

The Canadian Engineer

Established 1893

A Weekly Paper for Civil Engineers and Contractors

Terms of Subscription, postpaid to any address:

One Year	Six Months	Three Months	Single Copies
\$3.00	\$1.75	\$1.00	10c.

Published every Thursday by

The Monetary Times Printing Co. of Canada, Limited

President and General Manager
JAMES J. SALMOND

Assistant General Manager
ALBERT E. JENNINGS

HEAD OFFICE: 62 CHURCH STREET, TORONTO, ONT.

Telephone, Main 7404. Cable Address, "Engineer, Toronto."

Western Canada Office: 1206 McArthur Bldg., Winnipeg. G. W. Goodall, Mgr.

PRINCIPAL CONTENTS

	PAGE
Formulæ for One-Story and Two-Story Bents, by E. Maerker	213
Lignite Board Encountered Difficulties	216
Effect of Rodding Concrete, by E. Giesecke ..	217
World is on Higher Price Level, by T. S. Holden	218
Flat Rate vs. Meters, by C. E. Abbott	221
Bond Premiums on Government Contracts....	222
Water Powers of British Columbia	223
Advance in Book Prices	223
How to Reduce Risks in Earthwork, by H. P. Gillette	224
Standardization, by Guillian Clamer	225
Personals and Obituary	230
Construction News Section	42
Tenders Called For	50

MATHEMATICIANS ENTER INDUSTRIAL FIELD

PROBABLY for the first time in the history of science, professional mathematicians have formally entered the industrial field. Three New York mathematicians have established a consulting office with the object of handling special problems arising in industrial work for the solution of which the knowledge of mathematical specialists can be utilized to advantage.

Each of the members of the firm has been privately engaged for some time in work of this nature in addition to his other professional activities, and they state that "it was at the suggestion of clients that the decision was made to set up a consulting service which would extend to the industrial world the resources of modern, pure and applied mathematics."

"Problems come up in practically all technical fields," they write, "for the satisfactory solution of which the expert application of mathematics is essential. Directors of technical enterprises do not hesitate to call in the consulting engineer, consulting chemist, patent attorney or efficiency expert, but the mathematical features of technical problems are often left without adequate treatment. We are sure that this is due neither to a reluctance of industrial managers to consult mathematicians nor to a lack of desire on the part of mathematicians to handle industrial problems, but rather to the fact that men fitted for consulting service in this field have heretofore been too far removed from the industrial world. It is with the expectation of being of important service to the technical public, that we announce the establishment of our office."

The new firm will be known as Dantzig, Pfeiffer & Ritt, with offices at 500 West 116th Street, New York City. Dr. T. Dantzig is a graduate of the University of Paris. He has taught at Indiana and Columbia Universities, and dur-

ing the war was in charge of the mathematical work of the instrument section of the U. S. Ordnance Department. Dr. G. A. Pfeiffer is a graduate of the Stevens Institute of Technology. He has taught mathematics at Harvard, Princeton and Columbia Universities, and is associate editor of the *Annals of Mathematics*. Dr. J. F. Ritt is a graduate of Columbia University. For three years he was in the Naval Observatory and has since taught mathematics at Columbia. During the war he was one of the chief ballisticians in the U. S. Ordnance Department.

Among the industrial applications of pure mathematics in which the firm claim that their services will be useful, are the following:—

Problems in statistics and probability; design of measuring and computing apparatus; design of optical instruments; mathematical treatment of problems in mechanism; mathematical formulation for patent claims of principles underlying inventions; scientific development of inventions; problems in aeronautics; and preparation of graphs, diagrams and charts.

WINNIPEG RIVER POWER CO., LTD.

ACTIVE work has begun on the construction of the new hydro-electric plant for the Winnipeg River Power Co., Ltd., on the Winnipeg River, 14 miles north of Lac du Bonnett, Man. The design contemplates the ultimate installation of six units of 28,000 h.p. each. The initial installation will be two units. The plant is being built by the Northern Construction Co., Ltd., for the power company, which is a subsidiary of the Winnipeg Electric Railway Co.

Before the war it became evident that the railway company would soon require a large quantity of power, but after plans had been prepared and a standard-gauge railway built from Lac du Bonnett, on the Canadian Pacific Railway, to the power site, it was found that the finances of the company did not permit a continuance of the enterprise.

After the armistice the project was revived, but the war had played havoc with the finances of the railway company and it was unable to assist further in the financing. The late A. C. Mackenzie, who was then president of the Northern Construction Co., entered into an agreement with the power company that his concern would build the dam and finance the cost of the undertaking until such time as the power company's bonds could be sold. No money will be due the construction company until the fall of 1920, by which time it is expected that the bonds will be marketed.

The main dam will be over 2,000 ft. long and 70 ft. high, and will be built of reinforced concrete; the power house will be of steel and brick, 450 ft. long by 140 ft. wide and over 100 ft. high.

The power from the new plant will be transmitted to Winnipeg over a 70-mile line with steel towers. A 65 ft. by 255 ft. steel-and-brick transformer station will be built at Winnipeg. Another line will connect the new plant with the present transmission line from Pinawa to Winnipeg at a point of about five miles south of Lac du Bonnett. The new plant will thus be connected with the city by two separate lines located at a considerable distance from each other.

F. A. Martin, who was formerly in private practice at Niagara Falls, N.Y., is in charge of the design of the plant. He has established an office in Winnipeg. R. S. & W. S. Lea, of Montreal, are the consulting hydraulic engineers, and Louis J. Hirt, of the Pearson Engineering Corporation, New York, has also been retained in an advisory capacity.

PORT COLBORNE ELEVATOR INVESTIGATION

FOLLOWING are the members of the board that has been appointed by the Dominion government to investigate the dust explosion in the government-owned grain elevator at Port Colborne, Ont., which last week killed ten workmen and badly wrecked the \$2,000,000 structure:—Lieut.-Col. C. N. Monsarrat, consulting engineer to the Department of Railways and Canals; A. St. Laurent, assistant deputy