throughout the country, so that its influence may be of weight in any direction in which it may ultimately be thrown.

(7) To obtain and spread among the local leagues full information regarding recent legislation for road improvement and its practical operation in the various States and counties.

(8) To obtain and publish full information regarding methods of road building as practiced in various parts of the United States.

(9) To procure and furnish to local leagues, at reduced prices, all valuable publications on the subject of roads and road legislation.

The temporary management does not feel authorized to adopt any line of policy, nor commit the league to any special scheme that might antagonize the partisans of others, and thus defeat its immediate purpose to unite and solidify the movement.

The immediate formation of county leagues is recommended as a step toward the spread of the organization into townships and school districts. County secretaries will be appointed by the State boards, upon the recommendation of prominent citizens.

Until the State boards are fully organized all correspondence will be conducted through the general headquarters, 45 Broadway, New York.

All State, county, and local leagues are at liberty to act independently in local matters of road improvement and will be supported by the national organization as far as is practicable.

The local leagues are expected to meet occasionally and discuss the papers sent to them and the general subject, and forward their suggestions to the national headquarters for consideration and publication, if they are novel and important; to push the work of organization and education in their vicinity, and when the organization is sufficiently advanced, to send delegates to a general assembly of the leagues to choose a permanent management and take such action as may promote the general purposes of the movement.

PROCEEDINGS OF A CONVENTION OF THE NATIONAL LEAGUE
FOR GOOD ROADS, HELD AT WASHINGTON, D. C.,
JANUARY 17 AND 18, 1893.

MORNING SESSION, TUESDAY.

The meeting was called to order at 10:30 a. m. by Hon. Charles F. Mauderson, who addressed the convention as follows:

HON. CHARLES F. MANDERSON'S ADDRESS.

Gentlemen of the convention: I congratulate the cause of good roads and you who are interested in it and recognize its importance upon this large representative attendance, coming, as you do, from so many sections of the country, and I congratulate you upon the unselfishness of this great movement. It is surely to the credit of this organization, crude as it is, that there is in it no element of selfishness and that there is only a desire for the good of all. The public generally, and perhaps many who are here, are unfamiliar with the plan of this organization. The subject of good roads has been one that has been agitated for several years, but in such fashion that nothing tangible seemed to come from the interest in the subject. A short time ago several who were particularly and especially concerned thought it well to take advantage of the dedicatory services of the great World's Columbian Exposition and the immense gathering of people that would be there to call a mass convention in Chicago for the purpose of starting a movement to promote the building of good roads. At this mass convention there was formed what is known as the "Temporary organization of the National League for Good Roads." The leaflet that I hold in my hand gives the constitution that was there adopted. There are in it many defects that as we progress will have to be remedied. This constitution, as adopted, provides for a president, vice-president, secretary, and executive committee; the executive committee acting, as is not unusual in matters of this kind, through the enterprise and labor of a very few men. The movement was started largely through the activity of Gen. Roy Stone, Dr. Ripley, and Mr. Gillender, of New York City. They and those who are associated with them hope to accomplish a permanent organization, which it was proposed should be reached in the first instance by the organization of local leagues throughout the whole country, in its counties, districts, and States. As

these increased in number, so that all sections of the land might be represented, they were to meet in convention and organize a permanent national league. It was thought well to take advantage of this time, when many of the boards of trade are in Washington holding their annual convention, and when the official representatives in Congress from all parts of the country are here, to call a second convention. It would be waste of time for anyone in this presence to speak of the necessity for the work that we are engaged in. I know of no subject more important than the bettering of the roads of the United States. No detailed statement of the deplorable existing condition is necessary. We know the fact that we must get out of the present methods and mend our ways the country over. We can congratulate ourselves that there is such widespread interest on the subject of educating the people for their own good. The newspapers all over have taken up the matter and have created such interest that in some localities better roads have already resulted. It was a source of very great pleasure to me that in the county of Douglas, in which I live, in the State of Nebraska, largely as the result of the agitation of this question by the newspapers the people have already started to build better roads, and have in that county voted \$150,000, to be issued in bonds, the proceeds to be expended for that purpose. This experience has been repeated all over the land, particularly, I understand, in the State of New York.

Now, gentlemen of the convention, we have no set program. We hope to hear from many delegates upon the subject, with suggestions of their experience and the conditions in their locality, and we hope to hear suggestions of the best method of proceeding, particularly as to what legislation will be needed at the hands of Congress and what should be suggested to State legislatures. Our effort should be in two lines: First, the discussion of that which is thought best in the way of national legislation, and, second, to suggest some uniformity of State legislation. During the last Congress there was introduced in the Senate a bill, prepared by Gen. Stone, I believe, that was referred to the Committee on Interstate Commerce. I have no copy of it as it was introduced, but it was very decidedly changed by the committee, and finally passed the Senate in amended form at the last session of the present Congress. The bill reads as follows:

AN ACT to create a national highway commission and to prescribe its duties.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That a national highway commission, to be composed of two Senators, five members of the House of Representatives, and five citizens appointed by the President, be created for the purpose of a general inquiry into the condition of highways in the United States and means for their improvement, and especially the best method of securing a proper exhibit at the World's Columbian Exposition of approved appliances for road-making, and of providing for public instruction in the art during the Exposition.

SEC. 2. That the commission shall hold its first meeting at the office of the World's Columbian Commission, in Chicago, at noon on the twenty-first day of October,

eighteen hundred and ninety-two, and shall make a preliminary report to Congress at the beginning of the next session, covering its recommendations respecting the Exposition and its general plan of inquiry and action.

Passed the Senate July 27, 1892.

Attest:

ANSON G. McCOOK,
Secretary.

The bill, having passed the Senate, went to the House of Representatives, and there remains in committee, having never been acted upon. Of course if it shall be passed it will have to be materially changed to meet the existing conditions. One question for us to consider is whether we desire to make any suggestions to Congress as to any change in this bill extending or limiting its scope. There are many matters for our consideration, and I will not take up your time, but proceed to the business in hand.

Welcoming you all, gentlemen of the convention, I ask what is your further pleasure?

DELEGATES PRESENT.

The register of delegates showed the following States to be represented:

Maine,	Maryland,	Ohio,
New Hampshire,	Virginia,	Illinois,
Vermont,	North Carolina,	Minnesota,
Massachusetts,	Florida,	Wisconsin,
Rhode Island,	Kentucky,	Iowa,
New York,	Michigan,	New Mexico,
New Jersey,	Missouri,	District of Columbia,
Kansas,	Indiana,	California.
Pennsylvania,		

Gen. Roy Stone, acting secretary of the league, read his report of the organization, as follows:

REPORT OF GEN. ROY STONE

To the General Board of the National League for Good Roads:

As acting secretary of the league, I have the honor to report upon the progress of the organization since the Chicago convention, at which the league originated. The general plans of the organization require the coöperation of the governors of the States and Territories in making up the State boards of the league. This coöperation has been very much hindered by the changes occurring in the office of governor, resulting from the November election, neither the outgoing nor incoming governors, in many cases, desiring to act. A little more than one-half of the whole number have now taken action, however, either accepting the vice-presidency of the State or naming a representative.

It should be easy, after this general meeting, to complete the entire organization so far as the State officials are concerned. The work of organizing local leagues has proceeded, in some cases, without a State

organization; but not much can be expected in that direction. When the State boards are fully organized, and especially when State leagues are formed in all States, as has already been done in Vermont, Rhode Island, and Maryland, and when the county secretaries are selected and county leagues are organized, as has been done in Monroe, Greene, and Columbia counties, in the State of New York, the local organization of leagues can be rapidly pushed.

The press of the country is thoroughly enlisted in the movement, and, except for a temporary check, owing to a misapprehension that the league was advocating the creation of political offices, has been fully in accord with us, and has uniformly volunteered its assistance. The work of the league has been indorsed by farmers' organizations in general, and by various trade organizations, including the Chamber of Commerce of the State of New York. The temporary management of the league has been careful not to commit itself to any scheme of legislation that would repel any of the friends of road improvement. Its work has proceeded slowly, owing to insufficient means, but has progressed steadily from the outset. One difficulty in raising funds has been that the league is not an incorporated body, and in view of the numerous precedents for the organization of benevolent associations by act of Congress, I would respectfully recommend that an application be made to Congress for the incorporation of the league or its executive. An important question to be considered by the general board is that of a proper road exhibit and free instruction in road building at the Chicago Exposition; and in that view, the passage by the House of Representatives of the Senate's bill for a national highway commission charged with that subject, is very desirable.

A financial exhibit of the league to December 31, 1892, is as follows:

Total contributions.....	\$1,997.75
Total disbursements to December 31, 1892.....	1,712.36
	<hr/>
Balance in treasury	285.39
Total liabilities	693.70

Of these disbursements, \$1,025 were for expenses of delegates to the Chicago convention; the expenses of the convention itself, \$332.89; expended for printing, postage, etc., \$354.47. Since the first of the year the liabilities have been decreased by contributions \$100. No special effort has been made as yet to collect funds, and it will remain for the finance committee, to be appointed by this board, to devise methods of making collections.

On motion the report of the secretary was accepted and placed on file.

It was moved and seconded that a committee of three be appointed on the order of business.

The motion was carried.

The chair appointed Mr. J. F. Jackson, of Virginia; Edward W. Dewey, of New York; Prof. George H. Hamlin, of Maine.

By request, the Hon. William E. Chandler, United States Senator from New Hampshire, then addressed the convention as follows:

HON. WILLIAM E. CHANDLER'S ADDRESS.

Mr. Chairman and gentlemen of the National League for Good Roads: I am glad to say a few words on this important subject. It is one that deeply interests my own State. I am here at the request of Governor John B. Smith, who has just been inaugurated, and of ex-Governors David H. Goodell (vice-president of your league for the State of New Hampshire) and Hiram A. Tuttle, all of whom take a warm interest in this subject.

The question of good roads in New Hampshire has connected itself with that of forestry, because, in order to keep New Hampshire prominent, as we know it now is, among the summer resorts of the United States, it is necessary for us not only to have good highways and good roads, giving easy access to our natural scenery, but we must preserve our forests and our water courses. As our forests are being rapidly destroyed by the lumbermen and our streams are drying up, we have a very important duty to perform. We have not only taken up the subject of forestry, but have also begun the work of improving our roads. Our legislature is now in session, and I will mention one specific thing proposed to be done by that legislature, and that is to abolish the system by which taxpayers work out their taxes on the roads. I do not know in how many States this system prevails, but it has existed in New Hampshire from the foundation of the Government. Our towns have been obliged to receive their taxes to a certain extent in this way.

Now, the first thing that we have thought of has been to abolish working out the taxes, because the towns do not get full advantage of the money that is voted under the existing system. We expect to be instructed by the National League for Good Roads as to other measures for improving the roads of our State, which are now generally good because we have hard gravel of which to make them. But, although we have these advantages of materials for good roads and generally have good roads, we want to go on and make them better, because it is of importance to the farmers that in the spring of the year the roads should be even better than they are, and also of vital importance that our highways in the mountain regions shall be the best possible. Mr. Chairman, New Hampshire is ready to do her part of the work of improving the roads, and her representatives in Congress are ready to do their part to bring about the national action that may be suggested here.

I hope to be informed before this meeting adjourns of exactly what is desired in the way of national recognition of the necessity of better

roads in this country. There is one benefit to be derived from an organization of this kind, and that has already been stated by Dr. Ripley—the agitation of the subject and the dissemination of information as to the necessities of the country by means of the newspapers. There has undoubtedly been great good accomplished already by the press.

I think on every hand, with the work of the organization only progressing as it has for a year or more, we see better roads. I know I see better roads in my own neighborhood as the result of the agitation of the subject.

Therefore, gentlemen, state what you want Congress to do. Either a national commission should be appointed, or the Secretary of Agriculture should be authorized to make investigation and ascertain the needs of the country and the best methods of improving our roads, and the aid of the National Government should be in other ways invoked to arouse our people to the necessities which are upon the country in connection with improving roads. Beyond that, as to what should be asked of Congress, I desire to be instructed. I know I express the sentiment, not only of myself, but of the chairman, Senator Manderson, and of Gen. P. S. Post, whom I see here, and of many other Senators and Representatives, when I say that if you will state in what way you think the aid of Congress ought to be invoked in this work, assuming the request to be reasonable, we will do all we can to assist in accomplishing your wishes. Senator Manderson has told you about your bill reported by the Interstate Commerce Committee last summer and passed by the Senate. Why it did not pass in the House, Gen. Post can tell you better than I; but I do not think that you will find Congress either indifferent or slow in doing what may be reasonably asked of it. That we need better roads is settled; the only question is the practical one, What shall we do to get them? Secretary Seward, when I came here in 1865, was very kind to me, and I formed a delightful acquaintance with him. I remember his saying to me once that you could measure the civilization of a community by its highways; if it had good roads it was civilized; if it had bad roads it was semicivilized. That, I suppose, is the truth.

I think it is unfortunately true that the extended construction of railroads in this country has tended to injure the highways. But the bicyclists are demanding good roads, and the wheelmen's organization will help restore the efficiency of the roads that have been neglected in consequence of the extension of railroad transportation, and I am very glad to learn that the railroads are not opposed to the renovation and improvement of our highways, because, indeed, the better the roads are the better feeders the railroads will have. We want our railroads to be kept in the best possible condition, and also to have our highways in such repair and perfection that any one can start with a horse and a light buggy from Eastport, Me., and travel to Alaska without breaking a spoke. [Cheers.]

Maj. John W. Powell, head of the U. S. Geological Survey, was next called upon to address the convention.

MAJ. JOHN W. POWELL'S ADDRESS.

Mr. Chairman: I have but a very few remarks to make. The question of good roads, however, comes home to me with a great deal of force. When I was a boy in Wisconsin, we had to market our wheat, corn, barley, and so on, a long way from where they were raised, in a country that was, at certain seasons of the year, very muddy. During those early years of life we considered that it would cost 25 per cent to get our produce to the markets, and all the profits would be swallowed up in doing so. Then came the plank-road era. I have had a good deal of experience with roads and know somewhat of their importance. To some extent; the conditions of the roads have changed. The railroads now give us markets nearer by, and yet we have to haul products to the railroad centers; moreover, since those times our plank roads have fallen into disuse, and, in general, they are greatly neglected throughout the United States.

From a geological standpoint I would like to show you briefly what bearing our Survey has upon the question of good roads all over the country. I have some topographical maps here to illustrate it more fully. There are some maps now being prepared, and I will now distribute through the convention some sheets of portions of this map. [Maps are distributed.] On the large map of the country the sections already surveyed are shown, and the new map will show the existing roads and their meanderings.

A DELEGATE. When will the survey of the entire country be finished?

Major POWELL. That will depend upon the rapidity with which Congress appropriates money.

ANOTHER DELEGATE. What do you consider the best material for road-making?

Major POWELL. Quartzite, the best quartzite is the most desirable. It is distributed all over the United States. Trap rock is also good. Limestone, while it crushes easily, packs hard, which makes it desirable also for road-building. Every rock has to be examined, in part, chemically. Some rocks are vesicular, and, when ground up, they turn into dust and easily become mud.

Several delegates inquired as to the availability of road material in their particular localities, and Major Powell gave very full and comprehensive replies in every instance. For fully an hour he was plied with pertinent questions.

It was expected that Major Powell would furnish a full written report of his address, but owing to illness he was unable to do so.

General Elisha Dyer, president of the Rhode Island League for Good Roads, under the National League, was then called upon to state what had been done in his State.

General DYER said that he had prepared no speech and had expected that Governor Russell D. Brown, of Rhode Island, who is the State vice-president of the National League for Good Roads for that State, would speak on the subject, and that he himself was more interested in the speakers who had gone before than in thinking about what he should say to the convention. He said that a State league for good roads had been formed under the National League, with the representative men in each of the cities and counties put upon its list of vice-presidents and executive committee; that it was thoroughly alive to the importance of the question and had started with the idea of having good roads; that, although Rhode Island was a small and a very conservative State, when she did start it was in earnest; and that they are now alive in his State and have gone to work. [Applause.]

It was here moved and seconded that four committees—namely, committee of five on finance, committee of five on legislation, committee of five on extension of the league, and committee of three on exhibit at the Columbian Exposition—be appointed, with power in the committee on finance to increase its original number at will.

The motion was carried.

The secretary here stated that the receipts of the league had increased \$125 by voluntary contributions since the meeting was called to order.

Mr. Gustav W. Lurman, of Baltimore, Md., was then requested to address the convention.

MR. GUSTAV W. LURMAN'S ADDRESS.

It gives me much pleasure to say to you, Mr. Chairman and gentlemen of the National League, that the results of the road convention held in Baltimore last week are very satisfactory. The attendance was large and representative, not only of the best element in the counties, but of Baltimore City. The broad principle of obtaining good roads at once by the issuing of bonds was almost unanimously indorsed.

The Maryland Road League was organized with an executive committee consisting of the officers of the National League for Good Roads in Maryland, one delegate from each county of the State and three from Baltimore City. This committee has been charged with the work of formulating proper legislation to accomplish the result, and then report to a convention to be called by the chairman. The road question has been agitated for many years past in Maryland, and those gentlemen who were instrumental in bringing about the convention of last week believe that the happy combination of their efforts is largely due to the very general attention drawn to the subject by the forma-

tion of the National League and the liberal distribution of the pamphlet containing the proceedings of the meeting held in Chicago last October. As the chairman of its executive committee, I pledge you the hearty support and coöperation of the Maryland Road League. There are, practically, only two factors in the accomplishment of our object—money, and the intelligent expenditure of it. The first can be obtained in a sufficient amount only by the issue of long-date bonds, bearing a low rate of interest, and the second by such legislation as will provide for its expenditure by competent engineers, educated for such work. I will not pretend to discuss the details of such legislation. The Herculean task of framing a law that will meet the varied views and the diverse interests of the citizens of Maryland is imposed on the committee on legislation of our road league. Their duties will be onerous, and will involve the analyzing of the best road laws of other States and the condensation of their best features. One of the greatest difficulties that has beset us has been the fact that road supervisors have been appointed solely for the political influence they can wield in their respective communities. Nearly twenty years since, the Garrison Forest Farmers' Club, of Baltimore County, of which I have the honor to be president, had a law framed which was based upon the appointment of an unpaid commission of three prominent property holders in each of the thirteen election districts of the county, to be selected by the county commissioners. They were to have the expenditure of the road money of their respective districts entirely under their control, and were to adopt whatever system they deemed best for the repair of the roads. This latitude was given them because the existing conditions as to material, etc., were diverse, and the funds of districts remote from Baltimore were much less than that of the districts surrounding the city. Of course, the successful operation of the law was dependent upon the appointment made by the county commissioners, and, primarily, upon the character of the county commissioners elected by the people. A short time before the adjournment of the legislature the law was amended in such a way as to eliminate the features of an unpaid commission of taxpayers who had something at stake—a fundamental principle of the law—and matters drifted back into their old rut.

After probably ten years of unsuccessful effort to get the appointment of road commissioner, having the ambition to try my hand at the work, a board of county commissioners was elected which was willing to recognize the wishes of my community, as expressed by the formation of the Neighborhood Improvement Association of Catonsville, and the presentation of a largely signed petition. The first move was to get a law passed providing for an extra levy of 10 cents on \$100, for the special purpose of macadamizing the roads. This was to be levied each year only upon the presentation of a petition signed by fifty tax-

payers. A stone-crushing plant was purchased, and located at a convenient point, both for supply and delivery.

Another idea that was put into execution was the construction of a wagon for hauling the crushed stone on the roads with tires 6 inches wide, and with the front 12 inches longer than the rear axle. This rolls down a surface of 2 feet in passing over the roads. The load carried is 50 cubic feet, weighing about 6,000 pounds. The work that has been accomplished during the past four or five years is very satisfactory, but much more is yet to be done. The amount expended in 1892, in Maryland, for county roads and bridges, was upwards of \$550,000. The number of road supervisors was 2,462. There are twenty-three counties. It is my belief that twenty-three competent engineers could have shown better results, notwithstanding the fact that their salaries would probably have amounted to one-tenth of the total expenditure. A gentleman from Charles County stated in the convention that a law was passed in 1866, providing for the appointment of an engineer to take sole charge of the roads in that county. It was in operation four years, when it was repealed, and a law substituted that restored the old system of numerous local supervisors. He made the statement that the latter had not been able, during the twenty-two succeeding years, to destroy the good work that had been accomplished by the engineer, and that his work, during the few years of his incumbency in office, has been an object lesson every since.

If our labors, gentlemen, result in the framing of a bond law to provide the money, and a road law that will secure the honest and intelligent expenditure of that money and that will be acceptable to the taxpayers of the State, we shall have the satisfaction of having been instrumental in bringing about one of the greatest advances in civilization that this great country of ours could possibly make.

A communication was here received from the Hon. J. M. Rusk, Secretary of Agriculture, which reads as follows:

U. S. DEPARTMENT OF AGRICULTURE,
OFFICE OF THE SECRETARY,
Washington, D. C., January 17, 1893.

Gen'l ROY STONE,

General Vice-President National League for Good Roads :

DEAR SIR: Your message reached me just as I was starting for Cabinet meeting. I find that it will be impossible for me to visit your convention to-day. Thanking you for the compliment extended, I am,

Very respectfully,

J. M. RUSK,
Secretary.

Upon the reading of the foregoing letter it was moved and seconded that a special invitation be extended to the Secretary of Agriculture to be present at the meeting tomorrow.

The motion was carried.

Hon. Edwin Willits, Assistant Secretary of Agriculture, was called upon by the chairman to address the convention. Mr. Willits spoke as follows:

HON. EDWIN WILLITS'S ADDRESS.

Mr. Chairman: You have called me out as Assistant Secretary of Agriculture. I am hardly here in that capacity. I received a day or two since a letter from Hon. W. L. Webber, of Saginaw, Mich., the authorized delegate to this convention, appointed by the governor of that State, saying that he could not be present and desiring that I should act as his substitute. I suppose, therefore, that I am present to-day primarily as the representative to this convention from the State of Michigan, in which State has been my legal residence for more than fifty years.

I can hardly speak as fully on the status of the road movement there as I wish I could. During my official residence here for nearly four years, I have had to rely mainly upon information derived from the newspapers, but there is no question that there is a positive advance in that State. A highway commission has been appointed to consider the whole subject. The matter has been referred to by both the outgoing and incoming governors in their recent messages to the legislature. A proposed amendment to the constitution to enable the State to reorganize its road system has been projected, and from all quarters come the evidences of an awakened interest that can be productive of only the best results.

Our State, like many other States in the West, has a considerable area nonsusceptible, except at great expense, to the construction of stone roads. The discussion this morning has been mainly with reference to the use of stone. The roads of the country of such a State as my own are of three classes: (1) stone roads; (2) gravel roads; and (3) dirt roads pure and simple. I desire to suggest to this convention that in the discussion of this topic the dirt road should not be ignored. It is essentially in large portions of our State the country road. I believe it is susceptible of great improvement, and that for a large portion of the year an intelligent expenditure of the money and the labor allotted to their improvement would be a vast saving to the regions which are now almost impassable for a considerable part of the year. There is enough money and labor already supposed to be expended on them, which, if properly directed under a proper system of drainage and a constant supervision and with the proper use of scrapers at the proper time, would make them thoroughly passable nearly the whole year and much less difficult to travel the remainder of the time.

This, however, is only for the present. In any great system such as this improvement contemplates we must not entirely ignore the wants of so large a constituency as that to which this subject is submitted. You will need the active coöperation of all classes and all regions, and I speak emphatically for the improvement of the country road, the common dirt road, till such a time as the means can be afforded and the

public sentiment shall warrant their being made substantial and permanent by the importation of gravel and stone. Still, the ultimate success of the movement will depend upon a thorough appreciation of the use of these materials in the construction first of the main thoroughfares. Fortunately for the State, there is an abundance in some sections of quarries of stone well fitted for the purpose. More and more our railroads are bringing these quarries within reach. There are also all over the central part of the State, north and south in the lower peninsula, large deposits of drift, geologically speaking, filled and covered with boulders—"hard heads," as they are frequently called. These are susceptible of being broken, so that they can be used with great success in the construction of the main roads at least, and in some regions are close at hand for the most remote country roads. There are, moreover, large deposits of gravel in this drift, some of which is admirably adapted to road use, having the quality of quick and thorough cementing under the pressure of transportation. In my opinion two-thirds of the lower peninsula, with a comparatively slight increase in the taxes and labor already allotted to road-making, is within reach of immediate and permanent improvement of its highways by the use of the material now available, and I firmly believe that an era of good roads is in the near future of our State. I am amazed and gratified at the growth of the sentiment on this subject. For thirty years and more I have gone back and forth in almost every region, and have deplored the lack of interest in this subject. As boy and man, I have gone through the task of working out the road tax on what was called the highways—I can hardly call them the roads—of our State.

Michigan, in common with many other States here represented, has not been exempt from the foolish waste of energy in the improvement of her highways. We have, in common with all the Northwest, one difficulty to surmount in this movement. Our surveys are rectangular, and our highways laid out under these surveys run along section lines without regard to the proper locality for a road, and public sentiment has made it necessary to place the house and barn and curtilages along these section lines. The man who establishes his home in the center of his farm is the exception. The roads that are constructed along the best lines for roads—to avoid hills and morasses and other obstacles to good roads—are few. This in a measure increases the expense and causes great waste. No man likes to live where he is reached only by a private highway. This system, therefore, makes it necessary that all the roads on section lines must necessarily be improved in order to open up the country to settlement, and the lands adjacent to these roads are taxed for years for the supposed improvement whether in fact occupied or not.

The county system, which does not exist in our State, will, if adopted in time, promote the improvement of the principal highways, and naturally the consideration of such improvement will include shorter and more direct lines for these principal highways. I think, therefore, that

the time is now ripe for a thorough and positive agitation on the subject, and I congratulate myself that the State of Michigan will not be far in the rear in this movement.

A few words only about the position of the U. S. Department of Agriculture in this matter. We are with you heartily. Secretary Rusk in his concurrent preliminary report to the President has called attention to the subject, and, at the request of the Representative in Congress from Chicago (Hon. Mr. Durborow), I caused to be framed an amendment appropriating \$10,000 to the Department of Agriculture to enable the Secretary of Agriculture to make inquiries in regard to the status of road management throughout the United States, to make investigations in regard to the best method of road-making, to prepare publications on this subject suitable for distribution, and to enable him to assist the agricultural colleges and experiment stations in disseminating information on this subject. We have thought that this came properly within the functions of the Department—to collect and distribute information. Of course I do not suppose that it is in contemplation that the United States should construct these roads, and that either the Department of Agriculture or any other department will ever be charged with such construction; but, speaking as we do for the vast agricultural interests of the country, most unqualifiedly we believe that a saving of 100 per cent in the cost of transporting its products to the nearest market is possible, and we believe that this can be secured by the expenditure of a comparatively small amount of money under proper direction. If Congress shall see fit to appropriate the money under the terms I have just stated, I think I am safe in assuring this convention that the future administration, which will be charged with its expenditure, will most heartily coöperate with this convention and with all persons interested in this most important movement.

It was moved and seconded that a committee of five be appointed by the chair to make a proper revision of the constitution.

The motion was carried.

The chair appointed Dr. Chauncey B. Ripley, of New Jersey; Mr. Gustav W. Lurman, of Maryland; Governor D. Russell Brown, of Rhode Island; Governor Levi K. Fuller, of Vermont; Gen. Roy Stone, of New York.

On motion, the meeting adjourned until 2:30 p. m.

AFTERNOON SESSION—TUESDAY.

The meeting was called to order at 2:30 p. m.

The committee on legislation, appointed by the chair, is as follows: Senator William E. Chandler, Hon. Allan C. Durborow, Hon. Edwin Willits, Maj. Henry E. Alvord, and Col. C. W. Johnson.

Capt. Orris A. Browne, of Cape Charles, Va., was then announced to speak.

CAPT. ORRIS A. BROWNE'S ADDRESS.

Mr. President and gentlemen of the National League for Good Roads: I have been requested to give my experience in making roads, and I do so that I may add my mite to a cause in which I am so much interested. This experience has not been gained in the highest, but, on the contrary, in the lowest grade of road-making, namely, in the making of cheap, well-kept dirt roads. Other materials have been used upon them, but in such homeopathic doses that they have not risen above the plane of dirt roads.

My efforts have been that of a farmer trying to supply his own wants, and not that of an engineer. My experience is also very limited in area, having been confined to the eastern shore of Virginia—the two counties belonging to that State east of Chesapeake Bay. The soil of this locality is fortunately so mixed with sand and clay that it forms a very good roadbed, and a little sand on the top of it makes a lasting cushion to take the wear of travel, and when the water is properly drained off, an excellent cheap country road is the result. When the soil has too much clay it is easily corrected with sand, and it is surprising how little it takes; the reverse of this treatment is also a success. When the proper combination is made, the road becomes hard and lasting; so hard indeed that when necessary to work it up, a Babcock hardpan plow must be used. This implement weighs 230 pounds, and breaks a width of 2 inches, and so hard is this mixture of clay and sand that it requires six mules, weighing 1,200 pounds each, to pull the plow when running 6 inches deep.

Besides the plow referred to above I have a road grader, a heavy farm iron roller, and a farm turning plow. The Babcock hardpan plow is first used to loosen the soil, six mules being attached; and this is followed by the turning plow with two mules hitched to it. When sufficient ground is loosened, the team of six mules is put to the grader, and the two mules are hitched to the roller; the latter is kept on the center of the road all the time; the road is by this means rounded up, smoothed, and made as hard as this roller will make it.

The next step is to fix the track for teams and vehicles, or else those driving over it will use the road from one side to the other, and all can not be made good. This fixing of the line of travel is done by working, with a light single plow, a line down the center of the road, which is followed by the single team of horses and directs the double team ones, so that the wheels of all vehicles move in the same line. When the wheels cut down in the soil the cuts are filled with oyster shells, and as it is worked down, clay, shells, and sand are put in the furrows, and by this means a good hard face is made in the road for the wheels to roll on. The horse track when beaten down is treated in the same way.

Permanent marks are kept by which the center line of the road can always be accurately ascertained, so that if the work has to be gone over it can be done on the same space, thus building on the same roadbed. The best time to do the work of making and repairing a road, so that the soil will go together best, is just the time when it will do to plow on the farm. These roads can be made for \$100 per mile.

I find, however, that the great point in having good roads is the care of them after they are made; this is not expensive, but it is every-day work. It is absolutely necessary in order to have good roads that it must be the constant duty of some one to look after them after the road is built, especially during and following a rain, that water may be kept off so far as possible. No man can attend to the roads and another business at the same time; especially can it not be combined with farming, for the most urgent work of both comes at the same moment. The renowned Telford and Macadam are known only as road-builders, though the former was an engineer of some reputation. They devoted their time to roads, made them, and are noted for that work alone.

The making of roads is simple and easy to understand, no matter what kind; the main point is to be in earnest, and to get close to the work and push it. The people, however, need to be educated on this point. The necessities of the work they are aware of; but to teach them how to do it is the work before us. This can be done by the National League as a head, and by calling to its assistance the Farmers' Alliance, the Grangers, agricultural societies and clubs, county officers, and leading and prominent men in each county in every State in the Union, until every man with a thinker in his head has got it to work.

The quickest way to obtain money to do the work would be for the United States Government to appropriate \$100,000,000, to be divided equally among the Congressional districts, and this again to the counties according to population, to be disbursed by an engineer in road-making. This would give us what we want, and do it during the life of the present generation. This kind of a debt might be made a basis for the national currency, and enlarged from year to year, or as the necessities of the case require it. These appropriations should be an out-and-out gift from the people to the people.

The Constitution will not receive much of a shock in making an appropriation of this kind, as donations and help have, in the past, been made by the General Government to railroads, canals, and public highways, for the benefit of only a part of the people; whereas highway road improvements all over the country would benefit all the people.

While this may be done by the National Government, especially for the post roads of the country (those used by the Government to transmit the mails), aggregating 243,722 miles, the State governments might inaugurate a State system of their own, by raising sufficient money for directing the work intelligently, leaving to the counties the duty of

furnishing the labor and machinery, etc., necessary to accomplish the object. This State money should be to pay for one engineer in each Congressional district, and one boss or road-builder in each county of the district.

This would be the head of the undertaking in its simplest form, and would not cost more than five cents on the one hundred dollars' worth of assessed property. Each county could then make such appropriation for supplying machinery, power, and labor as it saw fit to tax itself with. If the people did not wish to spend money to make roads, believing it cheaper to beat and frazzle out teams and vehicles, they could do so; if, on the other hand, they thought it best to put the weight and wear of transportation on good roads made of stone, gravel, or earth they could do so. Every county could do as they thought best. The most enterprising counties in each State could take the lead; the others would be educated and encouraged in the good work; soon rivalry would be created, and the finest roads the world ever saw would be the result.

The first step to be taken is to raise the money; second, an engineer; third, the boss of road-builders; fourth, implements and machinery; fifth, power and labor. Provide the means and the balance will follow. It is useless to consider the minor points first; it only draws attention from the real one. There need not be so enormous an amount of money raised, but what does come in hand should be used in discretion. Over sixty millions are now spent on the roads in the United States; but very little more would furnish the engineers, road-builders, etc.

A road engineer for each Congressional district would not be as expensive as a Congressman and would be more useful to the people. The road-builders, one for each county, would not be more expensive than the present overseers or roadmasters that are already paid (several in every county). The machinery and power would be cheaper than enforced labor, which, in most cases, is nearly equal to enforced idleness for the time being. Statutory labor is not efficient and should be abolished; it is wrong, and, further, the Constitution, and that of many of the States, provides that "Private property shall not be taken for public uses without just compensation."

Money collected to build roads should not be considered as a tax, as it is buying that which we need. A road (and the better it is the cheaper will transportation be on it) is as necessary to transportation as a horse, vehicle, or harness; the latter three should be relieved as much as possible of wear and breakage, and the road (cheaper than vehicles and teams to keep in good order) should receive the least possible damage by making it so as to resist wear.

Road-making in the United States is one of the great economies to be inaugurated in the nineteenth century, and much of it should be done before it expires.

I thank you, Mr. President and gentlemen of the convention, for your attention.

Mr. Ledyard, of New York, was then introduced and requested to address the convention. Mr. F. W. Ledyard spoke as follows:

MR. F. W. LEDYARD'S ADDRESS.

There are, as observers and historians well know, periods when human movements seem to spread and take active form. Not only is there a full result from seed well planted and cultivated, but, as in the golden grain fields of California, a volunteer crop also. In the case of game laws, a few sportsmen of intelligence recognize that the woodland, prairie, and stream denizens, gifts from a past when Nature's work was not marred, must have an undisturbed budding season or pass away. Acceptance of restraint was slow, the popular idea was "More powerful guns, more game," and the extinction of birds and animals was imminent. A strong and very widespread sentiment is now in action, and no one in the intelligent sections of our country is willing to be seen out of season with rod or gun. In forestry it has been much the same contest with the greed and destruction, but here waves of an aroused sentiment are beating on the shores of ignorance, and although our great wealth of woodlands has made spendthrifts of us, an impression is being made that will yet save millions of acres from the illy directed ax. While able men were teaching that steamships could not carry enough coal to urge them across the Atlantic, they were built and made successful. Men were incredulous with regard to the construction of railways over and beyond the Rocky Mountains, but they now thread prairie and canyon, built so rapidly that the steam outwhoops the Indian before he moves away.

It will not be just to the memories of the pioneers who have gone before to speak too harshly of the old highways. They have made them, such as they are, from the squirrel track to their present form, and, not fully satisfied, have evolved the American wagon and the famous trotting horses to draw them. We have made beyond question the most elastic and perfect "traps" that are known.

In the great upheaval of our spring, roads are neglected. In the long deep ruts water runs riot and tears gullies in the softened soil. The farmer is too much hurried with his own pressing cares to work roads and seeks solace in the faith that they will dry up later. When the sun and winds of May and June have hardened the ground, delayed work that might have been done with scraper and shovel is commenced. The roads that are at last now smooth are "rounded up;" the pick does in a day in the brick-like soil work that when the frost was coming out could have been done in an hour, and a season weary indeed for horses and wasteful alike of the time and temper of drivers lies before all who must repack the dirt that is returned from its annual movement to the gutters.

In the autumn the storms come, the rains fall, it freezes by night and thaws by day, and the pathmaster is like the old woman who put her faith in Providence until the breeching broke, and then, like the pathmaster, did not know what to do. Naturally nothing is done, but the frozen ruts become iron, they sprain horses and wrench wagons, until, in the North, the snow, like a mantle of charity, covers the scarred path for a season. But all this mortifying condition is near its end. As active minds are enlisted in the highway, such as have made the railways and steamships, and public opinion is spreading its wings to carry the impulse of improvement with the wide sweep that is characteristic when the period favors its advance, it is dawning upon the brave race of farmers that bad and dangerous highways are limiting their freedom, in commercial, social, and progressive life. The railway men, ever keen-witted, see that the inflow to their traffic is hampered more by bad roads than by distance from their stations. Statesmen are awakened and are leading in the road movements; while those who read and ponder over statistics realize that if the very marked concentration of population in and near great cities is to be checked, country life must have some of the favors that have been quite too rare in rural districts as compared with the town.

The present sweeping road movement, to do its generous work in full, must regard especially the discouraged rural highways. The suburban roads are often cared for by energetic and able men who command the services of good engineers, and avail themselves of costly and efficient machinery. Of course, a great work remains to be accomplished in making high-class streets and their extensions far into the country, and it will be speedily done, with the result that unless the rural districts catch the enthusiasm, the contrasts will be unfavorable and the now too wide difference between town and country will be more strongly accentuated.

For country roads the argument is care, care, constant care. Rain, frost, and hot sun are busy workers and they put in long hours. It must be recognized that there is no absolutely permanent roadway, any more than ever-enduring wagon tires or horseshoes of steel. Belgian blocks, asphalt, and macadam are the nearest approach to perfect resistance, but they all give evidence that a stitch in time saves not only nine but nine hundred. Immediate construction can be possible only by large taxation or bonding for funds; the work is comparatively simple, but many communities can not, and more will not, take these steps. Many should not incur debt or embarrass too much their slender resources. For such the method that promises the best results is maintenance so conducted as to first check destruction, not to permit it to go on for eleven months of the year to be half arrested for a few days of the twelfth, and such material to be used as will add to the durability of the track. Of earth, 50 per cent, as dust and mud, will be annually lost, and 50 per cent must be added each half working season. Of

ordinary gravel, 30 per cent is sand that will flow in water, 20 per cent stones that will not bed, unless in soft spots, but must be removed; and half remains of wearing value. On level roads, gravel will show better results than this, and there are gravels of which 90 per cent remain through the year and for the future. All will last much longer if a caretaker goes out, not only after but before heavy storms, and prepares culverts and side cuts for the rapid and safe removal of destructive torrents.

Crushed stone have not only wearing but arching and locking qualities, and roads can be made of long enduring character without any costly work of excavation. They will either arch over soft spots or sink until they do. Hard places are well enough with a good water-shedding cover of stone, and it is far more economical to reinforce sinking sections than to discover them by excavation. When they are anticipated the largest broken stone should be first used. It will be found that very few inexperienced laborers can or will spread stone if they are dumped in a mass. They will have a center where rising and falling wheels will soon form two holes, one each side. This annoyance, and the slow and costly method of taking a wagon apart to get out the load, led me to design and have built a wagon box for the purpose of distributing stone, costing only about \$25. It holds 2 tons of crushed stone, and without any assistant or the driver leaving his seat, streams of crushed stone can be poured directly into one rut or both, just in front of the rear wheels, which have broad tires, and the metal is at once rolled in. Travelers are unaware that stone has been used, and neither are they called upon to crush stone or pack them with their carriages. This is done when the ruts are wet, and only then. No more stone is applied until other ruts form, and this may not be until another season. No rut, good road.

The worst roads can be and are made of crushed stone on hard ground. Put on deeply they wear without locking and loose the binding grip of their angles. This discourages their use, when large sums are not available for employing rollers. Ten inches of stone may be put on during five years with little more cost than wasteful repairs. As the work goes on, ruts will cease forming or be less deep, and naturally work conducted with foresight will not be annually lost.

This is simply maintenance with comparative permanence in view, and with a stone-crusher and proper box the process is very economical. I have used hard cobbles in my crusher, and given them a commercial value, so that farmers brought them in instead of putting them in fence corners.

The movement now so wisely inaugurated by the National League for Good Roads will go on. The temper of the times welcomes the reforms that will rapidly result, and object lessons in all sections will not be lost.

Mr. J. F. Jackson, of Richmond, Va., was then announced to speak on the subject of national aid in road-building. He spoke as follows:

MR. J. F. JACKSON'S ADDRESS.

Gentlemen of the convention: The subject upon which I have been asked to speak is that of national aid in building of good roads. The question of obtaining good roads for this country is one that has occupied a very large share of my attention during the past seven years, and especially so during the past four years, since I became the editor of the *Southern Planter*, the mission of which journal is to help the farmers in the Southern States to improve their positions. A life-long acquaintance with the good roads of England, where for many years I was a member, and for one year the chairman, of a board of surveyors of highways, having charge of a long mileage of heavily trafficked road, and a visiting acquaintance with the good roads of France, convinced me that one of the first steps needed to improve the position of the farmers, not only of the South, but of all parts of this country, is an improvement in the condition of the public highways of the country, so that the cost of marketing all produce might be materially reduced and the necessity of keeping so many horses on the farm for hauling purposes might be dispensed with. Another object to be gained was the saving of the wear and tear of wagons and vehicles, while the third, and one equally as important, was the opening up of the thinly settled parts of the country to settlers and the keeping of those already settled there upon the farms.

Living as I do in the oldest settled State in the Union—Virginia—I have had an excellent opportunity of seeing how over even a period exceeding two hundred years in length the laws at present and during most of that period in force have utterly failed to give to that State good roads. To-day, with but few exceptions, the roads in Virginia are no better than they were when the early Colonists first drove out the Red Men. They are mere dust trails through the woods and farms in summer and mud tracks in the winter and spring. The few exceptions are near the large cities or in the Valley of Virginia, where the road made by the National Government anterior to the advent of railroads still remains a monument to the wisdom of the Fathers of the Nation, and a pattern to the existing generation of the effect which would be produced by the making of similar roads all over the country. The Valley of Virginia is the garden spot of the State, thickly settled by rich farmers, whose ancestors were induced to settle there by the existence of this national road affording them the ready means of access to markets, at all times and with maximum loads. The rest of Virginia still remains thinly settled, not because the lands are not good, but because they are practically inaccessible to markets; and this condition of things marks nearly the whole of the rural sections of this great country. Millions of dollars, and thousands, yea, I suppose millions, of days' labor have been expended upon the so-called roads of the country, and yet the cry is universal, "we have no roads."

This wasteful expenditure still continues. In Virginia, I have ascertained by careful inquiry that the average expenditure for the past three years on the roads has exceeded \$350,000 per year in money and over \$400,000 per year in statutory labor; and from what I can ascertain a like expenditure is going on all over the country, and yet no progress is being made in the building of permanent roads. Why is this? It is simply because this annual outlay is mainly expended in repairs of a temporary character and must be repeated every year, while nothing permanent is done. That this must necessarily continue to be the case must be self-evident so long as the present general law remains in force.

A tax levy on the farmers of the county sufficient to build and complete a long mileage of permanent road could not be borne or be collected, and consequently only such a sum is levied as barely suffices to patch up the old trail, and this is repeated from year to year with no permanent advance or improvement. It may be asked, Why do not the counties borrow money and execute permanent works of improvement? The answer is, that the majority of counties can not borrow in the financial market of the country, because of their unknown standing; and if they borrow at home the loans are required to be made repayable on short terms and at a high rate of interest, and the project is not, therefore, feasible. Even rich counties near large cities have a difficulty in borrowing except upon comparatively short terms and at high interest, and this effectually precludes borrowing for road-building purposes to any large extent, as the burden imposed would be too heavy for the farmers to bear, and upon the farmers alone this burden rests under existing laws. Revolving all these difficulties in my mind, I was compelled to ask myself the question, Have not other nations been confronted with like difficulties, and, if so, how have they surmounted them? The answer forced upon me was, Yes, they have, and they overcame them by calling to the aid of the local communities the national power; and in some way or other they are still to-day overcoming them and perfecting their systems of highway by the aid of the national government. In some countries, as in France, the highroads are directly built, maintained, and cared for by a department of the national government out of the national taxation. This, also, is the case in considerable portions of Germany. In England the national government does not directly build, maintain, or care for any of the highways, but indirectly assists the local authorities and communities by the national credit and by the allotment of certain national taxes in aid of the county burdens.

Having come to this point, then, the next question demanding consideration was, Is there any reason why one or other of these systems, or one somewhat analogous to them, could not be applied here and thus solve our difficulty? In arriving at a conclusion upon this question I have felt myself much hampered by the States' rights views so

strongly held by many, and by the fear of an undue extension of the power of a centralized government. The French and German systems, I have come to the conclusion, are alien to the character of our people and form of government. They partake too much of the character of despotic power and have the evil of extending the political influence of the central government, which I regard as at present more widely extended than is wise. Their application would involve the employment of armies of men in every State, directly the servants of the National Government and subject to constant change with each change of political power; and the time of Congress would be largely taken up by these questions, as is the case at present with river and harbor appropriations. I, therefore, dismiss the French and German systems from further consideration and turn to the English one as one likely to suggest a way out of the difficulty. I think that it is capable of doing so, and now submit my conclusions to the consideration of this convention.

From the foregoing it will be understood that I regard the whole road problem as a financial one. This overcome, how to lay out, build, and maintain roads is simply an engineering question, and we have in every State men well capable of dealing with this part of the subject. The officers of the engineering branches of the Army and the students of the military and mechanical colleges could well give aid in this work. The financial problem I would solve by calling to the aid of the States and counties the splendid and unrivaled credit of the National Government. There is no necessity to ask the aid in the way of appropriations from the national revenue, and to that course I should object on the ground that national taxation is already heavy enough and should be reduced rather than increased, and such appropriations, if made, would have another evil, in that they would be often apt to be made more from political motives and to serve political ends than from motives for the best interests of any particular community. I would remove this question entirely out of the range of political influence, and would give to every State and county the right to have the assistance of the national credit whenever it was prepared to comply with the conditions on which that national assistance could be given. Some may say that the granting of the aid of the national credit in this freehanded way would imperil that credit. I am not inclined to believe that this would be so if that credit was lent only upon such terms as I now proceed to suggest.

The returns of the banks and financial institutions show that there are at present millions of dollars waiting for investment in the great financial centers of the country. This plethora of capital daily increases. Hitherto it has largely been lent on Western mortgages and railroad and city bonds. Many of these securities are not now so popular as they once were, and the money awaits the chance of something better. The main condition required to secure the investment of

these large sums of money is absolute security. The rate of interest to be got is a secondary consideration. Now, why should not the National Government offer to take up this money, say in loans of \$5,000,000 at a time upon long-term bonds, say running at least fifty years and up to seventy-five years, say at 3 per cent per annum. I believe the money would be willingly lent upon these terms. These loans so to be taken up should then be lent to every State or county which made application, in such sums as the State or county was prepared to give State or county bonds secured upon the taxes to repay with interest, say at $3\frac{1}{4}$ per cent. This extra quarter per cent would meet all the necessary costs of supervision of these loans by the National Government. Before any loan was made to any State or county, there should be submitted to a department of the National Government to be constituted for that purpose plans and estimates for permanent highways through the State or county to be built out of the proposed loan, and it should be the duty of the National Government to hold an inquiry in the State and county as to the fitness of the execution of the proposed roads to meet the needs of the community, and as to the reliability of the estimates for their completion. If satisfied on these points, and that the interest of the taxpayers of the State or county would be subserved by such roads, then to report in favor of the required loan being made on the security being properly completed. In this way every dollar borrowed on the faith of the national credit would be secured to the National Government by mortgage of the taxes of the State or county in which it was lent, and its repayment within the period for which it was borrowed be absolutely secured.

These State and county loans should be made in the longest terms for which the money was borrowed by the National Government, in order to make the repayment in the shape of an annual sinking fund to be repaid to the National Government along with the interest every year as easy as possible. By the adoption of this system a capital sum sufficient to enable the building and completion of a system of highways in every State and county could be placed at the disposal of the authorities, and the existing tax rate, if supplemented, as it should be, by a ratable contribution from every city in the State or county, would be sufficient to meet the annual interest and sinking fund and the necessary repairs of the new roads, whilst long before the whole loan was repaid the advancing value of the real estate in the State or county, consequent upon such improvement in the roads, would be more than sufficient to recoup every dollar of the original outlay. It may be incidentally stated that the English Government has, for many years, had power to take up from the public loans for the purpose of being reloaned to local authorities, for the execution of public works and improvements; and millions of dollars have been so borrowed and reloaned without in the slightest degree impairing the national credit; but, on the contrary, with the effect of enabling the Government to actually

borrow money for these purposes on better terms than for any other national purpose.

The local government loans are so popular with investors that they always stand at a premium, and I believe that similar loans would do so here.

I would conclude by saying that not one of the least of the advantages to be gained by the adoption of the system I suggest would be that it would place poor counties and rich ones on an equal footing, and thus permit each to advance at the same cost. If the poor county could only give satisfactory security for \$10,000 it could get it at 3½ per cent, and for a long term of years, just as easily as could a rich county which might be able to give security for ten times the amount. At present the poor county can get nothing except at an exorbitant rate of interest and on short time; while the rich county can get what it needs at reasonable rate and on longer time. This is not just. The development of roads means the development of the nation. It is purely a national question, and national aid should be given to all alike to advance the nation's welfare and prosperity.

Mr. John A. C. Wright, of Rochester, New York, being introduced by President Manderson, then spoke as follows:

MR. JOHN A. C. WRIGHT'S ADDRESS.

Mr. President and gentlemen: I have been given the subject of "county roads;" but as I have made no preparation I will not confine myself to that, but with your permission will give you some of the thoughts that occur to me both upon the purposes and work of this league and upon the solution of the road problem; and at the start I am reminded of a reply made by a friend of mine who, as editor of *Life* and in his *Little Brother of the Rich*, has played gracefully upon our most glaring defects. When I told him that he ought to write a poem upon our roads and establish a national reputation by a new "*Bigelow Papers*," satirizing our present means of locomotion, he said, "It can't be done, John; you can't write poetry about good roads; it doesn't appeal to your imagination; good roads appeal to your common sense." And so, gentlemen, I intend to talk plainly and directly, appealing to your common sense.

This National League, as you know, was started at the dedication of the World's Fair in Chicago by a few interested in road improvement, who met together for the first time; and it was a great idea—of Gen. Stone, I presume—and, as sketched in this rough-and-ready fashion, involved a National League, and local leagues in the school districts. This scheme of association has gradually evolved itself and is now upon a broad and elastic basis, and includes as well State leagues and county leagues, and a county secretary in every county.

First of all I shall speak of the county league—which was formed upon my suggestion, and the Monroe County league, which I started, was, I believe, the first so formed—for these county leagues are, as I believe, at the base of systematic organization and road agitation such as we contemplate, and the reasons for having county leagues are much the same as those for county roads, which I believe are the best solution of the road problem. The county embraces a complete community interest. It is within the county in general and to and from the county seat that most of the road traffic goes, and it is at the county seat that the rural and urban population meet, and it is there that they have joint interests. The town is too small, the State too large, for this intimate, comprehensive relation; and, besides, if we are to carry on the campaign of education it must be by means largely similar to political methods, and we must avail ourselves of the connections and material which politics furnish. What I mean is, that the canvass of political parties generally embraces a county; it is a unit, and in every county there are those who by affiliation with party management are, or think they are, familiar with their county and with the men who influence public opinion throughout it, whether they be great or small, or in whatever channel; and it is only in a vague way that much is known outside, except to the few who play their part in the larger domain of State and national life. And my suggestion that there should be a county secretary was made because it is necessary within such limited territory to have some one who is the center or directing head and who shall stand for his county—first, for all its residents interested in road agitation, and, secondly, for correspondence with State or general headquarters, all information respecting his county being addressed to him, as also instructions, etc. Moreover, such county league should be situated at the county seat or main city or town of the county, where the wealth of the county is largely concentrated and where men of county reputation and of more progressive and liberal ideas than can be found elsewhere in the county are likely to reside. And my idea is that such county league would represent a central organization, having subsidiary to it the school-district leagues originally contemplated, and perhaps also town leagues, and that it should embrace in its membership those prominent in each town as well as those prominent in the cities or the county seat, and that it should be the active force in this movement and represent the sowers of the seed.

And now, how shall they go to work? The first duty of the county secretary should be to bring together all those interested in securing good roads, and to book their names as members of his league. In every community there are many such, but without organization, and even unknown to one another. If brought together they can unite and accomplish something. He should also by correspondence or by personal effort interest those living in other parts of the county, and

secure the organization of local leagues subsidiary to the county. Now, I have secured in Rochester, and without much effort, for it has been a busy time of the year, already over sixty names. If each one of these interest five more, we shall have three hundred. There are undoubtedly many more. When you have got a sufficient number in your county league, you should meet together and map out the work which you contemplate doing, and devise ways and means; and, first of all, I would suggest that you should make out a mailing list, so that you might distribute literature throughout the county; and subscribe for as many of the Good Roads magazine (League of American Wheelmen, which is excellent) as you can afford, and distribute them throughout the county, to supervisors, highway commissioners, country taverns, town libraries, and selected individuals. In our county we hope to have a mailing list of, say, one thousand, which will mean five thousand readers. In other counties they may not be able to have more than a hundred. Besides the magazine, you can send out the league weekly when published, or members taking it can return it to the secretary and have these returned copies sent out. Besides this, there will undoubtedly be special publications, which can be obtained through the national headquarters at cost, selecting those with matter adapted for the locality to which they are sent. In making up a mailing list, a party canvass book can be used, to which for such purpose the county secretary would undoubtedly be allowed access. I know that we have such, which substantially indicate the character of the farmer and others, and it is to the rural population we must principally address ourselves.

Besides such distribution of literature as I indicated in a home paper a year ago, it seems to me that to conduct a proper campaign of education, you should hold meetings at which the subject of road-making should be taken up in a homely and attractive manner, illustrated by lantern-slide reproductions of roads, good and bad. In every county there are undoubtedly young men accustomed to speaking, who, if interested in the subject, would do this for the credit attached, and arrangements (through headquarters) could be made for photographic slides to be used in ordinary lanterns. In default of such local speakers, arrangements could also be made to have speakers sent out where wanted. And so we would have in every county a force at work, adding to the sum-total of the strength of the league, interested and interesting others in local endeavor.

Another suggestion of mine which was adopted was that the State and county leagues might act independently and take the initiative. And so we have a completed organization, in which every county is striving to increase the road reform sentiment and to compel road improvement within its bounds; and, taken as a whole, these form a State league, impressing themselves upon public sentiment in the State and upon legislation, guided therein by the State board, which, with the county secretaries, can form an executive, deciding what is best and most

feasible in the way of State action, the secretary bearing to each State a relation such as that of the county secretaries to the county. Now at this point I would suggest that as soon as county secretaries are appointed in the counties they and the State board meet together and map out a scheme for the spread of the league and for such action as they deem advisable on the part of the State, give directions regarding county action, and agree what assistance should be given by the State league to the county leagues—if possible, these should unite upon some scheme of State, county, and local action within the general lines of which road improvement should progress, and to further road legislation upon definite lines; they will thus mutually assist. For example, we can not in our State pass any special legislation; if Monroe County wishes to build county roads it can only be done under a general county road act, to secure which it is necessary to have a favoring sentiment throughout the State, in order that our efforts in this direction may not be nipped in the bud; and this allows each county to progress according to its ability, rapidly or slowly, in road improvement; and over all and above all is the National League, which I regard as only national in association. I do not believe we should look for national aid nor tolerate national interference, and I am frank to say that as far as national road-building is concerned it will not go; but such national association gives to the several State leagues and county leagues a strength that comes from united effort, the spur that comes from reports of similar work progressing elsewhere, and facilitates the assimilation of any road legislation or kind of road improvement suggested or practiced in other States.

If every county has a large central organization and local leagues within it, even at the moderate fee of 50 cents prescribed, the sum total will be very large and will furnish the national headquarters with sufficient means to publish the league weekly and other special publications, to meet their bureau expenses; and besides this literature to maintain a corps of organizers and speakers, with lantern-slides as indicated, who may be sent as demanded to the different parts of the country. I like the suggestion of our friend from Baltimore, Mr. Haman, of having the county organization, the central organization in each county, pay an increased fee, the surplus above the 50 cents going to the legitimate expenses of local work, whether State or county; and I am inclined to think that, outside of the large cities and men of great wealth, the funds which will be secured by solicitation and subscription can only be obtained for local work and upon the plea of neighborhood interest, but that such funds for local work can readily be obtained, sufficient to carry on as indicated a campaign of education in every locality. So much, therefore, upon the question of organization.

And now as to the solution of the road problem.

President MANDERSON (interrupting). Mr. Wright, I wish you would enlarge further upon the work to be done by the county secretaries, and talk as long as you will.

Mr. WRIGHT. I can only say in regard to that, sir, that it will depend somewhat upon each county secretary, who should go ahead as he thinks fit. The only point I make is that we must have a directing head in each county whose duties are not especially onerous; rather require a certain amount of executive ability, some leisure time and acquaintance in the county, and that with such a head, road reform being as it is in the air, he will gather about him, by keeping at the work, a large clientage of associates, and that it will be like the snowball; all you want is the original ball—firm and moving—and keep it rolling, the conditions being suitable.

I can say what we are going to do in Monroe County. We are interesting our representatives in Albany on the subject of good roads and what they mean, personally, by resolution and otherwise, and the same also with our representatives at Washington, as to road inquiry and information and a road exhibit at the World's Fair; that we passed a resolution at our first meeting that our secretary with others present to our Chamber of Commerce our local work which we contemplate, and ask that they assist us materially, both with their indorsement and support; and that, aside from members gathered in through acquaintance, we mean to address all bodies that are likely to be interested in this subject, as, for example, the Western New York Agricultural Society, the Horticultural Society, the Driving Park Association, the Gentlemen Drivers, Real Estate Exchange, those interested in retail distribution, also the Farmers' Grange and Institutes, the Bicycle Association, road horsemen, and others, and awaken their interest and secure their coöperation. And the point that I make about this National League is that it is not a bicycle movement nor a Road Horse Association movement, or that of any special class, but it is one sufficiently broad to secure the coöperation of each and all, and one which any citizen may join who is at all interested in the progressive development of his neighborhood and the land.

Further, in the late spring, when the roads are better, I intend going out in my neighborhood with plain business men, whom I know are interested in this movement and respected by the farmer about the county, to meet in the different towns and districts men of character, talk with them and start local leagues, and later on we will have advertised meetings, with speakers, etc., as above suggested. I am also interesting the local press and securing space devoted to progress of our league and road improvement in general, having them publish names of all who join, and furnishing matter, as, for example, on broad tires, our supervisors having before them a proposed regulation of width of tires on varying loads.

The need for organization is apparent. Individual effort or local

effort is spasmodic and unavailing, and the amount of ignorance displayed even by those well informed and appreciative of good roads is surprising. Many I have found, who have been abroad, think that it is something quite beyond our reach, that it is the result of mediæval labor and of centuries of wealth; but those of us who have looked into the subject know that England has built up her present system of highways since 1820, and that those on the continent have been practically made complete only within the present century. What they have done we can do. Besides this class there is the other class which is opposed for one reason or another to this movement; some, when we cite England as an example, because it is English and they don't want to imitate her. These I simply remind that our present system is a heritage from the England of the time when our forefathers thought she was a pretty good thing to quit, but since then she has made a thorough reform in her road laws, and I suggest besides that one of the finest English roads goes to Killarney, in Ireland. But the largest class we have to instruct, and whose opposition, strange to say, we must modify, is the rural population, those who are the chief beneficiaries of road reform, for, as I take it, it is not questions of road-making or the sort or kinds of roads or road material that we are at present engaged in discussing; and it is not these questions that are as yet in view, except by way of special information when required; these are the province of the road-maker when directed to proceed. The address of Maj. Powell yesterday on the practical road-making done in various localities shows that these questions are readily solved. The thing we want is an improved system. Everybody is practically agreed that a good road is a good thing to have, and everybody except the farmer is agreed that the weakness of our present highway system, and which must first be eradicated, is "working out the road tax." This system prevails in New York State, and I presume in one form or another in all.

It is true that the farmer has not much spare cash; the few money payments that he makes in the year stand out vividly before him, and he suffers from the long-continued agricultural depression, due to our superior transportation facilities in long distances, competition in the West, and, as some of us believe, to the unequal share in tariff exactions, which he has borne; but more than all else he is pressed by the unequal distribution and enhancement of the cost of primary transportation, the direct result of our present unsatisfactory highways. And so we must go to the farmer and say to him, "My friend, you must not oppose us. You have been building all the roads and we have all been using them, and it isn't fair. We want you to let us build the roads, or at least the main roads, and they will be better roads than you have ever seen or dreamed of, and life and intercourse will be fuller and freer, and transportation easier and cheaper, and land values will materially increase." We have had in our State in the legislature the Richardson bill, so-called, now for two years, providing

for State roads, one each way through every county, and forming a network over the State, which has been defeated by the opposition of the rural communities; that opposition is ill-conceived, because the great cities of New York and Brooklyn would pay 65 per cent of the cost of State roads, the other cities of the State about 28, and the farming class proper only 7 per cent of these State roads; it is therefore a direct gift to the farmers. And there is another thing that those of you who have been agitating this subject have probably discovered, that the first members you secure are persons who have been abroad and have seen good roads; and the other thing you notice is that the large majority do not know what you mean when you speak of a good road; the purpose of our agitation, of our photographs and lantern-slides, and of our State or other object roads is to create in the farmer's mind a grave doubt as to whether the road which passes by his farm is, as he will often tell you, "as good a road as he ever saw."

And now, gentlemen, I will say a few words more in regard to Monroe County, and of the work which I have done there, because being the richest county in our State, and the second in the land in her productive capacity, she stands out in vivid coloring, evidencing the benefits to be derived from good roads and the inexcusable indifference and ignorance displayed in leaving our roads as they are. Over a year ago, in a local paper, I took up the subject of road improvement as applied to Monroe County, fully, and later on addressed the board of supervisors by communication, which resulted in a meeting at the Chamber of Commerce, attended by the supervisors, highway commissioners of the county, and citizens, and in brief I pointed out, following the example of our friend Dr. Ripley, in Union County, that we could build in Monroe County an arterial system of county roads, radiating from the city in all directions to the bounds of the county, and connecting all considerable villages and towns with each other and with Rochester; that such a system could be built for just about one per cent of our valuation, which was then one hundred and thirty millions and is now one hundred and fifty, and for that amount—now one million five hundred thousand—we could build a first-class telford road similar to those in Union County, which there cost ten thousand a mile, to the extent of 150 miles; that such new-made roads there were actually demonstrated facts and that it was not hypothesis or theory; and I indicated the benefits that were to be derived and the economy effected, and that a good road means one you could go upon, not be hauled over; that my idea was that a board, presumably composed by the supervisors, could, by filing a map in the county clerk's office, thereby make any road a county road; that they should secure a competent county engineer and should direct him to map out a system of county roads, which should include all the main roads of the county—first, for purposes of general care and repair; and, secondly, with a purpose of building these up into new made

telford roads, or as many of them as advisable, so soon as one such road was a success and approved. Such an idea was a revolution of our present system, and was a bold scheme perhaps in that we were unaccustomed to it, but one which would be found the most satisfactory and cheapest in the end. I showed that the cost of this system of 150 miles even of good telford road, if carried at 4 per cent, would be a charge of 40 cents per thousand of assessed valuation, being \$2 per year upon a farm assessed as high as \$5,000, and only 40 cents per year upon the owner of a small house assessed at \$1,000 in the city. The main roads of Monroe County are to-day perhaps by the very reason of the richness of her soil and the lack of road-making material beneath, and the large traffic over them, as bad as any roads in the land. It is upon these main roads that the farmer spends most of his labor and his time, and wrestles hopelessly with a problem that is above his capacity and ability. In her center is the city of Rochester, the fourth in size in the State, with 140,000 inhabitants and assessed wealth of \$100,000,000. Its citizens have a world-wide reputation for business sagacity and for the energy with which they prosecute all matters tending to their material welfare; and the county itself is a veritable garden, rich in its products, rich in its landscape features, with large towns and villages, a more than ordinarily intelligent and wealthy community; and yet her urban population permits these main arteries of traffic and intercourse between this great heart, the city, and its supporting limbs, the agricultural districts, to remain clogged and congested because they have not learned, and the rural population knows no better and can do naught else. What is true of Monroe County is true in a greater or less degree of all, and we must inculcate into the minds of the people this idea of a community interest in road-building, in which the urban population shall share with the farmer in its cost, and also show that the town will still as now grow rich out of the country. It would pay the city of Rochester to build these main roads herself; it will certainly pay her to build, as she will under the county system, two-thirds of them. Other counties less favorably situated can not build telford roads or roads costing anything like \$10,000 a mile, but over such roads there is less wearing traffic than in Monroe, and a good gravel road costing \$2,000 or \$3,000 a mile will serve the purpose as well. If the assessed valuation of any county is so small that the 1 per cent will not do much in the way of new road-building, this 1 per cent will do a great deal in putting their roads in shape, and if we only inject, as we would by county road-building, single management and supervision, and the expert or scientific care which engineering skill would insure, they will become good at the same expenditure now wasted upon them.

And my reason for favoring county roads is this: that the area and expenditure is sufficient to employ competent engineering skill and to secure proper road-making material, which can not now be done within

the limited jurisdiction of a pathmaster and with his insecure tenure of office; he can not spend a dollar in the search for proper rock within any but the most limited neighborhood. And another reason why I favor county road-building is, as I indicated, that the county represents the complete community interest, and the wishes of each locality can be better served and its administration more carefully guarded. It is to and from the county seat, the town and the railroad station and the farm, that all the road traffic goes, and within which there is any degree of intercourse. No military or strategic reasons require great stretches of road, and for the civil business the railroads do all the traffic. My view, that under county systems the main roads of each county could be made good at the same expenditure as is now wasted upon them, is concurred in by the clear statement of Governor Flower in his last message, in which he shows by inquiry which he made of town clerks that the average expenditure in the counties of the State, upon roads, was \$54,000; in our own county of Monroe it was \$88,000, sufficient, as I have figured it, to pay the carrying charges of more than 200 miles of well-made road. Governor Flower also asserts upon competent engineering information that in these counties good macadam roads could be built for about \$7,000, and estimates the care per mile at \$300 per annum (rather large, I think), and indicates that for this average expenditure every county could have 150 miles of new, well-built, macadam road, and provide care for the same. My own idea is that in every county we should build permanent roadways at an initial cost, bonded, but for the present merely to carry the indebtedness, and the increased valuation and wealth brought in would be sufficient to establish the sinking fund, which would ultimately wipe out the principal; when built these roads should be put in immediate, single, systematic supervision, divided into sections similar to railroad care and repair, but, unlike railroads, more elastic in the employment of local material and help. For example, the farmers could use the stone from their fields, their teams and their labor in the building, and when the roads were built an intelligent farmer could be selected as road-master of contiguous sections, his work telling when under the direction of an expert road-maker. In other words, the money raised by the community would be reimbursed to the community. In Monroe County, as I have estimated, under the county system the farming class will only pay about 25 per cent of the cost of county roads.

I have, upon the suggestion of Gen. Stone, taken upon myself the position of acting secretary for New York State of the National League for Good Roads; and I have suggested to all the county secretaries who have been appointed, and whom I am seeking to appoint in every county, that they should present such facts and figures applicable to their own county to the people residing within it, and particularly to the rural population; ask the farmer to take his time to town over the road in most favorable condition, when he goes to town, and his

actual time for a year in all seasons, and figure out the time and waste due to poor roads, and ask him to think what a good, hard, smooth way at all times would mean to him.

It should be an easy distance over the roads of Monroe from Rochester to the bounds of the county. To-day the market gardener brings in his produce, which requires quick delivery and gentle transportation, taking anywhere from four to five hours, and starts from the farm about midnight to make his morning delivery. With good roads the farmer could bring in produce of all sorts to town, sell it, and return and have nearly a day for work at home, where now he spends fully a half day on the road. Nor need these roads cost any more if built by the State than if by the counties.

The argument for State roads is this: The rural population, we have found, are those opposed to the good road. We must in some way spring it upon them. As indicated, they will pay but 7 per cent of their cost; and State taxation, being more indirect and less felt locally, will arouse less opposition, and so State roads are in a measure easier to accomplish. And further, it is more comprehensive than contemporaneous local action in all the counties. If we have legislation and build State roads, there will be at least two roads in every county which will serve as an object lesson, serving local needs as well as if built by the county, and, in general, at less cost to it, and I have no doubt county action will follow in most of the counties.

As soon as these roads are under the view of each community, and are, as I believe they will be, considered desirable, I trust to see a permissive county act passed allowing every county to enter into road-building upon the lines suggested; or, better than a permissive act would be a general act, permissive as to a maximum expenditure and improvement, thus allowing the richer counties to make as much of a road improvement as was legitimate and obligatory as to a minimum annual expenditure, at the same time compelling general progress throughout the State without overburdening the poorer counties. Under such a broad and elastic act each county might take advantage of its wealth or of the progressive character of its inhabitants, and could enjoy the advantages of its environments, while other counties must suffer somewhat for the lack of them. What I mean is this, that such county-road building permits of each locality building and paying for its roads, and paying only for such roads as they build, while the contribution of the richer counties to the poorer would be included in their proportionate share of the State roads and would be limited to that contribution, which would represent a fair amount for them to pay for the benefit of the commonwealth of which they were a part.

And now if we go further and say to the farmer: "We people of the State have given you one road each way through every county as a State affair, and in the respective counties we have given you main market roads such as may be built on county systems, in the one case, in which

others than yourself have paid over 90 per cent of their cost, and in the other 75 per cent (as in Monroe), or less as it may be, of the cost. Now, my friend, in return for these gifts and assistance made to you, we ask and demand that you shall cease from working out your road tax; that this privilege, if you call it such, shall be done away with and that the road tax which you pay for the care and repair of these lesser roads, which are left out of the two systems named, shall be paid in cash the same as other taxes and be placed to the credit of your highway commissioner; and we also demand that you shall make the town a unit and have one body of highway commissioners for it, in order that the work may not become inefficient by being split up"; and he would be dull indeed did he not fall in line and be a party to this contract, forming the basis of copartnership in road-building and maintenance by State, county, and town.

And so we have as the solution of the road problem for New York State this, which we may italicize:

The State road each way through every county will furnish the object lesson and represent the State's share in road improvement initiatory to county systems, which shall supplement these and furnish good main roads, forming the arteries of traffic and practically covering all roads in which there is a dominant community interest. The remaining roads may be cared for and made good by making the town a unit and the road tax payable in money to its highway commissioners, who, by the example and assistance furnished by State and county engineers and road-makers, can readily superintend and improve these lesser roads bearing only a light local traffic.

And there is another point in this, that though it is hoped that our road-making shall be upon a practical rather than a political basis, as government is political and governmental boards will have partisan majorities, any conflicting political pull or fear of partisan advantage may, in New York State at least, be modified by such a scheme; for to those who oppose the State roads as being under presumably Democratic management, we may suggest that the county roads will be presumably under Republican, and *vice versa*, and in each case road-making will be under the supervision of a board affiliating politically with the majority interest paying for the same, and it will be honest in its administration or not as the majority sympathizing politically with it shall determine. If they tolerate inefficiency and dishonesty, in this as in other things people will get just what they deserve.

And so, gentlemen, I have thus somewhat at length stated to you the situation in New York and what I believe is the solution of her road problem, and I have no doubt that what is applicable for her is also applicable to her sister States. I have gotten out some circulars, which I have used in my own league and throughout the State in the appointment of county secretaries as indicating the work for them to do, in which I have collated the messages of the governors, editorials, etc., of which you may have copies.

I would suggest to my friend from Virginia—Mr. Jackson—who has labored so earnestly for national roads, citing European examples, if he will substitute for European nations the word European states, as I prefer to call them—for in area and wealth they are not much superior to ours—he will see that my system of State, county, and town roads is exactly analogous to their national, departmental, and communal systems; and, if I recollect aright, it is the subsidiary kingdoms of the empires of Germany and Austria that care, each in its own domains, for its roads upon similar systems.

I have talked too long, I know, but I feel the importance of starting right and for all of us clearly enunciating our views. The composite of all our ideas will be right and what we can go upon. I have been described as an enthusiast and been dubbed by my friends "The Colossus of roads," and perhaps at best we are but a collection of cranks in thus giving our time and our thought and expending our means in a great cause basic to the common welfare. We may be, more so than those selfishly engrossed in their own advancement and engaged in their own business while drawing from the good roads, when they come, more direct returns than any of us, if furnished through our agitation and without effort on their part; but in thus serving our fellow-men, and indirectly the State, we are but following in the footsteps of our ancestors. Somewhere that cynical genius, Rudyard Kipling, remarks in comparing the man of to-day with the tribal man—

Still we let our business slide (as we dropped the half-dressed hide),
Just to show a fellow-savage how to work.

It is by such philanthropy that the record of the age's progress is built up.

Maj. M. H. Crump, of Bowling Green, Ky., was the next speaker announced.

MAJ. M. H. CRUMP'S ADDRESS.

Mr. President and gentlemen of the convention: I am not a road talker, but have had some experience as road constructor. Referring to the remarks of Senator Manderson, our worthy chairman, I will say that there were some good roads in Kentucky previous to his visit; but he brought with him an immense horde of his friends and followers, who came with their baggage (as if to remain), which was carried in heavy wagons, drawn by six mules, the drivers of which refused to notice the tollgate and keepers, and the roads depended solely upon the collection of these tolls for repairs. They were sadly damaged by his visit. [Laughter.] But this was not the last of the Senator (Senator Manderson retorts, "and you fellows were going in the opposite direction.") [Laughter.] Shortly after, he and his friends were hurrying back with their baggage on these same roads. Why this haste? [Laughter.] I am not supposed to know, further than it was reported that John Morgan was somewhere north of the Ohio, and Bragg and Kirby in Tennessee and traveling in the same direction. This trip finished our

roads. Since then we have been trying to repair the damage, and I have personally superintended the expenditure of many thousands of dollars in the work, which is still far from complete.

Kentucky, while it has some good roads, has many of the worst in the world, largely due to its miserable system of working them. Warren County, the seventh in the State in point of wealth, spends from \$12,000 to \$15,000 per year in labor and money on its roads and bridges. At least \$10,000 of this is absolutely thrown away. There are mud holes with 500 yards of rock in them, now 2 feet under the mud. A road convention met in Lexington, December 20, 1892, which considered the Sims road bill, now before the legislature, and which radically changes the old and inadequate system, as it permits the counties to levy a tax not exceeding 25 cents on \$100 to be expended by a competent engineer, under the supervision of the fiscal court of the county.

All roads are divided into three classes, and all work must be done by contract to the lowest and best bidder, and will be carefully inspected by the engineer in charge; all able-bodied delinquent taxpayers will be compelled to work out their taxes on the roads. By this law and with the \$15,000 now expended, $7\frac{1}{2}$ miles of superior telford road can be built, at a cost not exceeding \$2,000 per mile or 15 miles of good road at \$1,000 per mile.

In the last ten years I have constructed over \$200,000 worth of telford and gravel roads, at the above figures; and when good limestone can be had within 1 mile of the road a 16-foot road with an 8-inch pavement and 4 inches of metal can be easily built. This includes everything, grading and all, on old roads, when the grades can not be greatly changed.

I usually estimate the cost of grading and shaping the roadbed (22 feet wide for a 16-foot roadway, and 24 for an 18-foot bed) at \$200 to \$500 per mile.

Telford paving costs per square rod:

Stone paving 8 inches deep, 8 cubic yards put down at 50 cents.....	\$4. 00
Metal paving 4 inches deep, 4 cubic yards put down at 50 cents.....	2. 00
	<hr/>
	6. 00
	<hr/> <hr/>

18-foot roadbed:

340 square rods per mile at \$6.....	2, 040. 00
Grading and shaping roadbed.....	200. 00
	<hr/>
	2, 240. 00
	<hr/> <hr/>

(Labor, usually negroes, at \$1 per day.)

16-foot road bed:

310 square rods per mile at \$6.....	1, 860. 00
Grading, etc.....	200. 00
	<hr/>
	2, 060. 00
	<hr/> <hr/>

Gravel roads, 16 feet, 2 inches ground.....	1, 000. 00
Grading, etc.....	200. 00
	<hr/>
	1, 200. 00

Many miles of 18-foot stone roads have cost less than \$2,000 per mile. Many miles of 16-foot stone roads have cost less than \$1,600 per mile.

These macadamized roads were constructed by county aid, \$1,000 per mile being allowed on each complete mile, when not less than 3 miles were assured.

Bonds, thirty-year, 5 per cent, sold at par and were taken by citizens of the county, so that not a dollar went beyond the limits of the county. Warren County has expended \$60,000 in this way, and the county levy has been decreased every year since the roads were completed. The road convention met on January 17, 1893, at Lexington, and adjourned to meet in Bowling Green April 12, 1893, when the Sims road bill will again be taken up and the legislature urged to pass it.

A motion was duly made and seconded that a committee be appointed to ascertain whether it would be agreeable for the President of the United States to receive a delegation from this convention some time on the morrow; and, also, that a committee be appointed to consult with the officers of the National Board of Trade, whose convention is now in session, regarding its coöperation with the National League for Good Roads.

The motion was carried.

The chair appointed Dr. Chauncey B. Ripley, Maj. M. H. Crump, and Gen. Roy Stone for both purposes.

The next speaker announced was Prof. George H. Hamlin, of Maine State College, Orono, Me., who spoke as follows:

PROF. GEORGE H. HAMLIN'S ADDRESS.

Mr. President and gentlemen of the National League: I congratulate you upon the success of your efforts for the formation of a League for Good Roads, which is to be national in its membership and aim. It is certainly encouraging to see so many States represented here at this meeting. If the work which you have already done did not give assurances of the great work you are to do in the direction of the material development of this great country of ours in the near future, this convention, composed as it is of representatives from more than half of the States in the Union—coming here at their own expense and purely on account of their devotion to the grand cause, certainly could not fail to do so.

I wish to assure you that my own enthusiasm on this subject came largely from this organization; although I have for years taught the principles of correct road construction, yet, until the formation of this organization it seemed almost a hopeless task, as there was no demand for educated road-builders and there seemed no way in which to awaken the people to the fact that under the old methods nothing but disappointment and waste of effort could come.

The formation of this league will give new life and hope to the work of instruction upon this subject in every one of the national colleges in the country.

In the State of Maine there is a rapidly growing sentiment in favor of such a change in our road laws and methods of road construction and maintenance as will enable us to make some perceptible improvement, from year to year, in the condition of our roads.

Our governor has referred to the matter in an encouraging manner, in his address to the present legislature, and the delegates from Maine are here to-day, by his consent and appointment. The State Board of Trade, at its annual session at Augusta, passed resolutions requesting action on the subject by the legislature, and appointed a committee to bring the matter properly before our lawmakers. The State Grange, an organization numbering 16,000 people, at their annual meeting in Lewiston passed similar resolutions and appointed a similar committee to bring the subject before the legislature. The secretary of the State Board of Agriculture has taken up the subject at its county institutes and has met with encouragement. The formation of subordinate leagues in the State has been begun and soon I hope to see a county league organized in each county. We have in our State a magnificent grange organization. There are 312 subordinate granges in the State, and it is proposed to get them all to discussing the road question as soon as possible. The proposed publications of this league will be of inestimable value in carrying on this work.

The road problem in Maine is a very difficult one with which to deal, and we must "hasten slowly," in order that no mistakes, which will set us back, shall be made. We have 432 organized towns and 80 plantations, and 480 townships of timber lands. One town which I have in mind has over 200 miles of highway to keep in repair. Our total population is only about 700,000. Much of our soil is clay, and Jack Frost goes 4 feet into the ground every winter, so that the proper subdrainage of the roadbed becomes a matter of the first importance, and of course an expensive item. We can not for many years hope to build much stone road in Maine, but we must content ourselves with the best roads that can be built from the material over which the road passes. But with the aid of the honest skill of an engineer and more business-like methods of raising and expending the money now assessed, a wonderful improvement can soon be brought about in the condition of the roads in Maine.

Hon. H. E. Hoard, of Montevideo, Minn., spoke as follows:

MR. H. E. HOARD'S ADDRESS.

I am here by appointment of the governor of my State to obtain opinions and information on the subject of good roads. Some have spoken of the expediency of having the roads improved for the accom-

modation of tourists at shore and the mountain; for the use of cyclists and coaching clubs; for speeding purposes and pleasure driving, and as a sure promoter of booms in real estate.

The people of my State and the Northwest generally need good roads, most of all, for business. The average farmer out West has to haul his product and supplies about 5 miles. Their teams are good, but they haul on the average less than a ton—perhaps not more than three-fourths of a ton—at a load. The time required to work the trip averages close on to three-fourths of a day; during the hauling season wages are high, and the expense of the “short haul” from farm to station is made heavier than for the “long haul” that follows, by rail or boat. The substantial improvement of the worst places in the road, aggregating not a fifth part of the whole distance on the average, would doubtless enable our farmers to haul a third more at a load, to haul it in a third less time, and to haul when men and teams are not so badly needed on a farm. This means that where it now takes three-fourths of a day to haul 30 bushels of wheat or potatoes, 40 bushels could be hauled just as easily in half a day, or 80 bushels a day if necessary. It means that where it now costs \$3 to market three-fourths of a ton, it would then cost but \$2 to market a ton—a saving of half the expense. It means the extension of the hauling system to suit the convenience of the farmer and an opportunity to take advantage of the market, whereas the markets now take advantage of him. It means a net saving of at least 10 per cent of the value of his products. If he was making money before, it means double profits now; if he was running behind, it opens a way for him to retrieve his losses and “get on in the world.”

I have talked of averages, and was tempted to say that, on the average, our western prairie roads are the finest on this green earth. It is true of nine-tenths of them, during nine-tenths of the time, but as to the exceptions, who shall compute their average? Of what profit is it to a man to have his team kick up their heels at their load, as they go prancing along over a couple of miles of smooth prairie road, and then plunge into unfathomed depths at a slough or creek bottom? And where is the satisfaction of knowing that there is another fine “trotting course” ahead, when one is hopelessly “stuck” for the night? So I shall not attempt to average the roads. The law of averages does not apply to them; for, practically speaking, the road is no better than its poorest portions; they are the weak links that measure the chain’s strength.

A good road is good when you need to use it, and the road that is “just lovely”—at times—when perhaps you have little use for it, but goes all to pieces when you need it most—well, that isn’t a good road; it is too much like a kicking cow or a balky mule. The road that compels the farmer to haul 50-cent wheat to market before the rain comes, or hold the crop until the next May, is not a good road. With us, the

next crop depends on having the ground well plowed early in the fall, before the heavy rains, and the road that stops the plows at that season, so it can be used, is not a good road for the farmer. While a road that will keep good, that will stand heavy teaming during wet weather—that is a good road. With such we should hear less about glutted markets, elevator blockades, and freight-car famines, and prices would not be demoralized as now, at the beginning of each marketing season.

Steam and electricity are said to be “distance annihilators.” So also are good roads; they bring the farmer into close proximity with his market and bring the farm in with him. They cause communities to touch elbows and make neighborhoods where, before, there was only isolation; they benefit everybody and they injure nobody.

The people in the West are trying to profit by the experiences of older States. They have escaped some of the obstacles in the way of good roads, but have found others no less formidable. They are not bound to customs hoary with age, and lacking all other virtues; and, although compelled to travel in ruts more or less, they do not live, move, and have their being in a rut. They welcome the new, if it has merit, and are not frightened at innovations. If they were to be “warned out” to work on the roads, I would not agree that the best team and the hired man would be kept at work on the farm, while “father” and the chore boy and the two lads from school, and the balky team, and the stags, and the rickety wagon, the old plow, the stone-boat, and the road-scraper were all sent to the front (an army of incapables); but each person, team, and implement to be counted as one full day, on account of the few short hours spent at “working out the road tax.” Why, as I remember it down in New York State, this meeting was the great summer event—an old settlers’ reunion for the grandfathers, a vacation for the boys, and the equal, at least, of Fourth of July and general training day.

One of the obstacles to good roads in the West is the result of over-kindness on the part of the Government and State.

Why the railroad lands, the school and university lands, the swamp, indemnity, and improvement lands, or even the surveyed Government lands, should escape the payment of taxes for the improvement of the roads bordering on them is something beyond my comprehension. I fail to see why any property that is benefited by roads should not help pay for them, and I believe that no property should be exempt from highway tax, no matter who owns it. These land grants to the railroads were selected within a limit of 10 miles—in some cases 20—on either side of the road. The circulars say “they are conveniently located near towns, and with good roads and bridges already built and leading from town directly past them to the flourishing settlements further away.” It is true; but those roads and bridges were built and maintained without expense to the State or to the corporations owning

these lands, and at a heavy burden of expense to the settlers miles away, who were forced to go back 10 miles or more to get a quarter section of land for a homestead. No one realizes the injustice of this policy more than the settlers on the frontier, who have built roads for the Government, the State, and the corporations as well as for themselves, and in order that they might not be hopelessly isolated from mankind.

Another obstacle out West results from the requirement that the road shall be laid out on certain lines; very often this forces them across sloughs and rough places that might be avoided if the law were more flexible. True, there are great benefits resulting from this system; but it is especially burdensome upon those who must build and maintain the roads in a new country. The system would be all the more perfect had it been followed in laying out the counties also. It is bad enough that great rivers should separate States and nations; it is abominable that creeks and rivulets should be chosen as boundaries to counties—lifted up and erected into formidable barriers, to separate the people on the right from those on the left. They come there together, relatives and friends, with a common purpose, to build up a community, and each willing to share its burdens and anxious to receive its benefits. They built up towns, mills, school-houses, and churches; built bridges and made roads, or started to do so, when a senseless law separated the one community into two or three, and forced each to seek new associations and a new political center far away from each other. The established towns that were centrally located are thus forced out upon the border; there is no longer a unity of purpose and interest; there is no authority that can cross the stream and levy and collect taxes, enforce municipal laws, or maintain order, and the roads are not the least sufferers. If natural features must be chosen for boundaries of any of our lesser political divisions, they should be mountain ridges or summit levels; certainly not rivers and streams that naturally draw the people together. Then natural business centers would be available for county seats, and the people of the valley would have light burdens and benefits, common interests, and a common destiny.

The great awakening, at this time, throughout the country on the subject of roads is most auspicious. When the people, by millions, get to thinking along certain lines about practical things we shall soon see something practical accomplished. The people are now thinking about the roads; action will follow; organization will follow; legislation will follow; wholesome reform will follow. Old ideas and methods not meritorious will be discarded—their “years” will not save them. Better methods will prevail. The science of good roads has been added to the people’s course.

Our farmers out West plant in the spring, harvest in the summer, vote in the fall, and attend school in the winter; their favorite school is the “farmers’ institute.” In nearly every Western State these institutes are being held each winter in the agricultural counties. They

are nonpolitical, nonsectarian, and free to everybody. The State pays the bills and furnishes a strong course of practical instructors, each a specialist in his line, to teach the science of improved agriculture. The entire management is in the hands of a trained superintendent, who maps out the work, arranges the course and programme, and keeps the force busy. Sometimes he has two or three institutes going on at the same time, in adjacent counties, and generally the largest halls are too small to hold the people. Not alone by lectures, but by practical illustration, by object teaching, by maps and diagrams, and by actual demonstration do they teach. Why not draw on the "farmers' institutes" for effective teaching in the science of road-making. I know of no agency so potent, outside of the public press, nor one that is so splendidly equipped, and that is so close to the people who ought to be reached.

I bring a word of cheer from the Northwest. Next week, in my State, there will be held a great convention—a State league for good roads—and it is of so much consequence that our State legislature has already appropriated \$1,000 to help pay the expenses of the convention. This is an indication that our people are warming up, and I assure you that Minnesota and the great Northwest are with you in the cause, and that the National League for Good Roads can count on their loyal support.

On motion the convention adjourned to meet at 11 o'clock, January 18.

MORNING SESSION—WEDNESDAY.

The convention was called to order, Col. C. W. Johnson in the chair.

The acting secretary announced that he had received the following invitation from the National Board of Trade, then in session in Washington:

GEN. ROY STONE,

Acting Secretary for the National League for Good Roads:

MY DEAR SIR: It affords me pleasure to notify you that the National Board of Trade, now in session at the Shoreham, has by unanimous vote extended to your officers and executive committee the privilege of discussion during the consideration of subjects 30, 31, and 32, relating to the improvement of roads and highways.

Yours, very respectfully,

HAMILTON N. HILL,

Secretary National Board of Trade.

The above invitation was accepted, and after discussion the National Board of Trade adopted the following resolution:

XVI.—PUBLIC HIGHWAYS.

Resolved, That the National Board of Trade recognizes the exceeding poverty of the country, even amid riches, in the universally deplorable condition of its public highways, considers the same a positive obstruction to progress and an exhaustive extravagance, and favors every measure, far and near, that will tend to remedy this evil.

The resignation of Samuel W. Allerton, of Illinois, as member of the executive committee, was accepted, and August Belmont, of New York, elected in his place.

REPORTS OF COMMITTEES.

The committee on resolutions reported favorably the following:

RESOLUTION OFFERED BY DR. RIPLEY, OF NEW JERSEY.

Resolved, That in the judgment of this convention, concurred in by the officers of the league, the cause represented by us, to wit, the improvement of the public roads of the United States, has been promoted by the press of the country more than by any other agency. That we hereby express our full appreciation and tender our thanks to the editors and management of such journals as have enlisted in the cause, and ask for their continued coöperation and aid, together with the sympathy and support of the press of the entire country.

Resolved, That it is the sense of this convention that the business of road-building and maintenance in the United States, whether under State or local auspices should be done with a view to deriving the utmost good for the whole people for every dollar raised by taxation upon the people; that as far as possible scientific methods should prevail and the business of road-building be separated from partisan action—in other words, that it be put on a practical instead of a political basis.

RESOLUTION OFFERED BY CHARLES A. WILLIS, OF NEW YORK.

Resolved, That this is a league for good roads, pure and simple, affiliating with no political party, but pledged to oppose any one opposed to legislation in favor of good roads.

RESOLUTION OFFERED BY MAJ. HENRY E. ALVORD, OF VIRGINIA.

Resolved, That the colleges of agriculture and mechanic arts in the several States should make a speciality of thorough instruction, scientific and practical, in the construction and maintenance of good roads; and also

Resolved, That investigation, test, and popular demonstration of the value of road-making material in various parts of the several States and of improved road appliances, are proper and desirable subjects for the Agricultural Experiment Stations, supported by Congressional appropriations.

Resolved, That the convention indorses, as a most practical method of using the valuable maps of the Geological Survey, the bill introduced by Hon. P. S. Post, of Illinois, entitled "A bill to promote the improvement of roads," which authorizes the Director of the Geological Survey to extend the scope of the topographic surveys so as to include the collection of information in regard to the improvement of roads.

The bill reads as follows:

A BILL to promote the improvement of roads.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Director of the Geological Survey be, and he is hereby, authorized to extend the scope of the topographic and geological surveys now being prosecuted under his direction so as to include the collection of information in regard to the improvement of roads, indicating the most available routes for permanent highways, having reference to distance, grades, and economy of construction, and noting the location of materials suitable for use in construction, and such other facts as will tend to promote the adoption of improved system of roads by the several States and Territories.

SEC. 2. That such information shall from time to time be published in reports, and so far as practicable be indicated upon the maps published by the Geological Survey, or upon maps supplemental thereto.

RESOLUTION OFFERED BY DR. RIPLEY, OF NEW JERSEY.

Resolved, That the members of the Convention of the National League for Good Roads tender to Mr. John F. Chamberlin their sincere thanks for his hospitality and liberality in providing the excellent rooms which he has for their meetings and deliberations during their stay in this city, and which he kindly consented to do in the cause of good roads without compensation.

Resolved, That the executive committee of the National League for Good Roads be authorized and instructed to file in the Department of Agriculture for publication in pamphlet form the proceedings of the convention during this session in the city of Washington.

RESOLUTION OFFERED BY EDWARD W. DEWEY, OF NEW YORK.

Resolved, That this convention desires to place on record its sense of the importance of the offer made by Major Sanger, on behalf of the Secretary of War and major-general commanding, of the cordial coöperation and assistance of the military authorities of the nation, and commend this offer to the attention of the executive committee and the committee on legislation in order that the same may be availed of.

Resolved, That a meeting of the general board of the National League for Good Roads and a delegate convention of the State, county, and district leagues organized up to that date, be held in Chicago on the first day of May, or as soon thereafter as practicable, at the call of the executive committee, for the purpose of revising the constitution of the National League and creating a permanent organization.

Resolved, That the committee on the revision of the constitution report at that meeting, and that the executive committee of the National League prescribe the method of representation of the various subordinate leagues.

RESOLUTION OFFERED BY JOHN A. C. WRIGHT, OF ROCHESTER.

Resolved, That the committee on the extension of the league suggest the following resolution:

Resolved, That this convention recommends that the State boards of the several States be formed as rapidly as possible, and so soon as formed these boards meet at some convenient time and place and map out such definite actions for the spread of this league and the increase of road reform in their State as seems best to them, and, if possible, unite upon some comprehensive plan for road improvements suitable to the conditions in their State for agitation in their State, county, and local leagues, and to further road legislation upon definite lines as far as possible.

The committee on legislation recommended as follows:

(1) That the application be made to Congress for a charter for the league, and that in the meantime an organization be made under a charter from one of the States, this organization to be merged in the national company when the same is incorporated.

(2) That an appropriation be asked of Congress substantially as follows:

To enable the Secretary of Agriculture to make a general inquiry into the condition of highways in the United States, and the laws and methods for their improvement, and to make reports thereon, \$15,000; and that to aid in making said inquiry and reports a national highway commission may be appointed by the President, composed of six citizens, who shall serve without compensation.

(3) That a resolution be adopted as follows:

Resolved, That this convention of the National League for Good Roads, representing delegates from twenty States, requests of Congress that a large number of the Con-

sular Report on roads in foreign countries, published by the Department of State, be printed for popular distribution, and that a copy of this resolution be transmitted to the President of the Senate and Speaker of the House of Representatives.

The committee on finance reported as follows:

That each State league shall pay to the treasurer of the National League for Good Roads, in quarterly or semiannual payments, as may be most convenient, a sum equal to one-half of its annual receipts from dues and contributions, but in no case shall the contribution of any one State exceed a total sum of \$500 in any one year.

That such moneys shall be used by the National League for the publication and dissemination of literature;

For the payment of a salary, not to exceed the sum of \$200 per month, to a secretary;

For the payment of such clerical and other labor as the executive committee may from time to time approve;

For the rent of offices; and

For such other purposes as the executive committee may from time to time think proper.

But under no circumstances shall a salary or other emolument be paid to any officer of the National League, the secretary, as above, excepted.

It is suggested by the finance committee that, to meet the pressing necessities of the league, the members and friends of the National League for Good Roads be requested to use their utmost endeavors to solicit and collect contributions for the use of the league, and to forward the same to the treasurer.

The committee on exhibit at the Columbian Exposition reported as follows:

Your committee, which was appointed for the purpose of considering the advisability of an exhibit at the Columbian Exposition at Chicago, beg leave to report that they have had the matter under consideration, together with the many objections thereto, and recommend that the Committee on Agriculture be requested to formulate and report to the National House of Representatives a bill carrying an appropriation of \$50,000, to be made by the National Government, for the purpose of creating and maintaining an exhibit of roads and road machinery at the Columbian Exposition, and providing means of instruction in the science of road-building during the term of the Exposition. And, further, that the members of this association who are appointed to address the Committee on Agriculture, at their special meeting to-morrow (January 19), be instructed to lay this subject before said committee and urge its adoption.

The following resolution was referred to the executive committee:

Resolved, That a recognition prize of a life membership be offered by this association for best essays of not over ten octavo pages on the following points: Best methods for making and maintaining high-class suburban roads where a fair amount of money can be used. For second-class rural roads where a limited amount of labor is obtainable; for roads where muck and low grounds are encountered; for roads where hard soil only is to be utilized; for roads where gravel is to be utilized; for roads where stone is to be utilized; and that the accepted papers be published as association tracts.

The resolution looking to national aid, offered by James E. Clements, of Virginia, having been reported unfavorably by the committee on resolutions, who advised that it be not acted upon, was laid on the table. The resolution reads as follows:

Resolved, That a committee of ten be appointed by the chair to form a bill to present to the Congress of the United States authorizing national aid in the building and maintaining of county roads throughout the States and Territories of this Union.

And be it further resolved, That the president of this association shall be chairman of this committee, and that this committee shall push its work until further orders from this association.

Col. Richard J. Hinton, consulting irrigation expert, of Washington, D. C., here asked permission to say a few words, which was unanimously granted. Col. Hinton's remarks were listened to with marked attention and were warmly applauded. He spoke as follows:

COL. RICHARD J. HINTON'S ADDRESS.

Mr. Chairman: Will you allow me, a stranger to your league, but deeply interested in its purpose, to make a brief reference to the resolution before you? I shall not take much of your time.

I am interested, sir, in the arguments made for, and the objections against, any aid or interference by the General Government. For myself I believe, not in paternalism, but in coöperation. We are still a government, for, by, and through the people. I call the attention of those who oppose the resolution for an inquiry by the Department of Agriculture, on strict construction grounds, to the fact that the Constitution of the United States provides for the General Government's supervision and construction, too, of national highways, postal, military and wagon roads, and so on. Canals and railroad systems, too, have been the recipients of vast bounty. We have given for such building a land empire of not less than 200,000,000 acres of land. We have loaned the credit of this nation also to the extent of nearly or quite \$100,000,000. I am not afraid, sir, to spell nation with a capital "N," even in the matter of road-making, because I am fortified by all the precedents. My personal experiences and observations run back to antebellum days, and I recall serving with road-surveying and road-making parties in the great West whose labors were paid for by the General Government. I am sure that I am well within the facts if I say that before the civil war began, and under strict construction administrations, this nation spent in the laying out and construction of highways, and in the surveying of routes for railroads, several million dollars. It was good money well spent. Our friends need not be alarmed. The paternalism that leads to the more complete knitting together of the many communities that go to make up the American people is one to be encouraged. It is one of coöperation with, not command over, them. This resolution, as I understand it, aims only to gather and publish information; it does not seek to interfere with or control.

There is another point to which I will briefly refer ere I sit down. We are all made aware of widespread agricultural discontent. We hardly need be reminded that American history shows that such discontent has always been a portent, suggesting political changes and economic reconstructions. I am not going into these, but to call the attention of the National League for Good Roads to one important cause

of this discontent. That is, bad roads. For the past thirty years or more we have aided, governmentally, economically, and individually, the advance of the city—the growth of the town and business center. Every rural community off of main lines of travel has been subordinated and depleted, impoverished of its youth and its prosperity by this development. Above all, the roads—“those arteries of the country,” as Lord Bacon termed them—have been utterly neglected. We have the worst highways in the world of civilization. My work of the past few years in the study of irrigation has compelled me to learn how vital is this matter of roads. Hence, the National League for Good Roads has a high economic mission embraced within its bounds. It may, it must indeed, become a very important auxiliary in the rehabilitation of the economical welfare of our farming population.

So you see, sir, that my two points dovetail together without friction; the rightfulness of inquiry and its conduct by the General Government, and the economic advantages that good roads will surely bring, especially in the allaying of class discontent and agricultural decadence. I thank, you, sir, and the league for the courtesy you have accorded me.

The Hon. J. M. Rusk, Secretary of Agriculture, who had entered the meeting a few minutes before, was then invited to address the convention. The Secretary spoke as follows:

HON. J. M. RUSK'S ADDRESS.

Mr. Chairman: I received your invitation to appear before you yesterday just as I was leaving for a meeting of the Cabinet, which manifestly made it impossible for me to respond in person. This morning I received your renewed invitation, and I am most happy to be present and participate for a short time in the deliberations of a convention made up of distinguished representatives from so many States of this country. One of the most important questions now filling the public mind is the improvement of roads, and when I speak of roads I mean, as doubtless you also do, the common roads of the country. As a rule, the cities and the populous towns will consider this question as it relates to their own interests without any material suggestions from any source, and this movement, so far as it may receive a national impulse, must relate chiefly to the country roads. How shall the farmers, the great body of the agricultural population, be benefited? How shall their minds be inspired with a feeling of the great importance to them of improved roads? How shall the public sentiment in the rural districts be educated in the best methods of using the resources at hand to improve the means of transportation of their products to market? The U. S. Department of Agriculture is in full sympathy with this movement. It ought to be, as the national representative of the agricultural interest. A dollar saved in transportation is a dollar

added to net production. What shall the farmer do with his surplus product, and why raise this surplus, if his way to the outside world is barred by impassable highways or obstructed by obstacles which increase threefold the expense of realizing the fruits of his industry? Can we enlighten him by showing him a better way of expending the taxes levied upon him for the improvement of his roads? Can we show him such a system, well driven home with clear persuasion and positive assurances, as will induce him to take hold of the subject with energy? I believe that the time is ripe to submit this matter to the intelligence of the American public. There should be a unity of interest between the city and the country. The city is almost as much interested in getting good roads as the country itself. To the country it means enhanced net value to country products; to the city it means a greater variety and no essential increase in cost to the consumer.

No one man can improve the highways of a neighborhood. All must act together in behalf of their common interest, and people in yielding something to the common interest will in the end by intelligent coöperation and systematic methods be the recipients of benefits far beyond any possible results arising from discordant and uncompromising individual demands. Every person must be brought to see this and be induced to yield his individual interest to a wider range of road improvement, and to a single system wider than the horizon as seen from his own doorstep.

This movement is by the people and for the people. These improvements can not be made and ought not to be made a Government affair except in so far as the Government may be charged with the duty of collecting data and disseminating information. Without question, the points referred to by Col. Hinton have great force, but essentially this work is to be done by the people in their respective communities.

I have but little more to add in the few minutes I can possibly spare from my official duties, as I have received a message which calls for my immediate departure. I hope for successful results from this inaugural effort to bring to national notice this great subject. I assure you of my hearty coöperation so long as I may act in an official capacity and my most enthusiastic indorsement as a citizen of your efforts as citizens of our common country.

Gen. Stone then asked permission to read a communication that had just been delivered to him, by special messenger, from the Hon. William H. Hatch, chairman of the House Committee on Agriculture, which reads as follows:

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES, U. S.,
Washington, D. C., January 18, 1893.

Gen. ROY STONE,

General Vice-President and Secretary:

SIR: Replying to your kind invitation to attend your conference at 11 a. m. of this date, the Committee on Agriculture are compelled to decline on account of lack of time. At some future time we hope to be able to attend; and at to-morrow's ses-

sion at 11 o'clock the committee by unanimous vote extend an invitation to representatives of the National League for Good Roads to be present and present the matter in any way they may deem proper.

Very respectfully,

W. H. HATCH,

Chairman Committee on Agriculture.

Mr. Oberlin Smith, of Bridgeton, N. J., was next introduced, and spoke as follows:

MR. OBERLIN SMITH'S ADDRESS.

Mr. President and gentlemen: Although taken somewhat unawares, I thank you for inviting me to speak upon this very interesting subject of good roads—a matter that for a long time I have believed to lead all other national material reforms. Just now I hardly think we realize the enormous importance, as a practical working measure, of doing something at the Chicago Columbian Exposition for the education of the people at large in road-making. Not for a generation will happen again so good a chance to show the truth to so many people, especially the very class we want to influence the most, the Western people. These have really more vital interest at stake than we of the East, because of their newer roads and muddier soil. This league, therefore, it seems to me, ought to do something immediately to secure to Exposition visitors the benefit of definite practical instruction at Chicago. As pertinent to this view of the subject, I will ask permission to read a communication recently sent by me to the New York Tribune, which is as follows:

AN OBJECT LESSON IN BAD ROADS.

To the editor of The Tribune:

SIR: In view of the great and well-deserved interest which the subject of improved public roads is now exciting throughout the land, and assuming that a special exhibit is likely to be shown at the Columbian Exposition, not only of various road vehicles, but of short sections of the roads themselves, it is to be hoped both very bad and bad, as well as indifferent and good, I write to suggest that an additional object lesson be given to the numerous and interested crowd of visitors who will see this exhibit, as follows: Over the various sample pieces of roads which will be shown (consisting presumably of asphalt, Belgian, macadam, telford, cobble, wood, shell, gravel, sand, loam, mud, deep-mud, and hub-deep-mud pavements), or at any rate over a few of the most characteristic of these, let there be drawn vehicles of one or more kinds, as loaded farm wagons, light market wagons and buggies, by means of a pulling apparatus which will show the actual number of pounds draft necessary to propel them in a horizontal direction. Such a lesson as this, with the number of pounds pull actually registered upon a large dial before everybody's eyes, would do very much to convince the public, and especially the farming public, who are the most interested in the matter, of the enormous decrease of required propelling power to be obtained by road improvement. This lesson would far surpass all the still-life exhibits and all the literary matter now published, even if it were increased a thousandfold, and would be instrumental in doing a vast amount of practical good. Regarding the details of the above-mentioned apparatus it is not necessary now to speak. They are, however, but a simple matter of engineering.

The question as to who will install and conduct such an exhibit as has been here hinted at is an important one. It would be a very proper function of the Agricultural Department of the United States Government. This failing, could it not be done by a national road improvement society or bicycle association?

OBERLIN SMITH.

Bridgeton, N. J., November 29, 1892.

I have no information in regard to what is actually being done at Chicago, but should be glad to hear from any of your members who have knowledge upon this point. One thing is certain, that if anything is to be done it must be done quickly.

In regard to the value of object lessons in general, I think there can be no question. A little instance in my experience supporting this proposition occurred only a week or two ago in the little city of my residence, where I had the pleasure of turning the vote of our municipal council upon the subject of allowing T rails to be laid for a street railway in our main business streets, the verdict changing from unanimously favorable to a considerable majority adverse to such obnoxious road pavement. The still-life part of this object lesson consisted of short pieces of several kinds of rails mounted upon sections of real ties in different ways, and laid upon the council table under the noses of the august lawmakers. The panorama began by my rolling a small car-wheel in the way it should go, and then a real buggy wheel was slipped into the terrible rut at the side of the T rail. Its difficulty in getting out was explained, and then a smashed up buggy wheel (borrowed of a friendly wheelwright who was repairing a runaway) was exhibited as the result of getting out, on the "horrible-example" principle, or somewhat on the order of the "before-and-after" pictures of the quack doctors. I mention this little occurrence with a purpose, to give point to the great importance of reforming a bad road, or any other bad thing, by showing up its badness with practical models, as well as its goodness after it is reformed. We must therefore show, among other kinds, the most awfully bad roads possible. We must pull over them some very bad vehicles (for are we not wagon as well as road reformers?) and also some very good ones, with wide tires and varying gauges fore and aft.

In regard to the engineering aspect of the exhibit, each specimen of road should be considerably wider than a wagon, and rounded up in the middle to give proper drainage toward the sides, etc.; also of sufficient length to properly test its general qualities, as well as to give time for the power-measuring apparatus upon the wagon passing over it to adjust its reading to its new conditions and stay at such reading long enough for observers to note the amount. I have not calculated what minimum length would answer, but roughly speaking should say probably 25 to 50 feet.

It is obvious that these short pieces of road should be placed in contact, end to end, so that the pulled vehicles may pass with a continu-

ous motion over different kinds in succession. On general principles, the resulting composite road should be in a straight line, the only objection to this being that the vehicles would have to be turned around at the end thereof and brought back, either over the same path, or over another succession of specimens, or over an ordinary road. This would be in order that experiments might be repeatedly tried, over and over, for new sets of observers.

It is possible that a circular roadway would be better, so that the vehicles could be run continuously around upon it during the specified hours of the power-testing exhibit. The curvature of such a road would probably not be objectionable if the circle was of large diameter. If quite small, however, it might be difficult to properly steer the vehicles in the middle of the track. The question between a straight single road, a straight double one with one side for return, or of a circular one must very likely be decided by purely practical conditions, dependent upon the ground space that shall prove to be available. After this has been allotted the general construction can be planned to suit it.

In regard to the kind of traction motive power used, we may perhaps, in the case of a straight road, choose between an endless traveling cable to which the vehicles could be temporarily attached by a grip, something after the manner of a cable street car, and a small locomotive running upon an adjacent parallel track, from which an arm could project whereupon to hook the vehicle to be tested. A third method of a rope or chain wound upon a drum for direct pulling is practicable but not convenient, as it would have to be unwound to get it ready for the next pull.

In the case of a circular track, a cable or a rope upon a windlass would not be available, but a locomotive upon a circular track could be used, or a long radial arm could extend from a vertical slowly revolving shaft in the center of the circle, something after the style of the framework of a merry-go-round. In this case several different vehicles could be tested at one time if desirable. This apparatus might be somewhat more expensive than in the other cases, but it would certainly be convenient and quick acting, as well as continuous in its motion. Obviously a high-speed steam engine or electromotor would drive such a slowly revolving spider smoothly and powerfully, by having a worm upon its shaft gear into a worm gear of large diameter attached to such spider; or, if found desirable, this worm gear might be upon a vertical intermediate shaft whose pinion should gear into a large segmental spur gear upon the spider. Numerous other methods, and perhaps better ones, would doubtless occur to the designers of this apparatus when all the conditions to be met were known.

My friend at the other side of the room asks me why it would not be better to use horses, or the conventional Western farm mule, for pulling the vehicles instead of any mechanical apparatus whatever. I had

thought of this, but have not fully made up my mind whether upon the whole it would be best. It has the advantage of simplicity, and also the decided advantage of showing the farmer a method of traction with which he is familiar. He would also be able to see the approximate tension upon the muscles of the beast, as well as the reading upon the dynamometer, especially in cases where the deep-mud test was being made. On the other hand, it seems to me that in case of very light traction, such as upon asphalt roads, etc., the power saved would not be so apparent to the observer, as he would see a horse drawing a vehicle which could really be drawn by a dog or a child. Possibly, however, this objection could be remedied by having dogs, goats, or small donkeys to draw comparatively heavy vehicles over some of the smoother pavements, so as to illustrate the enormous advantage to be gained thereby. I may perhaps have exaggerated the importance of mechanical pulling devices from mere force of habit, as to us engineers reading upon a dynamometer dial tells a truer story than do the positive or negative struggles of the farm mule.

An important, but not very expensive, part of the apparatus will of course be proper dynamometers, located between the vehicle and the power which pulls it, and showing a reading at any given moment of the actual pounds of horizontal pull. I have not had occasion to make myself very familiar with these instruments, but know that they can be bought with small dials, in the open market, and at a low price. It would of course be necessary to have some very large dials, perhaps several feet in diameter, constructed and operated from the mechanism which now works the index hand upon the small dial. These should be graduated in large, plain figures, with strongly contrasting colors, and should preferably be mounted high upon the vehicle, facing sidewise therewith, so that a large crowd could see the readings over the heads of people in front of them.

In regard to Government work in general, I am a strong believer in Government money being spent for tests and object lessons of this kind. No better investment of the people's money could be made than one like this, which would give a maximum of popular education for a minimum price, and would give it in a thorough and impartial way that could not be so well and so scientifically obtained by private parties, who might be pecuniarily interested in different kinds of road material, testing machinery, or vehicles. If my word could settle the matter, I should very quickly vote for an ample Government appropriation to cover the whole exhibit, not only of the vehicles and pulling apparatus, but of the road material itself, the manner of putting it together, and the finished result. There should of course be specimens of unfinished road pavements in various different stages of construction. Probably this can be arranged at one side of the finished road, the different stages running off by gradations from the perfected work to the primitive part thereof.

In conclusion, I do not wish to magnify the importance of such pulling tests as are above indicated over what has already been planned in the way of showing the roads themselves, which of course are the most important to exhibit, provided the money can not be raised to procure both. Where this money will come from is of course as yet unsettled, but it can do no harm to agitate the subject and get all the help we can from every possible source.

Judge E. H. Thayer, of Clinton, Iowa, was next introduced, and spoke as follows:

JUDGE E. H. THAYER'S ADDRESS.

The National League for Good Roads, though only temporarily organized, stands to-day as the medium for reaching grander and more beneficial and more enduring results to the country at large than was ever conceived by any other association of individuals which has had an existence on this continent. The work undertaken by the league is as vast as the country is great. Yet its power to accomplish any part of the stupendous work before it is insignificant, except as it is supported by the people interested in good road-making. This league is formed for the purpose of being made the nucleus about which the intelligent consensus of thought of the men who are studying the good-road question may be brought, and thus the first and most important step in the way of the best and most practical way of building roads be obtained.

It is far from surprising how few people in all this broad land know how to make a good road. While an hundred years of road-making have made less than an hundred good road-makers, the wonder is, that there are so many. Now and then some genius who would excel in anything and succeed anywhere and bring order out of chaos, even if he had to make the chaos first, has made a stretch of good road. But the failures are counted by the millions. Every road district in the land has as many failures as there are miles of road. And things are growing worse. As a rule, the roads are not as good now as they were thirty years ago. The brain and muscle of the unskilled road master have been squandered in fruitless efforts to make something useful without knowing how. And why should he know how? Road-making is as much a science as railroad building. Because a railroad goes in front of a man's farm is no reason that the farmer should be expected to know how to build railroads. No doubt that persons who have undertaken the road-making of the nineteenth century have done as well as they know how. With the going out of the century which has given birth to more improvements enhancing the comforts, happiness, and pleasure of mankind than can be given to the credit of any other century, let us hope that intelligent road-making shall not then be found in the catalogue of the lost arts.

We all know a good road when we see it and ride over it, but very few know whether it is the best road that could be built for the money. We know that it is easier for a team to go around a hill, even though the distance is increased, than to pull a heavy load up the hill and hold it back down the hill, but few know to what extent it may be economical to grade through the hill. Everybody understands that the worst piece of road from the farm to the market gauges the weight of the load. The chain is no stronger than its weakest link. If a team can haul 50 bushels of wheat as far as the slough or the steep grade, and can haul only 25 bushels through the slough or up the grade, the load taken to market will be only 25 bushels. The man who lives between the slough or the steep grade and the market place has the advantage of one-half in marketing his produce over the other man. The model road is the one on which may be hauled to its destination the same load that leaves the granary.

The problem involves the number of teams and the weight of the loads that will go over the roads in a given time as well as the distance and time saved. This problem is for the skilled engineer to solve. The most of us know that a stone road is the best kind of a road, taking the year round. But we don't know how much stone ought to be used—whether the foundation should be 8 inches, 6 inches, or 4 inches, nor just how much binding material is essential, nor the best kind. Then there is the matter of sand—treacherous, troublesome, contrary sand. Sand is cheap and may be found almost everywhere. But sand is as difficult to haul loaded teams through as mud—yet sand is an important material to put into roads and mud is ever to be discarded. But how much sand? That again is the question for science to answer.

Then comes the grade. What shall it be? How much to the 100 feet? The width of the stone road is a vexed query. To determine it the question of the amount of traffic to go over it, of the distance the business along the road would be tributary to a city, the population and the extent and nature of the business of the city, and other items, all having something to do with an intelligent conclusion, must be obtained. And all this is the mission of the engineer. The character and extent of the drainage necessary, the best place to put it and what to do with the water, the width of the tires of the rolling stock that will use the road, how many hundred pounds to the inch of tire, and the things hanging about these subjects, are all matters for the skilled engineer to determine. Very many of these problems are unsolved. Opinions upon all of them are plenty, but they differ, and differ on essentials. No doubt a congress of skilled engineers, parcelling out different problems to different schools of science, would result in the most complete information upon all these points, and when all are grouped together, then we would have the perfect road.

No matter whether the system presented by the engineers approaches the telford or the macadam, the Roman or the French, we will have an

American system, because it will be the combined wisdom of the engineering skill of America, and no one need fear but it will possess the merit of all other systems, will avoid their defects, and be as near perfect as human intelligence can reach.

With a system established which shall commend itself to the public, then may follow practical road-making. But if out of the agitation of this question, which finds advocates and champions in nearly every household in the land, there is to come extensive road-making, there must also come an abandonment in the manner of the local methods of building and maintaining roads. With the genius of our engineers to lean upon, pieces of good road here and there may be built and become the pride and glory of the enterprising people who build them. But this great uprising is not local. It is as broad as the continent and foreshadows the grandest moral and physical revolution that ever aroused a civilized people. It means a nation stirred up from center to circumference. Such an upheaval must not bring forth a mouse. If the outcome should be a few miles of good road here and there, failure would be written all over the land, and instead of a revolution it would be but the boom of the pop gun and the shame of the nation. It means farewell—a long and eternal farewell—to rivers of mud that men call roads, and in their stead a track over which the traffic of the continent shall glide as smoothly as the ship sails across the sea. If the multitudes are counting on anything else it needs more and different education.

It may be that a higher education in road-making is essential to a proper comprehension of the movement which is covering the land. But I can not believe that is the case. Never since the foundation stone of yonder Capitol was laid has there been any long-continued period, but object lessons in bad road-making were as familiar to the person who walked or drove a team as is the plow to the husbandman. Those object lessons exist to-day all over this broad land, in front of every farmer's door yard, and they keep him company on every journey he makes to the village or to the church; they stare at him with a ghostly glare when he takes his dead to the burying ground, and his little children trudge homeward from the school house with those lessons the most impressive of all they learn.

I believe the education is complete. Every man has his fill. He has drank deep at the fountain of that kind of knowledge. Now he is prepared for reform, and if he is ready to get out of the rut as well as the mud, this earthquake which is waking people up will keep them awake until the good roads become object lessons that put the finest paintings in the shade, and the bad roads become forever obsolete.

The education complete, then comes practical road-making. What is it? How is it done? I am confident that to carry on road-making on an extensive scale as would be wise or prudent will not require an increase of taxation. The average taxpayer has a greater horror of

adding more taxes to his burthens than he has of adding to his roads more mud. He will be an enthusiast in favor of better roads; he will take a front seat at road meetings and applaud every reference to road reform, but when it comes to suggesting more taxes he feels like rising up, taking his hat, and hunting a little fresh air. He is no longer in it. He wants to be counted out. Nor do I blame him. Not that taxes are unreasonably high, considering the blessings and advantages the people derive from the institutions of the land, which must flourish to a certain extent by means of taxation, but in this matter of good-road taxes he has gotten into a rut and nothing so nicely fits the wheel as the rut, and unless there is something just as good, without additional time, trouble, or expense to reach it, he prefers to jog along in the old groove to the end of the chapter or the road. But fortunately the taxpayer can throw up both hands for road improvements and enter the arena of road reform with his coat off and his heart and hands earnestly in the work, and be satisfied without a scruple of doubt that the better roads the whole country is advocating may come with taxation reduced rather than increased.

I do not believe it is practical to make good roads in conformity with the advanced ideas of the day without a change of base. For three quarters of a century we have been trying to make roads that way, and each year the mud gets deeper.

Not only must there be a radical change in the manner of paying road taxes, but the money thus paid must be expended in a different way. The local method of building roads must in a great measure be abandoned. The next generation must be asked to help bear the expense of building the roads which the next generation will enjoy. To do this the road taxes need not be increased, but use the taxes to pay the interest on loans for money advanced to build good roads economically and on an extensive scale.

Construct roads on the same plan whereby the great enterprises of this land have been built up. If it is thought the best policy to limit road-building to a county and not make the State the chief factor, provide that all the road taxes shall be paid into one treasury and, instead of being used in the repairing of the roads already built, devote the larger portion to building permanent roads and the rest to repairs. If there should be a prejudice in any county against borrowing money on long-time bonds at a low rate of interest and spending the money as rapidly as it can be done to advantage, and using the taxes to pay the interest and creating a sinking fund to pay the principal when due, then adopt a plan for building, with the annual taxes, a certain number of miles of good road every year. Different communities will have different views as to which policy it is best to pursue. But it is well enough to bear in mind that the larger number of the great improvements in this country have been brought about on borrowed money. One man never undertakes to build a railroad. For one man, or even one com-

munity, to undertake to build so much of a railroad as runs through his or its school district would be a slow method of building trunk lines of railroads. It might be done that way in time, but railroads have not been constructed in that way. The vast railroad system of this country is the work of the ablest financial geniuses, the best skilled engineers, the most successful business men the century has produced, and I believe that to-day, without loans on bonds, there would be less than 20,000 miles of road where there are 200,000 miles. Other great industries conducted on a colossal scale, and which are the pride and boast of the nation, owe their success to a combination of purses advancing money to be repaid in the future.

The rich treasures of the earth are brought from great depths to minister to the comforts of mankind by the multitude putting their money and their brains together and making investments which no one individual cares to do. The immense resources of this country have been and are being developed by the coöperation of men using their money jointly for common purposes. I believe that the practical plan of road-making is to follow in the tracks of men who have taken giant enterprises out of the line of experiments and made them giant successes. So it is no unexplored field I take the public into when I ask it to enter upon a system of road-making that shall equal any undertaking in which the country has ever engaged, not excepting the building of nearly 200,000 miles of railroad.

With the work undertaken on a large scale, the railroads will become an important factor in road-making, as it would be to their interest to haul the material at the cost of the service. The prison labor could be utilized, because it would pay the State to put the prisoners at work at such places where stone quarries were extensive, or at points where stone in the rough could be delivered at nominal cost, and make them central points from which the railroads would distribute the broken stone into sections of the State where there are no such quarries.

It is practical road-making to let the work to contractors who are provided with the necessary machinery to do the work to advantage. It is not practical road-making, no matter if money flows as freely as water, to make roads with a plow and scraper, expecting the traveling public to do the rest.

Western cities are engaged in a general system of paving streets. They could not do this in any other way than the issuing of improvement bonds to run several years. The burden falls lightly on the shoulders of each property owner, and the cities have the use of the paved streets years in advance of the all-cash-down system.

But the cities are as much interested as the country in good roads, and they are willing to bear a share of such improvements. In order that they should have an opportunity to help on the work, the State should all the more contribute a certain amount for each mile of standard road built, to be paid out of the general fund.

This league undertakes to arrive at the most practical plan for spending the \$60,000,000 annual road tax of this country so as to secure the best possible results. If it shall be successful in devising a comprehensive system so practical that it shall commend itself to the whole land, the league will have accomplished an amount of good which can not be measured by dollars and cents. When it is considered that at least \$250,000,000 are annually contributed to bad roads, which amount is a dead loss to the country, one can begin to realize what is meant by the universal demand for good roads. That this league may be equal to the task it has undertaken should be the wish of every American.

Judge Thayer handed to the secretary a letter which he had lately received from the president of the Burlington, Cedar Rapids and Northern Railway Company, which reads as follows:

[Office of Burlington, Cedar Rapids and Northern Railway Company, C. J. Ives, president.]

Hon. E. H. THAYER, *Clinton, Iowa*:

My DEAR JUDGE: The copy of your paper of Friday, January 13, has more good meat in it to the square inch than any newspaper I ever saw. I most sincerely hope that the agitation which is now going on all over the country, in the interest of good roads, will be kept up until the desired result is reached and we have good roads instead of the quagmires of last spring over which to do business. In conversing on the subject with various gentlemen I have met from time to time the general demand has been for some plan, that shall be a feasible one, to accomplish the result looked for. I have studied the matter somewhat, and it seems to me that a plan something like the following could be adopted and accomplish the desired result:

First, all road taxes should be paid in cash, and a certain portion of this fund should be appropriated for the payment of interest on a sufficient amount in bonds to furnish money for the practical construction of a given number of miles of good road. The authority for this issuance of bonds should be granted by the legislature, and the bonds should be issued for each county. If, as stated in your address, this money could be procured from the Government at a very low rate of interest provision could be made for a sinking fund, otherwise let the counties do as the railroads do—issue a long-time bond at as low a rate of interest as possible, and when due replace the bond with another at a perhaps lower rate. Railroad companies pursue this method of obtaining their funds, and never expect to pay off these bonds. So long as the amount of taxes is not increased the taxpayers in each county have no added burden, and have the use of good roads instead of, as now, squandering their taxes in vainly striving to improve the roads and on such a wrong principle as to tend to make the roads worse even than they would be naturally.

The money having been raised in this way, an engineer should be employed by the county, who, with the supervisors, should select the piece of road to be operated on, go over the whole ground carefully, and improve it according to the kind of material applicable for such work that can be most easily obtained. This will vary, of course, in every county in the State, and should be done not only scientifically and intelligently, but on a basis of good, sound, common sense. Where the line of road passes reasonably near a deposit of gravel cover the roadbed with gravel. Some portions of the line may be convenient to stone quarries. In such cases use stone for the surface. Where neither of these is in reach and it is desirable to make a covering it can be done from burnt clay. The construction of the roadbed itself should be carefully done on scientific principles that it may be kept well graded. A highway is like a railroad in this respect—no water is wanted on the right of way, and the greatest care should be taken to keep it off when possible or take it off as soon as possible after it has fallen there.

These are some of the crude ideas which have occurred to me on this matter, and I see nothing insurmountable in the way of there being good roads through the country instead of the quagmires which are now called roads. One good road built through a country would be an object lesson which every resident could see and appreciate, and the communities on every side would be greatly encouraged to improve the roads leading to this main road so as to have the benefit of it for themselves. I well remember, forty years ago, when Keokuk was the great market for central Iowa, a plank road was built from there to Charleston. I could start from the farm with two teams well loaded, go to the end of the plank road by noon, put both loads on one wagon and go into Keokuk much easier the last half than the first, sending the other team home, thus avoiding the expense of service of a man and team for one day and their expenses in town by the payment of a small toll on one team, and I assure you that no money was ever of greater benefit to me than the toll paid on this piece of plank road.

The subject is a large one, and any amount of good talk can be done on it, but perhaps the best way to emphasize the matter is for the friends of the enterprise to agree on some definite, clear, and not cumbersome plan, and not increase the burden of taxation of our country friends, who deposit the votes which will decide the matter one way or the other.

Good roads are of the greatest interest to railroad companies, and to this end we have for many years, instead of paying our road tax in cash into the county treasuries, hired this work out to practical road-makers, and, so far as possible, endeavored to have the work done on roads leading to stations. I regret to say it has not always pleased the supervisors, but we have persisted in this plan, and I am glad to report that in some sections of the country the roads have been very materially improved. We have also made donations in money to be expended for the building of bridges and the construction of difficult and expensive pieces of road at different points through the country.

Wishing you God speed in your great work, and assuring you of any assistance which I can give, I am,

Very truly yours,

C. J. IVES,

President Burlington, Cedar Rapids and Northern Railway Company.

Maj. J. P. Sanger, of the Inspector-General's Department, was a representative, by proxy, of William Cary Sanger, of New York, a delegate to the convention of the National League for Good Roads. The major, being called on, made the following remarks:

MAJ. J. P. SANGER'S ADDRESS.

Mr. President and gentlemen: I am not a delegate to this convention, but the representative, by proxy, of a relative, who is a delegate from the State of New York. I have taken advantage, however, of my temporary connection with the convention to bring the objects of the road league to the notice of the military authorities in Washington, and it affords me much pleasure to say that both the Secretary of War and the Major-General Commanding the Army are in full sympathy with this movement in behalf of good country roads, not only because of their great value to military operations, should they ever be necessary, but because of their effect generally, in facilitating intercourse in those sections where railroads and telegraphs are not relied on, as yet, for

communication. I have been requested by the Secretary and by Gen. Schofield to assure the convention of their wish to coöperate with all the means at their disposal, and to request the convention to point out to them in what way this can be done so as to best promote the objects of the league. Gen. Schofield has given the subject of roads much consideration, more especially those along our Canadian border, on both sides of the line, and fully appreciates their importance, no matter in what part of the country they may be situated. As you are doubtless aware, the Army has been for years the pioneer of Western emigration in this country, and by its marches and the posts it has built has been largely instrumental in determining the sites of our Western cities and the main lines of communication between them. They are still engaged in this work, and each year adds something to the general fund of knowledge on this subject through its marches and their itineraries. I have with me a few itineraries of recent date, to which I ask your attention, as they will show more clearly the character of the work that is done.

Accompanying these maps are explanatory notes, and together they give all the information necessary to a correct understanding of the route traveled. Many of these itineraries are sent to the office of the Chief of Engineers, where they are used in the amplification or correction of existing maps. It has occurred to me that were these itineraries printed and distributed to the small communities of the West, where most of the marching is done, it would promote an interest on the subject of roads not hitherto felt. It is my belief that the intelligence and experience of the Army can be made a valuable auxiliary in the establishment, of good roads, and I am quite sure from what the military authorities have said that they would be glad to use them for that purpose.

Dr. Chauncey B. Ripley, of New Jersey, was then called upon by the chairman to address the convention. The subject assigned him was "How good roads were obtained in New Jersey."

DR. CHAUNCEY B. RIPLEY'S ADDRESS.

Gentlemen of the convention: I have been engaged in the cause of improved roads for fully twenty-five years; and all this time while practicing my profession as a lawyer in the city of New York have been a practical farmer residing in Westfield, Union County, New Jersey. We in New Jersey have passed through experiences of the old style of road-making similar to those referred to by Senator Chandler of New Hampshire, Maj. Crump, of Kentucky, and others who have already addressed you. The old style of providing for the care of public roads has prevailed generally throughout the country for half a century at least, and still prevails in most of the States to some extent. We are all familiar with it. It involved the annual election of overseers in

every township, varying in number from five to twenty, according to the number of districts which the square acres and population would seem to warrant. Each overseer had the right to draw an amount undetermined till after the taxes were collected, say from twenty-five to a hundred dollars, to work his 5 or 10 miles of road. When a lull in the farm work occurred, after the corn had been planted and before haying, the residents of the district were warned out to work on the road and so discharge their taxes. If there were boys too young to do a man's work, or a man fit only to do a boy's work, these were the first selected to go from the farm to the highway. It was a place to take steers when first yoked, and colts not yet broken to harness, to be trained and disciplined at the public expense. It was a place to take tools and implements cast off as unfit for use, and get full pay for carts and wagons that would not carry half a load. Teams would often go on the road with two drivers, each driver drawing full pay whether needed or not, whether working or idle. Under this system, sitting on the fence smoking clay pipes and swapping stale stories has long been synonymous with "working out the road tax." If any taxpayer thus warned out and unaccustomed to work, except on the road, were susceptible of substroke or a victim of "that tired feeling," his road tax might be worked out by reclining with the overseer in the shade of a wide-spreading tree along the roadside, watching the pranks of the boys in the distance while experimenting with the frolicsome colts or untamed steers. With us, in those days, he was esteemed a good overseer who made a good road in front of his own door. One instance is known where an overseer became very popular during his tenure of office by picking out of the gutters of his road "deestric" and throwing into the middle of the road the same stones which his predecessor had thrown from the road into the gutter while acting as road master the year before. But this did not prevent the first-mentioned official, after he was reelected for the next term, from throwing the same stones again into the gutter, and repairing the roadbed with the plastic wash which had accumulated while he was out of office and his neighbor was the incumbent. In another year or two, and by the time this top dressing had washed back again to the gutters from which it was taken, the same overseer, by regular rotation, would very likely be returned to office and his old practice of roadwork be resumed. For generations the public moneys were thus wasted, the public roads received little or no benefit, and those who paid taxes for the support of highways began to believe that we could and ought to reform the old system and radically improve the roads.

"How good roads were obtained in New Jersey" is the subject, Mr. Chairman, which you have assigned to me.

I have intimated already the bad management and deplorable condition of our public roads for long years before we entered upon the present era of reform and improvement. Once New Jersey was pro-

verbial for red mud and bad roads. Now Union County has the best system of public roads in the United States. We have 40 miles of telford pavement. It is in two continuous lines, crossing the county; one road extending from the city of Elizabeth, the extreme eastern boundary of the county of Union, to the city of Plainfield, the extreme western boundary; the other road extending from the city of Rahway, the southern boundary of the county, to Summit, the most northern boundary. These roads are in contact with every other city and township of the county, intersecting at Westfield, the center. The cost of the roads was \$400,000, or \$10,000 per mile. They were constructed under an act of the New Jersey legislature passed in the year 1889. They have proved a success to this extent: there is not a citizen of the county of Union known who does not regard the improvement as the most important and satisfactory of any ever accomplished in the county. The cost of the roads did not exceed 1 per cent on the assessed valuation of the taxable property of the county. The advance of values in the real estate of the county since the roads were built is conceded to be from 5 to 25 per cent, an average of about 15 per cent—that is, 5 per cent on farming lands and 25 per cent on other lands. Besides, the saving of wear and tear to vehicles and draft animals of every sort and kind, almost, if not quite, compensates for the annual assessments on account of the improvement. Moreover, the convenience and comfort of these improved roads to citizens generally precludes the idea of ever doing without them again. As well might one advocate to the people of Union County that they return to the tinder box and flintlock as to mud roads. Good public roads, the best practicable and obtainable, are alone consistent with the progress and civilization of the present age. It is a disgrace to a civilization like ours that in a community like that of Union County, N. J., Westchester County, N. Y., and in other communities suburban to the national metropolis of this great country, and in this wonderful nineteenth century, the people have not public roads over which they can travel with ease and comfort at every season of the year alike. It is hardly less a disgrace to the civilization of the age that the citizens of the metropolis of Illinois and of Omaha, Nebr., and most of the great cities of the West, as Senator Manderson informs us is the fact, should have for weeks and sometimes for months the highways leading to these central marts practically closed and an embargo placed upon the commerce of these cities and of all the region roundabout because of the almost impassable condition of the public roads.

Many of you wish to know, I am sure, more in detail how good roads were obtained in New Jersey. That we have a State road act, and that we obtained our excellent roads under that act, is not enough. I will make a simple statement of facts as to how we obtained the act itself and how we obtained the roads under the act.

There was no such public sentiment existing as exists now in favor of improved roads when the first work in the direction of better roads was done in Union County. Now and then through that county there was a person to be found who entertained broad and liberal views on the subject of improved roads, and who was both able and willing to put his views into practice. Among them I may mention John Taylor Johnstone, Col. John Kean, and Warren Ackerman. For many years past these gentlemen and others have been making, under their own supervision and largely at their own expense, improved roads and in other ways promoting and encouraging the making of good roads. During the same period, and with the same object in view, many of the best men in our community have accepted and even sought the office of overseer of country roads in the districts where they happened to reside. In this office their valuable time and careful attention, often liberal contributions of money, have been given to the cause of improving the highways within the jurisdiction of their road district. Much attention was often given to the appearance of the roads; the margins were kept free from unsightly growths, trees were planted along the sidewalks, and fronts were given a park-like appearance sometimes for great distances, rendering the landscape attractive. No little has been done by the Central Railroad of New Jersey in liberally establishing ornamental parks at the stations through our county where the trains of the company stop. The approaches to these stations, drives and walks as well, are models of good road work. The company has also kept in good order these parks, drives, and walks, including trees and shrubbery with which they are ornamented and shaded. Little by little the taste of our community has been cultivated by improvements of the kind, and these object lessons have created a sentiment in favor of improved roads. Outside of the villages, in the agricultural districts, among the farmers, such lessons did not avail as much. The farmers were not ready then, not sufficiently educated up to expensive improved roads. There were exceptions, however, and some of the farmers were among the most liberal in favor of reform.

It finally became apparent to those engaged in improving roads that more territory—an enlarged jurisdiction—was needed and fewer departments. In our own township, for example, we had ten or fifteen road districts. In Union County there are, say, ten or twelve townships. To approximate, let us say there were ten townships with ten road districts in each; that would give us, in round numbers, 100 road districts, 100 overseers. These overseers were elected annually, and, as a rule, there were many changes in each township at every annual election. Neither of the Napoleons, nor both, could have ever made the roads of France the best in the world with 100 independent road overseers in each division of 100 square miles; that is, a road overseer for every square mile—and such overseers! But France contains 200,000 square miles of territory as against 100 in Union County. The Napoleons

would have had, therefore, an army of 200,000 road overseers had they carried on road-making under the New Jersey system, old style.

To secure a system of improved roads, it became apparent that nothing less than the entire county would furnish a suitable basis for the undertaking. We needed the area of the entire county in order to secure continuous roads in directions and in extent to suit the uses and convenience of the public. We had found by experience that an expensive piece of road extending through a road district, a neighborhood one mile or less in extent, butting against an unimproved mud road of a neighboring district, gave very little satisfaction to the general public. The limit of a load on the way to market is determined by the poorest mile of road traveled over in the entire distance.

We found uniformity in the construction of our roads to be important. How could uniformity be secured to any extent with 100 overseers, each possessed of independent views, in an area of 100 square miles, that being the extent of our territory in Union County. We needed the property of the entire county as a basis of taxation in order to raise a sum of money large enough to build and maintain a system of public roads of sufficient extent to secure success.

To inaugurate our new system, the first thing done was to prepare and circulate a petition for a public meeting for the purpose of considering the improvement of the public roads of the county. This petition was not circulated generally, but among men of the county who were of known standing and influence in the various townships of the county or in the county at large. Reference was had to political views, in this, that the signers should, so far as party was concerned, represent each political party equally, as near as might be. It was aimed to have signers representing the various classes of business, trades, professions, and other interests. It was sought to secure, as far as possible, those citizens filling the public offices of the county and townships, for reasons which readily suggest themselves; they were men selected by popular vote or appointed on their merits; they had constituencies and following and therefore influence. Large property owners were solicited, as those most interested in the payment of taxes, and generally, in certain respects, of broader views. This meeting was held and a committee appointed to draft a bill to be presented to the legislature. The bill was long considered and carefully drawn, that it might be as free from objection as possible and still answer the purpose of securing first-class county roads. To this end the act was so drawn as to be permissive—that is, any county of the State was permitted to avail itself of the act or not, as its citizens preferred. As it was not obligatory, counties which had no use for it would hardly oppose its passage.

The act provides only for the improving of existing roads, and does not contemplate the laying out of any new roads. As is generally the case, we had roads enough already. If not, we had laws and officers sufficient to lay others. The act carries no authority whatever to increase the number of roads nor the existing mileage.

No new board was created by the act, but the power of the existing board of chosen county freeholders, answering to the board of supervisors or selectmen in other States, was extended so as to enable the chosen freeholders to act as the road board in carrying out every provision of the statute relating to the designation of the roads to be known as county roads and the improvement of the same. There was great wisdom in this provision, so far as Union County was concerned, for the reason that the expense of the board as constituted is a mere trifle, being a per diem merely of the board of freeholders when actually engaged in the service of the county roads; it removed from the bill all uncertainty as to what persons should constitute the board and the compensation of its members; and, not least, it delegated the powers to a tried body of county officers about equally divided in politics, harmonious in their action, having the confidence of the people, and in every respect competent and above reproach. The gentlemen composing this board had, I believe, without exception, already signed the petition for the call for a public meeting, and like other officers of the county were, in a general way, known to be favorable to a county-road act. The transformation of public roads in general to county roads within the meaning of the act was most simple under its operation, requiring the mere preparation of a map designating the road as a county road and the filing of such map and a certificate of such designation with the county clerk, to consummate that part under the act.

The appointment of a competent engineer to make surveys, prepare specifications, and act with the board, alone formed a new era in New Jersey road-making. Instead of 100 men who make no claim to any knowledge whatever of engineering, constructing, and repairing our roads in 100 different unscientific ways, serving, often, only for a term of one year at a time, how great is this one step in the right direction, to wit, putting roads under the control of a competent engineer. That the present generation might not be unduly taxed for the benefits to be derived from such roads, benefits extending far into the future, the act provides for the issuing of 5 per cent bonds, to be known as county-road bonds, and to run for a period of twenty years, at the end of which time the indications are that their payment will be hardly felt, so great will be the increase of population and taxable values then.

In two years time after the passage of the act the roads were completed. They are the pride of Union County. The accomplishment of the undertaking was comparatively easy, so generally did one favorable step succeed another. After all, at this early period in road reform, and considering, too, how uncertain all things are that depend upon legislation, we are disposed to regard our speedy success as almost miraculous.

Senator Chandler, of New Hampshire, expresses to us the hope that the time may come when, with his light wagon, he may drive over an

improved road, without breaking a spoke, from Maine to Alaska. Let it be so. For my own part, I can say that long since I advocated at Trenton, before a road convention of the State of New Jersey, the construction of continuous improved roads through that State from Newark to Camden and from Cape May to Sussex. Long since, too, I became satisfied, and so expressed myself in an address at our Chicago convention in 1892, that nothing would develop our country like the opening of improved highways from Boston to San Francisco and from Chicago to New Orleans.

Mr. RICHMOND PEARSON, of North Carolina, stated that the main cause of the bad roads of the South is the radical defect of the road laws, whereby the entire burden of making and maintaining the public highways is placed upon the persons who have least use for roads. He hoped that one of the good results of this movement would be to change the old systems, and to distribute the burden fairly upon the lands and upon the polls.

Mr. James McNamee, the author of the bill under which the roads of Richmond County, N. Y., have been built, had been asked to address the convention, but being unable to attend he sent the following communication on the subject of county roads:

MR. JAMES McNAMEE'S PAPER.

The views I now present have been hastily written, and such brevity as is desirable prevents comprehensiveness or an exhaustive treatment of any one point. They have been formed in part from reading and observation while traveling in different foreign lands, and largely from my own experience during several years' service in the government of my own municipality in Richmond County, N. Y. What has been lost to me by not taking an engineering course when in college may, perhaps, have been compensated for, so far as these suggestions are concerned, by the study and practice of the law and some considerable experience in applying that knowledge to the solution of various extremely practical governmental problems.

The importance and need of good roads in city and country is universally admitted; but the best and most feasible mode of obtaining them is not plain to all or readily devised, and until such a plan is brought forward the approval and energetic aid of our citizens is necessarily at a stand. The intensely practical character of the American mind suffers it to spend little thought or time in the consideration of mere principles or abstract ideas if unconnected with some definite method of making them outwardly and physically effective. To devise and promulgate the best and most feasible plan for building good roads is, then, the pressing duty and problem for those urging their general construction.

(1) The first point to be settled is, What governmental body shall have charge of the work?

The two most powerful principles affecting government in the United States, that are constantly in opposition and are daily determining the fate of proposed governmental measures, are, on the one hand, that which declares the concentration of powers to be preferable, and, on the other, that which insists on the subdivision and diffusion of powers so as to secure what is termed "home rule." Both have their advantages, but it is unnecessary to elaborate them.

It appears to me that in the construction of highways the minute locality knowledge requisite for satisfactory construction, the necessity for constant supervision, and the measure of truth found in the saying that "Many hands make light work," if joined to the proposition that the locality shall bear the major part of the expense of its good roads, must turn the scale in favor of construction by local governments rather than by the General Government or even State governments. But as experience in these later years teaches us that, as a general rule, the smaller the governmental subdivision the weaker is its authority and the more ignorant and incapable are its officials, a careful balancing of advantages leads me to oppose intrusting the construction of highways on a general plan and enlarged scale to any bodies of lower rank than the county governments.

In so far as municipalities take up portions of counties, the problem of preserving uniformity of system and yet not throwing into disorder various minute but locally very important questions that arise in municipal government demands special treatment. That any conflict of rights and authorities or uncertainty as to responsibilities can be avoided by well considered legislation I have no doubt, but it would be impossible to enter into details at this time. Only in a proposed statute on this subject can these points be satisfactorily and precisely met and reconciled.

Without detailing reasons, my judgment is that the county government is, on the one hand, sufficiently local to be able to carry on the construction of improved highways within the county most economically and considerately, and, on the other, is possessed of sufficient authority and possibility of intelligence to override petty opposition, command respect, and to adopt and enforce the latest and most beneficial scientific methods of construction and maintenance. But, in my judgment, as many ignorant though well-meaning officials are now to be found even in county governments, to say nothing of the large and growing class of individuals who intrude into office for the sole purpose of what they can make out of it, honestly or dishonestly, the State should not authorize the expenditure of the large sums necessary for modern good roads without certain clear, unavoidable, and universal restrictions upon the engineering work and upon the official discretion and action involved in the care and application of the funds.

In an ideal State, with all its engineers and officials competent, well balanced, and honest, such restrictions would be unnecessary, but we have no such State and can not, by any means, always be certain in advance as to the ability and rectitude of engineers and officials, and it is better for us to hedge them in, as we are not building roads for their benefit but for the welfare of the general public and especially with an eye to the protection of those who must pay the taxes wherewith to construct these highways.

It is with this view and to this extent that I would invoke, preliminary to the work, the supervisory power of the State government to be embodied in the constituent law of the road system, and, after that, working only through its courts, to hold county officials and engineers to a strict compliance with the restrictions put upon them. These are the conclusions I reach as to what governmental body should have charge of the work.

(2) The second point is, How shall the money to build these improved roads be obtained?

If it be proposed that the State should furnish it, a powerful and by no means unjustified opposition would be aroused in the municipalities and other small but highly improved and heavily assessed districts against compelling them to contribute so largely to the furnishing of remote highways. The demands of equal justice and the probable effectiveness of such opposition render such a proposition futile.

On the ground of occasional use and of benefits accruing from the general prosperity to be diffused over the entire State, a proposition that the State should furnish one-quarter to one-third of the expense of constructing or repairing two highways in each county, the one running as nearly north and south as is feasible, the other east and west, crossing as nearly as may be in the center of the county, and meeting similar roads in all the adjacent counties so as to form over the whole State a network of improved and continuous highways, would perhaps commend itself to general approval, while it would furnish invaluable arteries for intercommunication, relieve the separate counties of a portion of the expense of a still larger system, and at the same time justify the central government in exercising, through its constituent legislation, a general supervision of the work. The remainder of the fund necessary to the improvement of the roads in the counties can probably only be raised by the counties themselves and should be imposed upon them. They will watch its expenditure the more carefully and, as the roads are then their own, will take more pride and interest in their proper maintenance. Few counties could stand the imposition of the large sums required in the tax levy of one year or of even several years. Long-term county bonds, carefully prepared and skillfully marketed, with provision for a sinking fund to retire them gradually, are probably the only available method of procuring the necessary funds. It might be that a State guaranty would enhance their value without any actual risk by the State.

(3) The third point is, Who shall plan and supervise the actual construction?

The county board should select the roads to be improved, or the localities through which any newly constructed ones should run, and the order in which they should be improved, but only after consultation with an engineer who has studied the locality and who is to supervise the work. The engineer is the most important factor in the entire system. He must be skilled and upright; if not both, the work will be more or less of a failure and the money squandered. It humiliates me to feel that I am obliged to say that I do not believe it prudent to trust, unrestrictedly, to county boards generally, the selection of an engineer who should possess these characteristics. What is known as "politics," usually, now, only another name for moral obliquity, has come to be so influential in dictating such appointments that it is only an exercise of plain and ordinary precaution to interpose another element, less pliable than the average official, in the work of selection.

I can think, at present, of no other, for such particular emergency, than the higher scientific educational institutions of the various States. These, I believe, can not be appreciably swayed by political or mercenary influences, and would deem it a plain duty, involving their professional honor, to recommend, if applied to, none but those of known ability and good character for the position of county road engineer. Applicants for the position should, in all cases, be required to produce diplomas awarding them the grade of civil engineer, granted by some college of the State having an engineering course, or by some similar scientific institute duly authorized to award such diploma. Before their names could be considered they should be required to procure and file with the county board a certificate unreservedly declaring them to be possessed of the scientific attainments entitling them to the grade of civil engineer, and also to be of good moral character, such certificate to be granted by vote of the instructing body of such college or institute. The awarding or refusing of such certificates can be imposed by statute upon such bodies. Out of the candidates thus qualified, the county board may make such selection as it chooses.

I know this unusual proposal will be frowned upon, but it will be time enough to pass it over when another, better fitted to accomplish the object it is plainly intended to effect, is brought forward. It will be hard to find one; but one is most essential, if this test is discarded.

(4) The fourth and last point I can now refer to is that of governmental restrictions upon the engineering work, imposed in the constituent statute law for the proposed road system.

I am fully aware that any such restriction will be opposed by officials and engineers; by the former, because they desire to be unrestricted in their expenditure of the fund, partly because all men dislike being hampered by regulations, but more especially, in many instances, because such restrictions check "jobbery" and the full indulgence of the

experimental spirit, or, rather, vagaries of our officials, which, hitherto unstintedly indulged, have simply wasted untold millions of American money on highways, with no permanent good results; by the latter, because they, too, dislike restraint, desire to experiment more or less, and seek the honor that may come to an originator and constructor of a great public work absolutely entrusted to him to create.

The time has gone by when we need to experiment in road-building; that has been done and the canons of construction have been fixed, and, as I have already remarked, the traveling public and burdened taxpayers are, at heart, opposed to relieving, at heavy cost or even the risk of it, the grief of officials or engineers over finding themselves restricted in the work they have undertaken. Ample latitude for the exercise of sound discretion can be allowed in conjunction with a few fixed regulations that, if insisted upon by even a few observant citizens, will almost absolutely secure well constructed, enduring, and satisfactory highways. Such regulations should deal with the width and depth of the special material used for the improved surface or roadbed; the kind of material, the size and shape of its constituent particles before they are compacted, the manner in which they should be applied and compacted, and the shape of the improved surface.

I can not, perhaps, better or more briefly illustrate my meaning than by incorporating here the regulations on these subjects found in the present county road law of the State of New York (Sec. 6, Chap. 555, Laws of 1890):

SEC. 6. The following regulations shall govern all improvements and repairs of such county roads, when the same are made under or in pursuance of the provisions of this act:

1. All such improvement and repairs shall embrace or cover the roadbed or wagonway to the width of at least one rod and to the depth of at least eight inches, unless the board of supervisors, by a four-fifth vote of the entire board, shall decide to reduce its width to fourteen feet or its depth to six inches in specific cases, though material similar to that about to be employed, if already upon such roadbed, may be utilized as a part of the material to be employed in forming such improved or repaired roadbed.

2. No material other than stone, wood, shells, or asphalt compound shall be used in making such improvement or repairs for at least one rod or fourteen feet in width, as the case may be, and the above required depth of such improved or repaired surface.

3. In case any road to be improved or repaired shall already have a sufficient compact and substantial foundation of stone already laid, such foundation may, in the discretion of such engineer and with the approval of said board of supervisors, be allowed to remain and be utilized as of its actual depth; but no new or fresh material shall be placed thereon until all material previously and in any way superimposed upon such foundation, but of a different character from that about to be newly employed in such improvement or repairs, shall have been thoroughly removed.

4. Whenever any roadbed or wagonway shall be thus improved or repaired with broken stone there shall be placed in such said roadbed or wagonway, if a sufficient substantial and compact foundation of stone does not already exist, a foundation course or layer of trap rock, granite, or other equally hard stone, not less than four inches thick, of stone not less than two and one-half inches in diameter, or of the size commonly known as two and one-half inch stone, and in all cases of improve-

ment with stone other than block pavement, the uppermost layer or covering shall not be less than two inches thick, and shall consist of granite or trap rock dust known as screenings, and, in case of repair, not less than one inch in thickness, and the same shall be applied under the pressure of a roller of not less than two tons weight.

5. All roadbeds or wagonways thus repaired shall be shaped or crowned with a sufficient and continuous rise of at least one-half inch to the foot from the sides to the center thereof, and shall be so constantly kept and maintained.

These regulations were devised with especial view to the requirements and material-supply of my own county, and have worked well there, but, with some slight changes in the prescribed width of improved roadbed, the character of the prescribed stone (as granite or trap rock are not everywhere procurable) and the amount of top dressing to be applied, I am of opinion that they would be applicable and invaluable in every county of the Union. Their especial value is that they prevent experimenting in essentials; they insist upon certain points of construction which are thoroughly sound; they will secure substantial and durable roadways, and their requirements are so simple and obvious that any citizen, from the most cursory view of a roadway under construction can, at once, without the interposition of any expert or of a legal investigation, detect and proclaim a departure from them—a disobedience that can hardly fail to result in a poorly constructed road, and which may well excite suspicion that beneath it lurks the spirit of an unfaithful board or engineer and a willingness to favor a “job” of a political or pecuniary character. They are flexible in the direction of better roads and that true economy which refuses, at the outset, patchwork or flimsy work, and if engineers insist, as they will, that without them it is possible to build better roads, the answer is—

“Timeo Danaos et dona ferentes.”

It may be so if we can be certainly assured that our officials and engineers will always be all that they ought to be, but, as human experience has shown this to be most uncertain, we propose to set a standard gauge upon them all, which is more certain to secure us a very good degree of safety, if not the best possible, rather than trust to them to give us such return for our money as, in the exercise of their unrestricted personal preferences, they may choose to bestow.

So strongly do I feel the necessity of some such statutory regulations that, much as I am interested in the immediate inauguration of the era of better roads, I would prefer to wait until the State is educated up to their enactment rather than entrust at once to county officials generally the unrestricted expenditure of the great sums that are essential to the work.

In conclusion, I would call attention to that part of the recent message of Hon. Roswell P. Flower, governor of the State of New York, in which he speaks, in a necessarily brief manner, of this important subject. As I recollect it, the subject is handled in a broad, practical, and most in-

telligent manner, and it augurs well for the cause of road improvement in the Empire State that its governor is so eminently progressive, wise, and practical in his views concerning this most important subject.

Hon. Reuben Goodrich, of the Michigan Highway Commission, and one of the representatives from that State, who was also unable to be present, sent the following paper from Florida:

HON. REUBEN GOODRICH'S PAPER.

Gentlemen: I am just informed by Governor Rich, of Michigan, that Hon. William L. Webber, of Saginaw, and myself have been designated by him as members of the Michigan State Board of the National League for Good Roads, with a request that I meet with you on the 17th instant. The notice coming so late, it is quite doubtful as to my attendance, and I can not now consult with my colleague, Mr. Webber, to learn of his intentions; therefore will inform you by letter, briefly, what Michigan is doing.

Our State constitution is a bar to all State internal improvements, and our highway system by said constitution is delegated to the townships and municipalities; hence the first step is to radically amend our constitution. At a special session of our last legislature a highway commission of three was appointed, with Mr. Webber and myself as members, associated with James H. Kinnane, of Kalamazoo. We have made our report to the present legislature, recommending such amendments to our State constitution as will permit the State or any county entering into a system of road construction.

We propose to abolish the rate, or labor system, establish the cash system, authorize each county to organize into one road district, with five county road commissioners, and extend to that higher power the authority of considering private property for road purposes, thus enabling each county to establish, open, construct, and maintain several county roads, from county funds to be raised by tax or the issue of long-time bonds (say forty years), not to exceed at any one time 5 per cent of the assessed value of the property; and that this law shall be a local-option one, to be adopted by a majority vote of the supervisors of the county, and only to be discontinued by a two-thirds vote of said board; and that the township organizations be kept up, who shall have the care and maintenance of the township roads to connect with county roads.

We expect that our legislature will take prompt action upon these proposed amendments, and if by it put in force and submitted to the people in April, we may then adopt them in time for the legislature, yet in session, to take up bills which have already been passed and introduced during the first fifty days of the session (in event of adoption of said amendments) and pass the necessary bills to put our highway machinery in full operation in 1893; which, if not done in this prompt

and progressive manner, would of necessity delay action until 1895, unless a special session is called.

It will be suggested to our legislature that they authorize the State to aid counties by the loan of their bonds, say at forty years, on, say, 2½ per cent, which we think can be floated at par, and in turn let the counties issue bonds to the State, payable in forty 5 per cent installments; thus the State can compel the payment of the bonds of a county which could not borrow money at less than 5 per cent, yet can redeem said bonds by raising 5 per cent each year; and when the State bonds mature they will be fully provided for, the county realizing a difference of interest upon the prepayments sufficient to compensate the State for the care of said county bonds.

Said money may be judiciously expended in the counties the first ten years, thus largely increasing the volume of taxable property to such extent that the burden will fall very lightly for the last thirty years' lifetime of said bonds upon the taxpayers.

We do not believe that convict labor can be of much use to us, as breaking stone heretofore has largely been their employment, which, with us, is now prepared by machinery much cheaper and more expeditiously.

With the widespread interest now manifested over the entire country, and especially in Michigan, in favor of a better road system, I am free in the belief that our people will soon adopt radical steps in aid of this laudable enterprise. Should your league hold an adjourned meeting some months hence, I may be able to meet with you and would certainly be happy to do so.

P. S.—To enable me to send out this letter by first mail, I am obliged to forego my wish to rewrite and correct it.

R. G.

MISCELLANEOUS BUSINESS.

The chairman announced that the hour for adjournment was near at hand, and asked if there was any further business before the convention, whereupon Mr. Charles A. Willis offered the following:

Whereas Gen. Roy Stone has intelligently and patriotically given his earnest and active efforts in the cause of good roads; and

Whereas he has deserved and secured the confidence of those interested in the improvement of roads throughout the United States: Therefore, be it

Resolved, That the heartfelt thanks of the representatives of the different States here assembled be tendered to Gen. Stone, and that he be requested to continue the great work he has so well begun.

The resolution was unanimously carried.

Gen. Stone thanked the convention for the high compliment paid him, but thought that they had given him entirely too much credit; that President Manderson and the other officers of the league were entitled to share in this compliment, as they had all given much of their valuable time and attention gratuitously in the interest of good roads.

Whereupon the following resolution was offered by Mr. Pearson:

Resolved, That all the officers of the league be included in the resolution just adopted, and that Senator Manderson and Col. C. W. Johnson receive the special thanks of the convention for the able manner in which they have presided over its deliberations.

Mr. Pearson said that as the modesty of the chairman, Col. Johnson, prevented him from putting the question, he would take the liberty of doing so.

The resolution was unanimously adopted by a rising vote.

A motion was then made to adjourn.

Col. JOHNSON. Before I put the motion to adjourn this convention *sine die* I wish to add just a word. I have greatly enjoyed participation in these proceedings and I highly appreciate the honor of presiding over your deliberations to-day. I am thoroughly interested in this cause. It is a great cause. We have a great country, extending from ocean to ocean, from the British Possessions to Mexico. It is new. Whatever we have done in road-making, in Rhode Island; in Union County, N. J., in Kentucky, North, South, East, or West, we are but at the very threshold of the attainment of good roads. This term "good roads," as stated by my friend from New Jersey, Dr. Ripley, is a relative term; what are such in one State, where they have a sand subsoil, are not so where they have a clay subsoil.

Gentlemen, let us as we go from this convention go as missionaries. Let us make our influence felt in Congress, in our respective States, in their legislatures, in municipal councils, in boards of county commissioners, in local improvement societies, and in the press of the country, in promoting the building of better roads, in harmonizing the small jealousies of city and county. Let us strive everywhere for the building of permanent and better roads, where so-called good roads now exist and for good roads where bad roads now exist.

Let us aid in building up a sentiment for improvement. Let us support and strengthen the efforts of the officers of the National League for Good Roads and all promoters of this movement who have given it such distinct prominence in the great enterprises of this country. Let us hold up the hands of our invaluable and tireless secretary, Gen. Stone, and Gen. Manderson, the temporary president, who have done so much in this regard already.

I know that I voice the unanimous sentiment of the convention in repeating our appreciation of the efforts and participation and coöperation of Secretary Rusk, Secretary Elkins, and their assistants, and the General of the Army, and the governors of the several States in the work of the convention.

The motion to adjourn is agreed to, and the convention stands adjourned *sine die*.

HEARING BY THE COMMITTEE ON AGRICULTURE OF THE HOUSE OF REPRESENTATIVES.

WASHINGTON, D. C., *January 19, 1893.*

The Committee on Agriculture of the House of Representatives met this day at 11 o'clock a. m., Mr. Hatch in the chair.

The CHAIRMAN. The committee will please come to order. An invitation was extended to the representatives of the National League for Good Roads to present their views this morning upon some proposition that is pending before the House. I now introduce Gen. Roy Stone, who will state the purpose of this hearing.

STATEMENT OF GEN. ROY STONE, OF NEW YORK.

I am the general vice-president of the National League for Good Roads; I say general vice-president, because we have a State vice-president for each State.

I regret to state that Senator Manderson is not able to be here this morning.

Mr. Chairman and gentlemen of the committee, we accept your cordial invitation. I will not detain you with any explanation of what our league is. We have some printed matter which will be distributed to the members. About twenty-five States were represented at our convention yesterday, and about twenty-five or twenty-eight States are partially organized in the league—that is, the governors have accepted the vice-presidencies or appointed substitutes and directors for the State. The aim of the organization is to have a representative body composed of the governors or their representatives, and one director from each State, and a director for each 1,000,000 of inhabitants, in order that there shall be a representation in proportion to the number of inhabitants as well as the State representation. When the board is complete it will make about 150 men who will be devoted to the subject of good roads. We hope when the next meeting takes place to have this organization complete. We propose then to extend the league through all the States and counties and townships and school districts, so that the whole of the people of the United States in favor of road reform shall be combined to put into practical working shape the matters that come before your committee.

This resolution was adopted in convention yesterday:

NATIONAL LEAGUE FOR GOOD ROADS.

Resolved, That an appropriation be asked of Congress substantially as follows:

To enable the Secretary of Agriculture to make a general inquiry into the condition of highways in the United States, and the laws, means, and methods for their improvement, and to make reports thereon, fifteen thousand (15,000) dollars; and to aid in making said inquiry and reports, a national highway commission may be appointed by the President, to be composed of six citizens, who shall serve without compensation.

Some time ago a bill passed the Senate calling for a national highway commission, to be composed of five members of the House, two Senators, and five citizens to be appointed by the President. That bill did not get through the House. It has been thought better to put it in this shape—to put the whole matter under the U. S. Department of Agriculture and let the commission simply assist the Department, if there be such a commission, in obtaining this information.

I will not say anything as to the importance of that, because, if the Government can secure the aid of six citizens such as may be selected, who are devoted heart and soul to the work of road improvement, it will be worth while to secure their assistance for the U. S. Department of Agriculture. The other matter refers to exhibit of road material and road-making machinery at the World's Fair, and to means of instruction during the term of the fair in the art of practical road-making, and the report of that committee is as follows:

NATIONAL LEAGUE FOR GOOD ROADS—REPORT OF COMMITTEE ON EXHIBIT AT THE COLUMBIAN EXPOSITION.

Your committee, which was appointed for the purpose of considering the advisability of an exhibit at the Columbian Exposition at Chicago, beg leave to report that they have had the matter under consideration, together with the many objections thereto, and recommend that the Committee on Agriculture be requested to formulate and report to the National House of Representatives a bill carrying an appropriation of \$50,000, to be made by the National Government, for the purpose of creating and maintaining an exhibit of roads, road materials, and road machinery at the Columbian Exposition, and providing means of instruction in the science of road-building during the term of the Exposition. And further, that the members of this association who are appointed to address the Committee on Agriculture at their special meeting to-morrow, January 19, be instructed to lay this subject before said committee and urge its adoption.

I will not say anything on that subject myself. I would ask Representative Durborow, of the House, chairman of the Committee on World's Columbian Exposition, to speak to you next.

Representative DURBOROW. Mr. Chairman, I was asked by Gen. Stone to state to this committee why this resolution was brought before you instead of before the Committee on the World's Columbian Exposition, of which I am chairman. The reason for it is this: It proposes the resolution and requests this committee to formulate and report a

bill to the House of Representatives carrying an appropriation of \$50,000 for the purpose of making an exhibit of roads, actual roads, the methods of road construction, and road material at the Exposition to be held in Chicago the 1st of next May.

This is referred to this committee for several reasons. In the first place, this committee has the power of appropriation of money, which the committee of which I am chairman has not, without the unanimous consent of the House. You have, therefore, the right to call up your bills at any time that you can get recognition from the Speaker, which is, of course, at this time of the session a very important matter; but more important than this is the question of the disbursement of the money. Under the rules the Committee on the Columbian Exposition would have to make the Secretary of the Treasury its disbursing officer, whereas your bill which would be reported from your committee would come in directly under the control of the Agricultural Department, and the Secretary of Agriculture would be the proper disbursing officer, after consulting with this highway commission, which, it is presumed, if you will report favorably on it, will be a fact before the other bill is passed by the House.

As to the importance of the passage of this bill I think there can be no question. The enormous number of visitors who will be present there and who will be looking for instruction in this art make it an opportunity which may never occur again in the lifetime of any of us, or any of these people, to receive the class of instruction and the class of information which is of the most valuable kind and which will add more fully to the general prosperity and development of our country than almost any other branch of industry that will be exhibited at the Exposition. That is all, Mr. Chairman, that I have to say on that subject.

In regard to the other proposition, the appropriation of \$15,000 as an experiment, to see what the Agricultural Department can do in the way of obtaining information on the subject of good roads, their construction, maintenance, the materials that will go into them, and the machinery most desirable or useful for their construction, I hope that that being expended the Department will show such results as will warrant this committee in continuing this appropriation and making it a permanent charge upon the Government, which will redound to the prosperity and development of the country.

Gen. STONE. You are all aware, of course, that the Government has made extensive inquiry as to foreign roads, and we have a very large demand for the consular reports; but many of our friends are interested about good roads in Kentucky and California, good roads in Union County, N. J., and road-making all over the United States; and yet if the demand for information about foreign roads has been so very great, this information regarding American roads would be certainly quite as valuable and quite as much in demand as the information in regard to foreign roads. I now, Mr. Chairman, introduce Dr. Ripley.

STATEMENT OF DR. CHAUNCEY B. RIPLEY.

Gentlemen of the committee: There is a single point I wish to urge upon your consideration, and that is the necessity of getting our application before Congress early enough to render the appropriation, if we succeed, available for use during the holding of the Columbian Exposition. There is hardly time to secure the passage of an independent bill, it appears. It has therefore been suggested, and this suggestion meets the approval of the U. S. Department of Agriculture, that instead of presenting a separate bill, we make application in the form of an amendment to an agricultural bill now pending before Congress. By this means it will readily appear to you that formalities and other delays will be lessened. We ask that you consider this suggestion, and beg your aid and coöperation so far as consistent with your official duties. That we have your good will we are already assured. That there is but one sentiment throughout the entire country respecting the cause of improved roads and that that sentiment is in our favor, we are satisfied.

We ask two appropriations, one of \$15,000 and the other of \$50,000, to be made to the Department of Agriculture. The one of \$15,000 for inquiry and for procuring and circulating literature on the subject of good roads; and the other of \$50,000 to promote and manage a suitable exhibit of roads, road-making, and road machinery at the Columbian Exposition; both of these sums to be under the control of the Department of Agriculture, and to be used as specified, but in consultation with the officers of the National League for Good Roads.

Gen. STONE. I should like to say one word, to remove an impression from the mind of any member of the committee. The reports of the press of last night about this work are entirely wrong as to the action of our convention yesterday on the question of national aid in building roads. There was a resolution introduced by a gentleman from Virginia asking the convention to commit itself to the proposition of national aid—to ask for national aid. That resolution was laid aside by a unanimous vote and was not acted on at all. The only national aid we have suggested is national in this form, purely educational.

I now ask you to hear Mr. Waldo Smith, who represents the National Board of Trade and the Chamber of Commerce of the State of New York.

**STATEMENT OF MR. G. WALDO SMITH, PRESIDENT OF THE
WHOLESALE GROCERS' ASSOCIATION.**

Mr. Chairman: I was very hastily summoned here from the session of the National Board of Trade, and have a leave of absence of only a few moments, having to go back to attend to matters of considerable importance. My remarks will not be extended. I will merely say that at the last session, held a year ago, Mr. Price, of Scranton, introduced the following resolution:

(Mr. Smith read a resolution at this point which deplored the condition of our public highways.)

I will further say that at the annual session of the New York State Board of Trade, made up largely of commercial bodies from the different interior towns, and after an extended argument it was unanimously adopted, and a committee was appointed to procure the passage of a bill through the State legislature to use the prison labor of the State on requisition of the counties, with certain restrictions and arrangements, and I have no doubt that that will become a law in the near future. Being one of the committee having the matter in charge, and having had conferences with members of our legislature and those in authority, I think that in the near future that will become a law.

That seems to be the direction that it is taking within New York. What other result will be accomplished I do not know. I addressed a letter to the Prison Association of New York asking an opinion in regard to it and received an answer giving six reasons why it should not be done.

I have those reasons in my pocket now, but I will not take up your time reading them. In analyzing them I found the very strongest reasons why it should not be done, and I have read those reasons to a number of disinterested gentlemen.

The reasons referred to are as follows:

NEW YORK, *January 2, 1893.*

MY DEAR SIR: I am in receipt of your letter of December 7. I beg your pardon for the delay in sending you a full reply. It was necessary for me to wait until the December meeting of our executive committee—the third week in December—and afterward there was another delay in obtaining from the recording secretary a copy of the resolution passed on the occasion.

Touching the proposed law, entitled "An act to provide for the employment of convict labor on the wagon roads of this State," the following resolution was unanimously adopted by the executive committee of the Prison Association of New York:

"Resolved, That this association most emphatically deems the employment of convicts upon the public roads as demoralizing alike to the public and the convicts themselves; and that the corresponding secretary be instructed to reply to the communication of the New York State Board of Trade an expression of the opinion of this association."

There were present at the meeting of the executive committee Messrs. Edward B. Merrill, James McKeen, Lisperard Stewart, Felix Adler, John R. Thomas, Benjamin Ogden Chisolm, Frederick G. Lee, and the corresponding secretary.

There was a full expression of opinion, and previous utterances of the association on the subject were brought before the meeting. The feeling expressed was—

1. That such employment of convicts would as seriously interfere with labor outside the prisons as any other form of convict labor.

2. That the State convicts could only be employed on State roads, unless there was a violation of the law which prohibits the employment of convicts under contracts. If the counties employed them they would be obliged to make a contract with the State for them.

3. That a very large body of keepers would be required to prevent escapes; that escapes would frequently occur; and that there would be a constant necessity for shooting convicts in order to prevent their getting away. There would soon be a

death rate among our convict population approaching that known to have existed among the convicts of the South who were employed on public works.

4. In many cases the prejudice against convict labor would require a military force to protect the convicts who were at work.

5. (a) It has been found a hardening and demoralizing process to the convicts themselves to employ them in public places; (b) and it has been found by penologists to be a demoralizing process to the public at large to see this daily spectacle of shame.

These are but a part of the reasons advanced for a protest from the Prison Association of New York upon the passage of this bill. I am sure that an investigation will show you that this decision is fully in harmony with that of the most advanced penologists, not only of this country but of the entire world.

With great respect, I am yours, very sincerely,

WM. M. F. ROUND,
Corresponding Secretary.

FRANK S. GARDNER, Esq.,

Secretary New York State Board of Trade, 55 Liberty street, New York.

I will not detain you any longer, as I am not prepared to speak on this question, but I certainly hope that this committee will do all in its power to aid in the establishment of good roads. It is a crying evil, as all of us know who drive horses. On an extended trip through Europe this summer I realized the fact that we were far behind the Europeans in the establishment of good roads. They had great facilities for their intercourse from town to town and from village to village that we do not command. Thanking you for your attention, I will now close.

Gen. STONE. I now ask you to hear Judge E. H. Thayer.

STATEMENT OF JUDGE E. H. THAYER.

Mr. Chairman and gentlemen of the committee: I have resided on one of the banks of the Mississippi River for forty years, and while those Western States have spent a large amount of money every year in the way of what they consider road improvements we have no better roads, as a general thing, now than we had forty years ago. The people all through the West are anxious, exceedingly so, to learn how to make good roads. It is not so much a question of ways and means, because the people there are accustomed to being taxed, not largely but sufficiently, as they think, to keep the roads in a passable condition, if they only knew how to do it.

There is spent in this country, as near as I can make the calculation, and, of course, the data is not easily obtainable, between \$55,000,000 and \$60,000,000 a year in road-making outside of the cities. Now, they are not making good roads with this \$55,000,000 or \$60,000,000. We have commenced in the West, a few miles, perhaps, here and there, but 100 or 150 miles would cover it. We are not making good roads, because the people do not know how to make them. They have sought in every way possible to get information upon this subject, and

still the question comes up, "Give us some information; tell us how to build our roads."

It has been thought that the World's Fair would be an excellent opportunity in the way of an object lesson for the construction of different kinds of roads. Let it be continued. Some gentleman remarked yesterday that a road 1,500 or 2,000 feet in length, made of different material and on the different systems of road-making, and so operated during the World's Fair that people who go there who are interested in making good roads can see at a glance or in an hour's observation just how to make a good road, and also obtain valuable information as to the cost—it has been thought that this plan, as suggested to the committee, was the only feasible one. Now, help to get this education before the people; and I believe that there is greater unanimity of feeling all through the country, in the farming districts particularly, and I might say everywhere, in favor of some such project as this—to obtain some such information as this, I might say, perhaps—than was ever centered around any other one subject that has ever come before the American people. I thank you for your attention.

Gen. STONE. Let me make one other remark before I call upon another speaker. I have had quite a number of conferences with Mr. Buchanan, of the Department of Agriculture, in reference to this subject. The whole matter of roads has been committed to him, and he writes me that he is almost entirely hopeless of doing anything at all that would be of worth in the exhibition at this time. On the subject of roads he says: The management will appropriate no money and the roads built in the Fair Grounds are built as cheaply as possible. They will practically not educate anybody. He says that the people who are engaged in the manufacture and making of roads have done nothing toward making an exhibit of road materials from different parts of the country. There is, in various parts of the country, some very valuable natural material, like the iron stone of the Hudson River, besides a great many other kinds of road materials that would be exceedingly valuable, if there were any means of bringing them there and showing them, so that visitors could carry home samples of them. Mr. Buchanan says that if he could be supported in any possible way and have the means to do it he could still make a very creditable exhibit there.

I now call upon Mr. Richmond Pearson, of North Carolina.

STATEMENT OF MR. RICHMOND PEARSON.

I have the honor to represent a section of the country which is noted for its bad roads, and I shall address myself entirely and exclusively to the question of this commission of inquiry. I dare say that everyone recognizes that the province of this committee is to protect and foster the interests of the farming class, and the farmers have noticed with a great deal of interest—and I am not speaking with disparagement of

this committee or its chairman when I say that it is the intention of the Hatch bill to prevent interference with the natural markets of the farmer; but that whatever may be the beneficial results coming from that bill, the farmer will derive more benefit from having an easy access to his market than he will from the evils which are described in that Hatch bill.

I am glad to see that the gentleman from Mississippi is a member of this committee, because we have no representative in the National League for Good Roads farther south than North Carolina. At present the roads are simply horrible. I had the honor to propose this motion in a committee of the National League that we ourselves should do this, Mr. Chairman; but knowing that we had not the means we believed that we were making a reasonable request in asking the Government itself simply to give us a collection of the different road laws and the different systems of the United States in order that we might see, especially the country which I represent, that we are very far behind in the matter of maintaining roads.

The Spartans, I believe, in order to make their sons sober, made their slaves drunk, in order to disgust them with the picture. I believe that if you could see these pictures of bad roads which this commission would naturally give, they would disgust us with the situation in such a way that you would improve the roads of the entire country; and I feel that it is a very small matter that we are asking in this particular question of the commission of inquiry. Those men are willing to give their time and their labor for the purpose of accomplishing the object desired. The \$15,000 would be spent, possibly, in the collection of statistics and in the employment of engineers now and then for technical work, or for photographs of these roads; and I feel sure that we will have the coöperation of this committee, as they have the interest of the farmer at heart.

Gen. STONE. I now present Maj. M. H. Crump, of Kentucky.

STATEMENT OF MAJ. M. H. CRUMP.

Mr. Chairman: I represent one of the largest counties of Kentucky, where we have some good roads and some very bad ones. The principal thing we wish is to teach our people how to make roads. The county of Warren spends about \$15,000 a year on roads and bridges, and \$12,000 of this is spent on roads alone; that is, for repairing the dirt roads, which are looked after by overseers, the old style that Mr. Hatch is familiar with, and we are at it yet. Ten thousand dollars of it every year is absolutely wasted. The Warren County roads, where this method has prevailed, are as bad to-day as they were fifty years ago. They are worse to-day because they are getting deeper and deeper every year; the ruts and the cuts are getting deeper. What we wish is simply to convince those people that there is some better way to

build roads, and that if they are built under the proper sort of supervision that \$10,000 that we spend there can be utilized and preserved. We have mud holes there with from 500 to 1,000 yards of rock in them. The stones are from 15 to 18 inches under the frozen ground to-day. I think that this commission they ask here will have to enter upon its work in that sort of way. It would teach the people to build as good roads as could be made. This money can be saved. The State of Kentucky spends and wastes from \$500,000 to \$1,000,000 every year, and I am very sorry Mr. Wilson is not here, because he himself could tell you something of the meanest roads in the world in his district. He could tell you all about it. I have been on the geological survey for fifteen years. I had occasion to go through his district fifteen years ago in a light spring wagon, and, passing over one of the roads not far from his own town, I had to take the horse out of the buggy; four of us got together and lifted the vehicle up over this road. That was upon the main road from Monticello over to Jericho. That road is in the same condition to-day. The system on which we work our roads to-day is this: Before each one of the circuit courts meets the overseer goes out and fills the mud holes with dirt. I took a gentleman from Chicago to examine some mineral property in Kentucky and drove into one of these perfectly dry-looking roads. The buggy certainly went down up to the axle. I had to make him get out and crawl out through the mud, and it was with great difficulty I could get a pair of good horses and an empty buggy out of this mud hole. That is the condition we have in some parts of Kentucky. Our farmers simply need education. This is a farmers' committee. I hope you will look after it; you can do the farmers more good in this way than by any other possible method.

Gen. STONE. I will ask Gov. Sidney Perham, of Maine, to say something in regard to roads.

STATEMENT OF GOV. SIDNEY PERHAM.

Mr. Chairman and gentlemen of the committee: I did not expect to be called upon at all. I was taken entirely by surprise; but I think I have looked at this matter enough to know this, that this road question is one of the great questions of the country. It is a subject in which everyone is interested. We have had a great deal of waste of physical and mental and of financial power in this country, I think, in a great many directions, but in no direction so much as in making roads. I think, from the experience I have had in our section of the country, that at least three-fourths of the money that has been expended has been practically thrown away, because the people do not know how to build roads. They want instruction. You have referred to this matter, and I am glad to see this move. I know, of course, that you gentlemen of this committee have to do with a very important question. Naturally I know something about it, because I have been

associated with some of you here. I know that there is a desire to avoid expenditures of this kind just as far as possible; but if any expenditure is demanded by the people, one more than another, it seems to me it is in this direction.

As has been well said, no member of this league expects—at least very few, if any, have any desire—that the General Government should appropriate money for the purpose of building roads. The people will do that themselves if you will only give them the information that will enable them to direct their energies and their money in the right direction. So we only ask that a certain amount shall be appropriated for educational purposes and for the purpose of giving the people an opportunity to understand how roads can be better built than they now are.

I think this movement for the purpose of getting information through the Agricultural Department will do a vast amount of good. I believe the exhibit that is contemplated in the World's Fair, if properly brought about and presented, must be a very great advantage. So, gentlemen, I think that if you are authorized to make appropriations for any purpose whatever you are certainly authorized to make an appropriation for this purpose.

Gen. STONE. Prof. Hamlin, of Maine, has some resolutions which he will present without taking the time to make any lengthy address.

Prof. HAMLIN. I have been among the farmers considerably this fall, and I find that in Maine they have had an awakening upon this subject, and I can not represent it to you any better, I think, than by filing some resolutions which were passed by the State Board of Trade, and also by the State Grange, which represents some 16,000 people in Maine, all farmers, or essentially all farmers.

The resolutions are as follows:

Whereas the State Board of Trade in annual session assembled, having under consideration the question of "What is the best roadway for Maine," desiring to emphasize their belief in the paramount necessity of a more systematic and uniform method of road-building in this State: Therefore,

Resolved, That it is the sense of this State Board of Trade that the legislature enact such laws as shall create a State commission of highways whose business shall be to shape and direct a more uniform and satisfactory system of road-building in this State, accompanied with the necessary legislation to carry the same into effect, and that the president of this board be, and is hereby, authorized to appoint a committee of five, of which he shall be chairman, to petition the legislature by person or otherwise for the enactment of such legislation.

Whereas we recognize that the present lack of system in road construction and repairs in the State is wasteful in money and precludes the possibility of permanent improvement in our highways; and

Whereas we believe that better roads will greatly benefit the Maine farmer, and that the cost of their construction will, when judiciously and economically built, be small in comparison to the benefits to be derived from them: Therefore,

Resolved, That in the opinion of the State Grange now in session the legislature should enact such law as will create a competent commission whose business shall be to investigate our present system of road-building and repairs, and report to the next legislature such amendments to the laws now existing, and make such other recommendations as in their opinion will, if adopted, result in checking the present wasteful expenditure of money, and in securing a more uniform, economical, and efficient method of road-building and a more just and equitable method of assessing the road tax.

STATEMENT OF MAJ. H. E. ALVORD.

There are two points in connection with this question. The present mission of this National League for Good Roads is the creation and cultivation of a healthy public sentiment on this question; and that is what is chiefly contemplated in connection with the inquiry that is proposed under the supervision of the Secretary of Agriculture; but also, understand, the league certainly has future plans which it hopes to carry out, among which will be the control and management of our public roads by competent engineers. If that happy time should come, sir, very soon we should find that the demand for such highway engineers would entirely exceed the supply; and it seems to be a proper theme to consider how this supply, which is certain to be needed, will be provided.

To my mind, sir, there is no means by which men who can act as highway engineers, thoroughly educated for the purpose, can be better secured than through the instrumentality of our agricultural colleges in the several States. They have already departments of civil engineering, physics, geology, and agricultural physics, which is comparatively a new branch of physical science, all of which directly bear upon this question, and they only have to shape and apply their instruction already given to make it directly applicable to the education of competent highway engineers.

Then our experiment stations are in good shape to investigate the natural supply and quality of road materials in different parts of the State, to examine mechanical plants, and in various ways to assist in giving information to the community in regard to road subjects. One way in which agricultural experiment stations can do this is through their distribution of bulletins. The directors of the agricultural experiment stations have been, in my mind, wise in compiling bulletins on the subject of country roads, and these have been distributed by thousands through the agricultural experiment stations, and by a union of sentiment and interest between this road league and the experiment stations of the several States there could easily be arranged a medium of distribution of missionary literature. The directors of agricultural experiment stations have the privilege of mailing free just such information as this. For instance, I have, while director of the experiment station of the State of Maryland, mailed copies of such matter, on the decision of the Post-Office Department that that was information of value to the farmers.

While it is not mentioned in the proposition that came from the league and was laid before this committee, there might be embodied in this authority given to the Secretary of Agriculture to make this inquiry the suggestion of the utility of coöperating with the experiment stations and the agricultural colleges of the country in this work. The Department already has, tentatively, supervision of the experiment stations, but it has no official connection with the agricultural college; hence it would be a very wise thing to reach out to them and even ask their coöperation.

General STONE. I will ask Mr. John A. C. Wright, of New York, to speak a moment. Senator W. E. Chandler will close our remarks.

STATEMENT OF MR. JOHN A. C. WRIGHT.

Mr. Chairman and gentlemen: I am from New York and I am a Democrat, and as a Democrat I am not inclined to look for national aid and rather resent unusual national interference, but I am going to submit this resolution asking for an appropriation for this thing for the reasons which I shall briefly state.

The question of road reform is in the air, but there is general ignorance upon the subject among men who do not know just how to get at it, and who do not know that it can be done at a comparatively reasonable cost; but those of us who have looked into the subject know that this can be done. We know that England has built splendid highways within half a century.

Now, we have got to put that before the people in some way. Gov. Flower, in his last message, said that the counties of the State of New York, on an average, spent over \$54,000 on their roads. The present roads are atrocious. Now, I want to bring to your minds, first of all this initial thing. What we need in road-building, in road reform, is not more expense or going into details and management, but an improved system; we want an improved system of highway building. Our highway building at present is in short sections under men who are incompetent, not road experts, who pass out from year to year and give place to others. They can not investigate the details of management and can not do anything permanent.

Governor Hill recommended a system of roads forming a network throughout the State. In road-building, the great cities like Brooklyn and New York pay 65 per cent; Rochester, Buffalo, and other large cities, 28 per cent, and the farmer will only pay 7 per cent on the State system. Under the county system the farmer will pay 25 per cent. Now, gentlemen, you ought to fix this in your minds. You represent the agricultural interest; you want to do all you can for the farmer. The improved road means a road which is a community road, built at the community's expense. My idea is to have the county road with some copartnership in State roads, or roads with some copartnership on

the part of the State, county, and town. Now, to compel the farmer to build all his roads is not fair. We want to go and lift off the burden from him. You see, in this way, you are really making a plain gift, when you come to road improvement, to the farming class and the agricultural districts, which are now depressed. We believe, gentlemen, as city men some of us, that it is a fair gift, because they certainly have suffered extremely during the past years.

Now, another point I want you to think of, and I shall not enlarge upon it, is this: An improved road means an A 1, splendid, smooth, hard road, no dust, no mud holes, good at all seasons of the year, over which the farmer shall make the time which he makes during the best seasons. In my county the farmers start about midnight to come with their vegetables into Rochester so as to get to the morning markets.

Gentlemen, those good roads mean quicker transportation, they mean easier transportation, and they mean also a bigger haul; they also mean a great deal more for social, moral, and financial reasons. They mean that the farmer can come to town and get into quicker intercourse and interchange with men. It also means this, it means a road which you can go upon as well as be hauled over. If you have been abroad you know people walk on roads very freely, as freely as we walk on pavements. Farmers can go and visit each other; and there will be intercourse between the farmers and between communities centered in agricultural districts. It means also this, city people will go out and live there and bring lots of money into the county, and that they will go out and buy farms. I know in my own city lots of men who will have farms, who will do this for pleasure rather than profit. They will make experiments on those farms which will cost them a great deal of money. The farmer, when the experiment is successful, can try it on his own place.

This road exhibit at Chicago must necessarily be national. It is for the whole people. You recollect how everybody went to the Centennial. The farmer even mortgaged his farm sometimes to go. They are going to do the same thing during the Columbian Exhibit. Road reform is in the air. The farmer is beginning to think of it, but he does not know the thing. If you have a practical object lesson there, it is going to give those men a healthy impetus and will signalize a general road reform, in which we are now half a century behind other nations.

It certainly is a very small appropriation we ask, and I earnestly request this national aid which I have outlined.

STATEMENT OF HON. WILLIAM E. CHANDLER.

Mr. Chairman and gentlemen of the committee: New Hampshire is vitally interested at this time in preserving her forests and the sources of her streams. We have millions of money going to New Hampshire every year from mountain travellers, and we have recently

given close attention to the subject of forestry and have now taken up the subject of good roads. Therefore, it was at the request of ex-Gov. D. H. Goodell, and also at the request of our present governor, that I attended the meeting of the National League in this city, and I assure you, Mr. Chairman and gentlemen, I found myself in very excellent company. They were a little too much of one mind to suit me. I have not been used to being in gatherings where there was so little controversy. We all agreed upon the great objects to be accomplished, and we did not differ much as to methods. I have the honor of being on the committee on legislation, and I pursued there, strange as you may think it, Mr. Chairman, a very conservative course. I did not advise the gentlemen who are interested in this league in any way and undertake to put a heavy burden upon your committee or upon Congress. I advised that a very modest request should be made, and that takes shape in this proposal that you will authorize an inquiry to be made by the Secretary of Agriculture into the condition of the roads in the United States and the best methods of improving them, and that you will give him money for that purpose and authorize this inquiry to be made in connection with a commission of six citizens, selected and appointed, not by President Harrison, I am sorry to say, but by President Cleveland, who will be of both parties. There is room for the representation of two parties among the six, and I do not know but four or five, if the President finds that number of parties to be existing in the United States [laughter], and that they should serve without compensation. They can be found. There are men in this organization now who are giving their time and their money—and very valuable time and a good deal of money—to this work; that they are to serve without compensation and assist the Department of Agriculture in making this inquiry.

Mr. Chairman and gentlemen, I had the pleasure, in the Committee on Interstate Commerce, of which I am a member, of promoting a resolution on this subject, which came to the House and has not been acted upon, that proposed a rather formidable commission, two Senators, five members, and five citizens. This is more simple, and is a proposition about which, I think, there should be no hesitation in asking the aid of Congress. We do not tread upon any constitutional objection here. I find that we can not do anything even for the farmer, Mr. Chairman, without being overwhelmed by the weight of the Constitution; but I think that under the Constitution as it exists we can do something for agriculture. We certainly have established a Department of Agriculture, and I think that clearly under the Constitution we can do something for roads, because roads are an interstate matter. So we have not any constitutional troubles about making this inquiry. I do not think anyone has; and therefore we can do what, in the discretion of Congress, seems to be right.

It seems to me, therefore, that the resolution that was reported by the committee on legislation to the meeting of the National League and

is now presented for your consideration might well receive congressional favor. I also hope, Mr. Chairman, that this committee will think that the exhibit at Chicago can be provided for. There is not going to be in one hundred years again any such a great national exhibit as the Chicago World's Fair or Columbian Exposition of this year. The truth is, these fairs are getting to be too enormous. They are an exhibit of everything that this nation can produce and that all the other nations of this world can produce, making an exhibit that is beyond the physical and mental grasp of any one human being during one summer; and I think that hereafter special exhibits will take the place of these immense national exhibits; but this is going to be an era in the history of the New World and I think in the history of the whole world because of this exhibition at Chicago. Congress has not been over-burdened with reference to it. Why, these silver half dollars, Mr. Chairman, are not going to cost the Government anything; they are at a premium already. The "children are crying for them," and the Government never will see them again. We have not been burdened very much, and the question is whether, on the whole, we can not afford to help out the national road exhibit, such as is proposed here, in addition to giving this little sum of \$15,000 that is wanted for the Secretary of Agriculture. This is what has been asked and everything else has been discouraged, as Gen. Stone has stated. We laid the amendment to one side, the proposition that we should come up to Congress and initiate a movement for national aid to county roads, because it is not within the purpose, I know, of my State's rights Democratic friend from Rochester, N. Y., to come here for that purpose.

(To Mr. Wright). You have not that in mind, have you, sir?

MR. WRIGHT. No, sir; we are going to build our roads and pay for them.

SENATOR CHANDLER. I, an extreme, radical Republican, have no plan behind this movement; but I do think that the powers of the Constitution may be large enough to allow us to educate our people on almost any subject which is of importance to their welfare and their happiness.

MR. W. C. GIFFORD, chairman of the committee on transportation of the National Grange, presented the following report and resolution, adopted at the meeting of the National Grange:

WORTHY MASTER: Your committee, to whom was referred the communication from William H. Jones, of Fort Wayne, Ind., relative to aid from the General Government in the construction of country roads in the several States of this Union, have given the same careful consideration, and as a result thereof we are unanimous in the opinion that the constitutionality of such a demand is exceedingly questionable, and that it would not be wise for the National Grange to indorse such a demand. Your committee therefore feel compelled to report adversely thereon.

Respectfully submitted,

W. C. GIFFORD,
A. MESSER,
J. N. BLACKFORD,
MRS. PATIENCE HUNT,
Committee.

Resolved, That the National Grange recommends the various State granges to consider, at the annual sessions, the improvement of highways, and use all honorable means to obtain such State legislation as will best serve the interests in their respective localities in securing better public thoroughfares.

The CHAIRMAN. In behalf of the Committee on Agriculture we extend to you our hearty thanks for your appearance before this committee to-day and the information you have given us.

We simply desire to assure you that this committee will take this matter under consideration promptly and most earnestly and conscientiously consider it. I am very much obliged to the Senator from New Hampshire for having suggested at the close of his remarks, very briefly, that the specter of the Constitution and the mantle of Jefferson—if the mercury does not get lower than 20° or 30° below zero and freeze him up between here and Monticello—may come here whenever this proposition gets before the House of Representatives. This committee is getting tenderfooted; it takes all the courage and persuasion and everything else that I have, as chairman of this committee, to keep some of its members from being a little afraid of any new proposition that comes before it lest they may be knocked down by the Constitution when they get on the floor of the House, or as soon as they get back home again. [Laughter.] But some of the older members are getting a little accustomed to it. This committee, within the last fifteen years, has never reported a bill to the House of Representatives that has not been denounced on the floor of the House of Representatives as unconstitutional; and yet no measure ever reported by this committee that became a law upon the statute books has ever been declared by any reasonable justice of the peace or the Supreme Court of the United States unconstitutional in whole or in part, nor has any such measure ever been repealed. Some of them have stood on the statute books since the Forty-sixth Congress, and they were as new to the members of the House as this proposition. The members of this committee realize the importance of this proposition. It has been indirectly discussed many times in this committee room, and I am sure that I speak for every member of the committee when I say that within a reasonable construction of the Constitution they will be very glad to report any proposition from this committee to the House of Representatives. They will aid in the dissemination of the proper information and knowledge upon this subject and in starting our people in the proper direction to build good roads.

Now, I regret that the gentleman stated in connection with this World's Fair at Chicago that, judging the future by the past, many of our farmers interested in the great Centennial some years ago mortgaged their farms to obtain money to go there—

A MEMBER. There are not as many now to mortgage as there were then.

The CHAIRMAN. But the sad fact stares a good many of us in the face that, from sad experience, those mortgages have never been paid

to this day. [Laughter.] And unless we can do something in the future, as we have been trying to do in the past, to bring some other of our products upon the line of the meat industry of the United States, we having opened the markets of the world to our meat products and broken down all the barriers and put our meat products in better condition in the markets of Europe than that of any other country on earth—if the success of the World's Fair depends upon the few unmortgaged farmers in the West who may raise money in that way to go to Chicago, the Fair will be very slimly attended.

We desire to thank you again and to assure you that this committee will do everything in its power to aid you in the manner indicated.

At this point the committee adjourned, subject to the call of the chairman.



