Subject C.—Maintenance.

1. Sub-Organization for Securing Efficient Maintenance.

2. General Methods of Repairs and Renewals.

3. Bituminous Surface Treatment and Dust Prevention.

Among those who are to take part in the proceedings are the following: Chas. J. Bennett, State Highway Commissioner of Connecticut; E. M. Bigelow, State Highway Commissioner of Pennsylvania; A. H. Blanchard, Professor of Highway Engineering, Columbia University, New York, N.Y.; Henry L. Bowlby, State Highway Engineer of Oregon; Frank W. Buffum, State Highway Commissioner of Missouri; John N. Carlisle, State Highway Commissioner of New York; Wm. H. Connell, Chief, Bureau of Highways and Street Cleaning, Philadelphia, Pa.; Geo. W. Cooley, State Engineer of Minnesota; F. L. Cranford, Road Contractor, Brooklyn, N.Y.; Major W. W. Crosby, Chief Engineer, Maryland Geological Survey; A. W. Dean, Chief Engineer, Massachusetts Highway Commission; Fred E. Ellis, Road Contractor, Peabody, Mass.; A. B. Fletcher, State Highway Engineer of California; S. D. Foster, Chief Engineer, Pennsylvania State Highway Department; R. B. Gage, Chemist, State Highway Department of New Jersey; John S. Gillespie, Road Commissioner of Allegheny County, Pa.; L. R. Grabill, Superintendent of Suburban Roads, District of Columbia; H. C. Hill, Engineer, Lane Construction Co., Meriden, Conn.; A. R. Hirst, State Highway Engineer of Wisconsin; Prevost Hubbard, Consulting Chemist, Institute of Industrial Research, Washington, D.C.; Jos. W. Hunter, Deputy Commissioner, Bureau of Township Highways, Pennsylvania State Highway Department; A. N. Johnson, State Highway Engineer of Illinois; C. A. Kenyon, President, Indiana Good Roads Association; Nelson P. Lewis, Chief Engineer, Board of Estimate and Apportionment, New York, N.Y.; James H. MacDonald, former State Highway Commissioner of Connecticut; T. H. MacDonald, State Highway Engineer of Iowa; W. A. McLean, Chief Engineer of Highways and Commissioner of the Ontario Public Roads and Highways Commission, Toronto, Ont., Canada; R. A. Meeker, State Highway Engineer of New Jersey; Harold Parker, Vice-President, Hassam Paving Co., Worcester, Mass.; Robert J. Potts, Professor of Highway Engineering, Agricultural and Mechanical College of Texas, College Station, Tex.; Dr. Joseph Hyde Pratt, State Geologist of North Carolina; Jean de Pulligny, Engineer-in-Chief, Board of Public Works of France, and Director of the French Mission of Engineers to the United States; John J. Ryan, Secretary, Road Builders' Association, Albany, N.Y.; Frank F. Rogers, State Highway Commissioner of Michigan; Chas. W. Ross, Street Commissioner, Newton, Mass.; Paul D. Sargent, Chief Engineer, Maine State Highway Commission; Herman H. Schmidt, Chief Engineer, Bureau of Highways, Borough of Brooklyn, New York, N.Y.; Henry G. Shirley, Chief Engineer, Maryland State Roads Commission; Francis P. Smith, Consulting Chemist and Paving Engineer, New York, N.Y.; Robert C. Terrell, Commissioner of Public Roads of Kentucky; Geo. W. Tillson, Consulting Engineer to the President of the Borough of Brooklyn, New York, N.Y.; Wm. D. Uhler, Assistant Engineer, Bureau of Highways and Street Cleaning, Philadelphia, Pa.; P. St. J. Wilson, State Highway Commissioner of Virginia.

EFFECT OF HIGH PRESSURES.

CURIOUS and unlooked-for manifestations have of late been observed from the application of very high pressure. It used to be considered that heat was the only medium which would separate compound substances into their simple elements, but it has now been found that pressure is equally effective and more convenient in some respects. Salts decompose spontaneously into their component acid and metals, water yields its elementary gases, and heat consolidates into coal.

The application of very high pressures seems to be producing a positive revolution in the chemical industry, and is briefly referred to in Railway and Locomotive Engineering. Only a short time ago, the report circulated that Haber had succeeded in causing elementary nitrogen and hydrogen to react at a pressure of 300 atmospheres (4,410 pounds) and at temperatures varying between 900 and 1,080 degrees F. A remarkable reaction belonging to this category was likewise discovered by Ipatiew, who succeeded in precipitating metals from their sale solutions by hydration under high pressure. Thus, starting with cupric sulphate, he obtained finely distributed copper and sulphuric acid. There is another interesting reaction in the decomposition of water under high pressure and at high temperatures in the presence of a metal, as, for instance, iron, which binds the oxygen separated. At the same time, hydrogen of very high purity is yielded. This new method of producing pure hydrogen is of especial interest at the present time, since this gas is used for many technical purposes in various departments. Among the various modes of production that have been announced of late, the new method is probably the cheapest. The production of artificial coal under high pressure is also one of the recent inventions. Cellulose or peat is heated up with water to 612 degrees F., under a pressure of more than 100 atmospheres (1,470 pounds) in apparatus especially constructed for the purpose, the resultant being a product identical with mineral coal, both from a physical and a chemical point of view. At 558 degrees F. the process requires 80 hours, at 612 degrees F. only 8 hours are necessary for the transformation.

MOTOR TRAFFIC IN CANADA.

Over 12,400 more motor vehicles were in use in the Dominion on November 1st than at the end of last year, according the figures compiled by the Automobile Club of Canada. The following are the totals for each of the provinces, including private and commercial vehicles and motor cycles:—

	1912.	1913.
Quebec	3,597	4,706
Ontario	11,939	15,255
New Brunswick	289	789
Manitoba	3,943	5,016
British Columbia	4,666	7,044
Nova Scotia	867	1,300
P. E. Island	...	...
Saskatchewan	3,742	6,513
Alberta	2,835	3,640
Yukon	5	15

It is rather remarkable that the largest gains among the motor vehicle using provinces were made at the two ends of the continent—in New Brunswick and the Yukon, where the increases were over 300 per cent.