

thing where possible. Mr. Jarman, of Westmount, spoke of the tar-sand-grout roads, and Prof. Crandall, of the Barrett Co., commented on the fact that the tar and sand mixed method was invented in 1835 and then was seemingly lost until it was rediscovered by Mr. Brodie, of Liverpool, in 1900.

"Bituminous Roads and Pavements" was the title of Col. W. D. Sohier's paper. Col. Sohier is chairman of the Massachusetts Highway Commission. An abstract of his paper appears on page 333 of this issue.

T. Harry Jones, city engineer of Brantford, Ont., delivered a paper on "Cement Concrete Roads and Pavements," abstract of which is published on page 338 of this issue.

Good Speeches at the Banquet.

The annual dinner of the Dominion Good Roads Association was held Wednesday evening at Chateau Laurier. Col. Sohier, State Highway Commissioner of Massachusetts, ex-Commissioner MacDonald of Connecticut, and Sir Geo. Foster, made the principal speeches of the evening. Mr. MacDonald, who delivered an excellent address, witty and stirring in patriotism, touched but lightly upon good roads problems, but Col. Sohier's speech bristled with valuable facts and definite instances of the increased values that have accrued to the rural districts of Massachusetts through the building of good roads. The facts that he related were really startling, and showed the very great benefit of an adequate system of highways. His speech was an inspiration to road-makers and engineers generally.

Sir George Foster called attention to the fact that the benefits of good roads are not all monetary and material benefits, but that good roads are upon a higher plane, and are chiefly useful in the human uplift which results from them.

Hon. W. G. Mitchell, treasurer of Quebec Province, said that the \$20,000,000 set aside by the provincial government for aid to good roads is insufficient to meet the demands. The farmer has merely to be shown where his interests are benefited, and he takes hold of the road proposition vigorously.

Mr. Mitchell said that there are 1,175 rural municipalities in Quebec with 30,000 miles of roadways, and there are towns with another 2,000 miles, making 32,000 miles of highway to maintain, in addition to numerous colonization roads. All told, there are 45,000 miles of roadways in the Province of Quebec, while the population is but about 2,000,000, and the revenue only nine or ten million dollars.

Sir Sam Hughes considered that improved highways are more important than railways because they reach a greater area of agricultural industry. He looks forward to a system whereby the federal government will provide a main trunk road across the continent, the provinces providing the subsidiary highways.

More Papers Discussed on Thursday.

Jas. H. MacDonald opened Thursday's session with a talk on the construction and maintenance of gravel and macadam roads.

A. Fraser, engineer of the Roads Department of the Province of Quebec, read a paper on "The Correction of Alignments and Grades in Existing Highways."

The paper on "Highway Bridges and Culverts," by W. G. Yorston, Assistant Road Commissioner of the Province of Nova Scotia, appears on page 331 of this issue.

D. T. Black, town engineer of Welland, explained the various methods for laying brick pavements. His paper aroused much discussion among the delegates.

W. H. Connell, chief of the Bureau of Highways, Philadelphia, gave an illustrated talk on "Granite Block Pavements," showing interesting slides. "Many streets in Philadelphia have been laid with these blocks, which, from the standpoint of durability, give very good service under heavy traffic if properly laid," said Mr. Connell.

L. Reinecke, of the Department of Mines, Ottawa, delivered a paper on "Methods Employed for Making Road Materials Surveys." "The Geological Survey," said Mr. Reinecke, "has made records of the rock formations in many parts of the Dominion, and samples from each source of supply have been investigated and recorded. In taking the census of Canada's stone supply, the surveyors have even included field stone fences, so that these could be used in case of shortage of supply."

R. B. Morley, general manager of the Ontario Safety League, delivered an address on "Safety on the Public Highway," explaining what his league has done toward making the roadways safe for both pedestrians and drivers.

Canadian Automobile Association Meeting.

The annual meeting of the Canadian Automobile Association was held Thursday evening at Chateau Laurier. W. D. Edenburn, of Detroit, delivered an illustrated lecture on the Indiana-Pacific-Transcontinental tour, which helped to locate the Lincoln Highway. He incidentally showed some pictures of the present condition of the Ottawa-Prescott Highway, showing how necessary is the proposed improvement of this road.

W. A. McLean declared that the Ottawa-Prescott Highway is simply a matter of time and will surely be improved in the near future. He defended the present roads of Ontario, declaring that at least 40 per cent. of them are well-surfaced, serviceable roads and, though not of the best, they are capable of enduring for several years. Prophesying that gradually the main centres of Ontario and Quebec would be linked up by permanent highways, intersected with a network of town and county roads, he declared that the time was not far distant when the dreams of the good roads promoters would be an accomplished fact.

Closing Sessions on Friday.

Wimund Huber, assistant engineer of the Ontario Public Highways Department, opened the last day's sessions with a paper on "Modern Road Machinery, Its Selection, Use and Care."

"Road Organization," a paper by Geo. S. Henry, M.P.P., Ontario, was extensively discussed by S. L. Squire, of Waterford, Ont., R. S. Henderson, of Winnipeg, and others.

C. A. Mullen, director of the paving department of the Milton Hersey Co., Montreal, discussed "The Contract and Specifications for Paving." Abstract of his paper appears on page 328 of this issue. A. F. Macallum, works commissioner of Ottawa, led the discussion, agreeing with Mr. Mullen that sheet asphalt pavements can successfully be laid by cities by day labor, and also agreeing that the guarantee clause is unnecessary in contract paving work. Mr. Near, city engineer of St. Catharines, Ont., called attention, however, to the fact that a 5 or 10-year guarantee is wise in Ontario towns and cities where the property owners pay for the pavement but not for its maintenance, and through the guar-