

FARM.

First International Good Roads Congress.

In connection with the annual festival of the League of American Wheelmen, there was also held in the City of Port Huron, Mich., the first International Good Roads Congress. The festival resolved itself into athletic competitions and other forms of jollification, but the Good Roads Congress was held for business and was participated in by men alive to the importance of the subject and ambitious to hasten the movement towards a general and successful issue. The Congress was called together and largely arranged for by Mr. H. S. Earle, Chief Consul, Michigan Division L. A. W., Detroit.

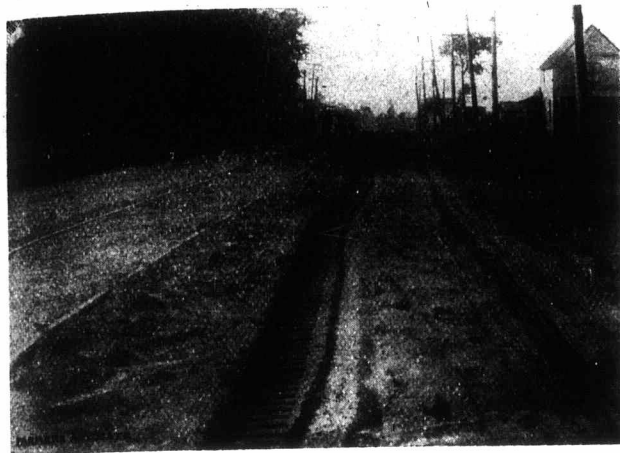


FIG. I.—SANDY STREET OVER WHICH THE MODEL ROAD WAS BUILT.

Mich. The meeting was presided over by President Martin Dodge, Director Road Enquiry, Washington, D. C. The secretary of the movement is E. C. Davidson, secretary and manager of the Road-maker Publishing Co., Port Huron. The gathering was not large, but representative, there being present some eighty delegates from various States and Canada, the representatives from the latter country being Andrew Patullo, M. P. P., Woodstock, and A. W. Campbell, Provincial Road Commissioner, Toronto. The Congress was held on July 2nd and 3rd, the proceedings of the first day being the inspection of and instruction on a sample road under construction under the direction of E. G. Harrison, U. S. Road Expert, Washington, D. C. The road consisted of a half mile of macadam put down on loose sandy soil that is never good except after a rain and then only for light vehicles. A line of street railway occupied the center of the street, and the macadam road was put down only on one side of the track. Fig. 1 shows the condition of the street on the side not treated. The notched markings were made by the wheels of the traction engine that was used to haul the metal (broken stone) from the crusher to the road-bed. The stone crusher was at work at the end of the road and beside the railroad, where the stone had been brought by rail from farming lands some distance out. The crusher used is a modern pattern, fitted with a convex jaw so as to prevent the possibility of flat stones going through without being broken into desirable size. The stone is crushed to a size that will pass through a two-and-a-half-inch ring, and screened into three grades: coarse, one and a half inch, and fine screenings and dust.

In preparing the sandy road-bed for the material, it is moistened and rolled with a ten-ton traction roller until it is firm and uniform. There is next put down a ridge of moist adhesive clay along the outside edges of where the macadam road is to be built. The next operation is to put down four inches of the two-and-a-half-inch stone. On this a light dressing of screenings or sand is spread and moistened, and the rolling commenced. Fig. 2 shows the clay ridge on the left side of the stone, also the four inches of broken stone before being rolled. As the rolling is continued more screenings are applied until three inches have been put on. This is moistened and rolled until the spaces between the particles are filled so thoroughly that the pieces cease to creep, or move or give way before the roller as it passes over. Fig. 3 shows the portion of road rolled into this condition. When finished the road will slant a half-inch to the foot towards the ditch, and the clay ridge will be removed so that the water will readily shed itself from the surface.

After having viewed the road in its various stages of completion, the company was addressed by the road expert, E. C. Harrison, who explained that the U. S. Government does not undertake to build roads, but it dispenses information as to the proper system of doing the work, both by literature and by object lessons in various places, such as this piece of road under construction. The effort is made, not to adhere to a fixed method whereby all roads must be built, but rather to explain how to make good roads as farmers can build with the material at hand and the finances at their disposal. It was explained that the first thing necessary is to get such drainage as will carry the water quickly away from the road-bed. An open ditch may answer if it is kept clean and has a good outlet, but a tile drain answers much better. The next move of importance is to secure or prepare a firm foundation. The traffic wear and weight on such a road

is enormous, so that a foundation similar to that for a building is necessary. Soil of any sort that is clay or sand is suitable, so long as it is firmly compressed, to the extent that all the tiny voids between the fine particles are pressed out. The broken stone is then put on and rolled until they are locked and interlocked to such an extent that the whole is bound firmly together. Mr. Harrison strongly opposed putting coarser stones in the bottom than those two and a half inches in diameter, as this size settles uniformly, whereas larger stones laid under this size tend to shift and work upward by the action of frost and traffic. It was explained that the top layer of chips and dust, when rolled in a moist condition forms into a waterproof roof, and after a few months becomes set similar to cement. It requires judgment to decide when sufficient material has been added and when sufficient rolling has been given, as, where the water line is only a short distance from the surface, excessive rolling causes it to rise to the road-bed in sufficient quantity to cause a weakening of the foundation. The cost of this form of macadam road varies from \$2,500 to \$2,800 per mile, according to the accessibility of material, the cost of labor and other varying circumstances. It is estimated to cost from \$1,100 to \$1,200 per mile apart from the material employed.

A programme of speeches.—The second day of the Congress was given over to a programme of addresses in the City Auditorium. Mr. Earle introduced the proceedings by a few remarks in which he expressed his pleasure at being able to address the citizens of two countries that permit the burden of teaching to rest on their shoulders. He referred to the great change in sentiment towards the question. The opposing forces of a few years ago are changing to a demanding power for faster work in good road construction than can be furnished.

President Martin Dodge, in his chairman's address, referred to the magnitude of the undertaking of making the good roads needed. He expressed a hope that there would soon be forthcoming State and United States aid, to the extent of a portion at least of the great expense necessary. The work so far has been done by localities, while a more general system and general tax is necessary. It was pointed out that a move in this direction is going forward since the Philadelphia National



FIG. II.—ROADBED WITH FIRST LAYER OF BROKEN STONE, BEFORE BEING ROLLED.

Convention and other national conventions have introduced a movement towards assisting road improvement. At the conclusion of the chairman's remarks, a number of gentlemen representing various occupations were asked to give reasons why they were interested in good roads.

The Farmer.—Mr. A. E. Palmer, Kalkaska, Mich., a dairy farmer, claimed to belong to a class not yet well educated along the line of good roads. Mr. Palmer claimed to farm for financial success, and therefore needed all the equipment necessary to facilitate his occupation. Facing the question of road improvement, he should ask ourselves not what would good roads cost, but will they pay a dividend. It was claimed that the cost of transportation is a heavy tax, and the better the condition of the roads the less will be the burden of this taxation. Since the produce of the farm has to pass over country roads on the way to other lines of transportation, the condition of the rural highway should compare favorably with the state of other lines of transportation. Such expensive roads as Macadam or Telford are rarely necessary, but a radical improvement in our roadmaking system is much needed.

Mr. Palmer contended that if country roads were put in a condition passable at all seasons, the boys and girls of the country could more easily obtain Central or High School education. Good roads, too, will add greatly to the value of real estate, and make agriculture more profitable by reducing the transportation tax. A spell of bad weather makes an unimproved road useless, whereas a proper road is practically in the same perfect condition at all seasons. In the course of his remarks the statute labor system was rather severely scored. Mr. Palmer pointed out that the average pathmaster is neither a good roadmaker nor a manager of men. Under a system of taxation and appointed road commissioners, it is not too much to expect four times as much work done as is now the case, and not only that, but what is done will be done properly, with the idea of permanency, and where a piece

of road is made this year it can be continued from there next year, instead of doing and undoing, as is frequently the case under statute labor. Among other advantages from good roads, they will serve to keep boys on the farm by making it possible for them to drive out with clean horses and clean buggies when and where they wish. Good roads will bring about free mail delivery, which will stimulate mental activity and bring more farmers into the prominence they are entitled to. Good roads will inspire farmers to improve the lawns and paint their houses and barns, which will develop a truly patriotic spirit, as well as greater culture and refinement. The result will be to transfer comfort and elegance from the city to the country, the natural place for it. In concluding his remarks, Mr. Palmer pointed out that the cost of transportation is a heavy tax, and the result of the proposed improved system will be to eliminate the burden rather than increase it by the tax that so many people fear.

Manufacturer.—Mr. H. M. Leland, of Detroit, represented the manufacturer in telling why that class of the community is interested in the subject of good roads. The first point made was that the manufacturers invariably build their factories on a well-paved street, as they realize the cost of hauling raw and finished material over soft or otherwise poor roads. Mr. Leland had prepared a paper, but cancelled considerable of it in order that he would not overstep his due time limit. The advancement made by the American nation was referred to, and compared to their enormous percentage of bad roads. Manufacturers are directly interested in good roads, since following them will come an increased demand for more bicycles, automobiles, buggies, roadmaking machinery, and many other classes of goods. Since good roads will increase the value of property and make farmers more prosperous, they will buy more and more of the classes of goods that tend to give comfort and happiness. Every home and hamlet will be enabled to purchase more and more of the products of the manufacturer. Mr. Leland contended that road improvement should go side by side with education, also with railway and harbor improvement. Comparing good and bad roads, Mr. Leland instanced a case in which 16,000 pounds was hauled 4 miles by 4 mules in 1½ hours, at a cost of 15 cents per mule per mile, making a total cost of 90 cents for hauling the load. At the end of 4 miles of good road 5,000 feet of bad road was encountered, over which the hauling of the 16,000 pounds required 10 mules and 7 men for 9 hours, at a cost of \$80.80. Mr. Leland concluded that it is ridiculous to consider road improvement along correct principles as expensive.

Medical.—E. B. Smith, M. D., of Detroit, in speaking from the standpoint of a physician, claimed that good roads are good for doctors as well as for their patients, as they shorten the time in which it takes to reach them, also make the trip much less wearing on the physician. Good roads will in this way increase happiness by improving health. In order to show the effects of riding on rough roads, Dr. Smith called attention to a well-known disease that is invariably found among stage drivers as a result of constantly driving over rough roads. He also pointed out that medical men are coming to the conclusion that much of the nervous diseases and premature aging of the women in the country are indirectly due to riding over rough country roads. The nervous system of the human body was likened to a telephone system, which is easily put out of order by jarring. Another point made in favor of good roads was that improved roads meant better drainage, which goes far to improve the sanitary condition of a country.

Good Roads Movement in Ontario.—Mr. Andrew



FIG. III.—PORTION OF ROAD ALMOST FINISHED.

Patullo, M. P. P., Woodstock, Ont., who was one of the first men in Canada to agitate for an improved system of roadmaking, pleased his audience with a review of the movement during the last seven years, at the beginning of which time the first Good Roads Association was formed in Ontario. At the commencement of the movement much injury was done to the cause by speakers who were too aggressive and theoretical, inasmuch as the undertaking was made to appear altogether too expensive. As time went on, however, A. W. Campbell, C. E., was discovered to be the proper man to give instruction in road building, and the office of Good Roads Commissioner was created, with Mr. Campbell as its officer. For some time

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