

The cycle of operation is as follows: The charge of mixed gas and air is ignited by a sparker, and exploding drives the water forward, and water flows in from the suction-tank, and, a slight vacuum being created, more air enters. The water begins to surge back under the static head and compresses the air in the combustion chamber, and the elasticity of the air causes the water to again reverse.

Under test a 16 horse-power plant required 1,063 pounds of coal for every horse-power represented by the water raised, which compares very favorably with the 1.7 pounds required by first-class triple expansion steam pumping machinery.

**EDITORIAL NOTES.**

Japan has appropriated \$20,000,000 for the building of a Government railway. Canadian contractors and manufacturers of Canadian steel rails should find an interesting field here. Business cannot be done by Canadians in Japan unless they send a representative to that country.

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Graphical methods of solving engineering problems are being much employed. Diagrams and curves to aid in estimating are in constant use. Once a month we expect to insert diagrams that will be of interest to engineers and contractors. The insert in this issue is not just as perfect as we could wish, but we hope to improve the inserts both in regard to the value of information they contain and also in respect to press work.

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McGill University has opened a new department in the Faculty of Applied Science—that of Harbor Engineering. Harbor engineering works in Canada are now requiring the services of many men, and McGill is to be congratulated in that she is the first university to take up the work, and because she has been so fortunate to secure an engineer as lecturer in the course so familiar with this class of work and a man standing so high in the profession as Mr. F. W. Cowie, of the Montreal Harbor Commission.

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**BRITISH COLUMBIA'S RAILWAYS.**

(Fred. W. Field in the Monetary Times.)

British Columbia is in need of railways. They are the life of a mountainous country, which has also large and fertile valleys. But mountainous countries do not make easy railroad building. The Canadian Northern has been nursing a transportation proposition in British Columbia for some time past. It hatched the other day, and with it came a brood of trouble. Premier McBride, on behalf of the provincial government, said the road would be guaranteed by them to the extent of \$35,000 per mile. Railways have been talked indefinitely on Canada's Pacific coast, so Premier McBride's definite statement was something new. Two of his ministers, Hon. R. G. Tatlow and Hon. F. J. Fulton, who manage between them finance, agriculture and lands, have handed in their resignations, evidently thinking that the day of railroad bonuses has passed. The province needs more transportation facilities than it now possesses, and the final result will probably be a dissolution, the return of the McBride government—for British Columbia prefers railroads to politics—and a guarantee of the Canadian Northern bonds.

**COMING MEETINGS.**

**Canadian Society of Civil Engineers (Toronto Branch).** Special meeting, Monday, November 15th at 8 p.m. Address by Mr. Allen Hazen on "Water Filtration."

**American Society of Engineering Contractors.**—Feb. 24-26, 1910. Annual convention at Chicago, Ill. Secretary, Daniel J. Hauer, Park Row Building, New York, N.Y.

**American Society of Mechanical Engineers.**—December 7-10, 1909. Annual meeting New York City. Secretary, Calvin W. Rice, 29 W. 39th Street, New York, N.Y.

**American Street and Interurban Railway Association.**—October 4-8, 1909. Annual convention at Denver, Colo. Secretary, Bernard V. Swenson, 29 W. 39th Street, New York, N.Y.

**National Municipal League.**—November 15-19, 1909. Annual meeting Cincinnati, O. Secretary, Clinton Rogers Woodruff, 705 North American Building, Philadelphia, Pa.

**The Engineers' Club of Toronto**

96 KING STREET WEST TELEPHONE MAIN 4977

**Programme for November, 1909**

THURSDAY, NOVEMBER 4th.

General Business Meeting.

Consideration of proposed amendments to the Constitution, of which notice was given by Mr. A. F. MACALLUM on October 7th, as follows:

"*Clause 3. MEMBERS. The Club shall consist of members, honorary members, and associates. \* \* \**

"*An associate shall be one who is not an Engineer by profession, but whose pursuits, scientific acquirements or practical experiences qualify him to cooperate with engineers in the advancement of professional knowledge; and he shall possess all the rights and privileges of members, except the right to vote or to hold office.*"

By MR. T. AIRD MURRAY:

"*Clause 8. After the word "members," in the first line add "and associates."*

"*Clause 8. To increase the annual dues for resident members from \$5.00 to \$7.50 from 1st January next.*

THURSDAY, NOVEMBER 11th.

"Some points in the Construction of the Simplon Tunnel." Illustrated by lantern slides.  
*Paper by Mr. Chas. B. Fox, M.A.*

THURSDAY, NOVEMBER 18th.

"Facts and Figures relating to Producer Plant Practice."  
*Paper by Mr. M. Chapman.*

THURSDAY, NOVEMBER 25th.

Meeting of the Toronto Branch of the Canadian Society of Civil Engineers.

THE EXECUTIVE MEETS EVERY THURSDAY AT 7.30 P.M.

A. B. BARRY, President, City Hall.  
L. J. STREET, Treasurer, 37 Melinda St.  
R. B. WOLSEY, Secretary, 25 Lowther Ave.

There are twenty-six Dominion Forest Reserves and National Parks set aside in the public-land area of the Canadian West. Their total area is 10,441,120 acres, distributed as follows:—

Manitoba—six reserves.....	2,288,160 acres.
Saskatchewan—four reserves.....	473,600 "
Alberta—six reserves.....	6,209,280 "
British Columbia—ten reserves.....	1,470,080 "