

significant, however, is the fact that the Upper Canada municipalities were in arrears of interest to the amount of \$3,517,018, and those of Lower Canada to the amount of \$782,735. With the utmost confidence in their investments, they had sunk large sums in railroads, both directly through bonuses to roads and through subscriptions to stock, and had also spent large sums in building highways. The counties of Lanark and Renfrew were debited with \$800,000, the city of Brantford with the sum of \$400,000, Cobalt \$500,000, and Port Hope with the comparatively enormous sum of \$680,000. The investments had not resulted as expected, and many of the municipalities were quite unable to pay the interest. The result was that in some cases the debts had to be wiped off the books of the province.

The present case, however, is different, as the total is smaller, not only absolutely, but also in relation to the wealth and assets of the municipalities of Ontario. Moreover, in order to take advantage of it, they would have to borrow three times as much at current rates of from 6 to 8 per cent., so that the average cost of the money would in most cases be largely in excess of 6 per cent.

WOMEN IN DRAFTING ROOM

NEARLY twenty young women are in active training to do drafting work for the Iowa State Highway Commission. So many of the young men trained to this work have been called to war and so many sent out to do actual field work, that it became necessary to take radical means to keep the work of this important department in pace with the needs. W. T. Ide, of the manual training department of the East High School, Des Moines, Iowa, was secured for the vacation period to train a number of young women to do this work. So soon as an individual shows proficiency, she is given actual drawing work. Many more applications have come in than can be accommodated, showing great interest in this new line of work for women. The success of the experiment so far has been such that it is freely predicted that much of the work of the drafting room will continue to be done by women.

METHODS OF FINANCING FOR GOOD ROADS

(Continued from page 160)

fund is provided and utilized for the upkeep of the system, then the money used in construction has been wasted. A good plan, and one becoming popular in the United States, provides that a fund must be provided for in the taxes for use in maintaining roads constructed by means of bond issues, said fund to be kept separate from all other county funds and used only for maintenance. The Federal Aid Road Act of the United States provides that unless roads constructed under the provisions of the Act are adequately maintained, then approval of further road programmes for the section may be withheld until such time as the roads have been properly repaired. There is a growing tendency to tax, by licensing or registration, all vehicles, whether motor or horse-drawn, that use the roads, and it is desirable that the funds raised in this manner should be utilized, either wholly or in part, for maintenance, not as a punishment for the use of the roads, but because there will be a constant proportion between the amount of wear and tear and the amount of money raised. This might be

carried further and a tax imposed on gasoline, for then the occasional and the constant user would each pay in absolute ratio to the use made or mileage covered. A tax of this description is levied in England, but the fund into which it goes is not utilized for maintenance, but for construction.

RURAL COMMUNITY WATER SUPPLIES

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settled, and the question is going to require more engineering aid than it has in the past, if the best results are to be obtained.

Signs of insufficient investigations are noticeable at times, such as dry reservoirs, indicating unsuitable soil conditions, and let us hope that the practice of installing incomplete schemes, because of lack of money, or other excuses, will be stopped, if for no other reason than that these dilapidated schemes are bad examples in the country. It is false economy to half build a big scheme. Better to build two small schemes well. This is another case where the Public Utilities Commissions of the provinces could increase their efficiency by making better use of the engineering profession.

PERSONALS

R. C. HARRIS, works commissioner of the city of Toronto, has resigned as Honorary Fuel Controller for the Province of Ontario.

Prof. R. C. WALLACE, head of the Department of Geology and Metallurgy, University of Manitoba, has been appointed mining commissioner of Northern Manitoba.

R. G. JENCKES, JR., formerly assistant engineer of the Indianapolis Water Co., has joined the staff of the Pitometer Co., of New York, with headquarters at Wheeling, W. Va.

HOWARD G. KELLEY, C.E., president of the Grand Trunk Railway, has returned to Montreal after an inspection trip over the lines in Western Canada. Mr. Kelley went as far as Skagway, Alaska, and to the Yukon.

SAM. J. PORTER has resigned as assistant chief engineer, Irrigation Branch, Department of the Interior, with headquarters at Calgary, to assume charge of the operation of the Lethbridge section of the Canadian Pacific Railway Company's irrigation block, with headquarters at Lethbridge, Alta.

JAMES CARRUTHERS, president of Canada Steamships, Limited, has resigned as director of the newly incorporated Halifax Shipyards, Limited. Mr. Carruthers protested against the formation of a subsidiary wrecking company. The other directors state that Mr. Carruthers' subscription to the enterprise has already been replaced by another.

J. VAN BENSCHOTEN, one of the assistant engineers attached to the New York office staff of the Wallace & Tiernan Co., has been assigned to the General Supply Co., Limited, of Canada, Ottawa, who are Canadian agents for the Wallace & Tiernan Co. Mr. Van Benschoten is a graduate in mechanical engineering of Syracuse University and for several years has paid special attention to problems concerning the application and control of chlorine in the sanitary field.