

## PERSONALS

FRANK BARBER, consulting engineer, Toronto, whose design for the \$300,000 Hunter Street bridge, Peterborough, Ont., which will be the longest concrete arch bridge in Canada, was formally accepted by the city of Peterborough last week by the mayor's signing the contract for its construction, was born December 27th, 1875, at Milton, Ont., and was educated at the Dunnville high school, Mount Allison University and the University of Toronto, where he



graduated in 1906 in the civil engineering course, specializing in mathematics. After graduation Mr. Barber entered the office of the late James MacDougall, who was then engineer of York County, Ont., and later became Mr. MacDougall's chief assistant. Upon Mr. MacDougall's death in 1908, Mr. Barber entered private practice and was also appointed York County engineer. Mr. Barber was in partnership with C. R. Young, who is now an associate professor at the University of Toronto, under the firm name of Barber & Young, until 1911,

when Mr. Young joined the staff of the University as a lecturer. From 1908 until the outbreak of war, Mr. Barber and his staff designed and planned an average of about thirty bridges a year in various parts of Canada, including the longest concrete arches and some of the longest steel highway bridges in Ontario, also including the first open spandrel arches in Canada and fifteen out of the first twenty concrete truss bridges in the Dominion. At the outbreak of war, when bridge work partially stopped, Mr. Barber became managing-director of the Thor Iron Works, Ltd., Toronto. This plant was soon converted into a shipbuilding yard, and in 1917 launched its first ocean-going steel freighter. Under Mr. Barber's management the business is said to have increased from \$200,000 to over \$1,000,000 a year. In October, 1917, he sold his interests in the firm to New York shipbuilders who reorganized the business as the Dominion Shipbuilding Co., and Mr. Barber decided once more to devote his entire time to consulting work. He is at present corporation engineer or consulting bridge engineer for the counties of York, Simcoe and Haldimand, and the townships of York, Vaughan, Etobicoke, King and various other townships and towns. During the past two years he has acted in association with R. O. Wynne-Roberts for various water works, sewerage and other municipal improvements, including water works extensions costing about \$1,000,000 for York Township. The firm is now reporting on a sewerage scheme for York Township which will also cost about \$1,000,000.

WILLIS CHIPMAN, of the firm of Chipman & Power, consulting engineers, Toronto, is in British Columbia (Vancouver Island) on an engineering mission for the Dominion Government.

CHARLES R. MURDOCK, who for the past nine years has been on the staff of Chipman & Power, consulting engineers, Toronto, has resigned to accept an appointment as town engineer of Dundas, Ont. Mr. Murdock graduated in 1906 at the University of Toronto, with the degree of B.A.Sc.

He was formerly resident engineer for Chipman & Power at that firm's Winnipeg office.

NORMAN MALTMAN, formerly purchasing agent of the Russell Motor Car Co., Toronto, has joined the staff of A. R. Roberts, Toronto, who recently severed his connection with the firm of Burns & Roberts, Ltd., and opened a new office as manufacturers' agent and dealer in new and used machinery.

## OBITUARY

A. C. MACKENZIE, who was for many years an outstanding figure in the construction world of Western Canada, died suddenly last Friday at the power plant which is under construction on the Winnipeg River. Mr. MacKenzie was 56 years of age. He was president of the Northern Construction Co., who are the contractors for the Winnipeg River power plant. For over 20 years he was one of the best known railway contractors in Western Canada, having been actively identified with the C.N.R. interests. Interment took place last Monday at Beaverton, Ont.

## EFFECT OF VIBRATION, JIGGING AND PRESSURE ON FRESH CONCRETE

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23. The compressive strength of concrete was increased by pressure applied immediately after moulding. For pressure of 200 to 500 lbs. per sq. in. the increase was 20 to 35%.

24. The duration of pressure as between 15 mins. and 16 hrs. produced no difference in strength.

25. There was a steady reduction in the water-ratio of the concrete with the application of pressure.

26. The application of pressure increased the strength of concrete in accordance with the quantity of mixing water expelled.

27. The tests of concrete subjected to pressure showed the usual relation between compressive strength and water-ratio. The strength is increased *because the water is expelled*. In other words, pressure produces a drier concrete, and, consequently, gives higher strength. This makes it clear why the duration of pressure has no influence on the result.

The indications of the vibrations and jiggling tests should not be misinterpreted. The tests show that *after the concrete is properly placed* these methods of treatment do no good, and may be harmful if too severe or too long continued. However, there can be no doubt of the value of such methods *for getting concrete into place* in intricate forms and around reinforcing bars. The tests are of value in showing that this is the only desirable function of such treatments. One series of tests shows the ill effects of lack of compactness in the concrete, the strength being reduced 13% due to failure to tamp or puddle the top 9 ins. of the cylinder. It is impracticable to duplicate in a compression test piece the performance of air hammers and other similar methods of vibrating when used on reinforced concrete work.

The tests show that with jiggling high strength may be secured with drier mixes than would be feasible otherwise. It is a matter of common experience that concrete of drier consistency (and, consequently, higher strength) can be placed by means of jiggling or vibration than would be possible by the usual methods.

There are already thirty-two surrendered German aeroplanes assembled at Toronto, and all will be displayed or flown at the Canadian National Exhibition, August 23rd to September 6th. Canada owns nearly 100 German or allied planes, and they will eventually become part of the official museum display or be distributed among the various cities by the Dominion government.