places the export of fruit alone from the valley, in the year 1920, at 7,000 carloads, allowing liberally for orchard losses by disease and misadventure, and in the year 1925 at 12,000 carloads.

The proposed Canadian Northern Pacific Railway Company's branch line in the Okanagan will deliver all construction material at the site of the proposed plant, climatic conditions are peculiarly favorable for rapid and economical construction, while a prosperous producing district of British Columbia eagerly awaits the distribution of cheap light and power.

LETTER TO THE EDITOR.

Re Rosewater's Hydraulic Table.

Sir,—Adverting to the table published in your issue of July 6th and to the direction given as to the use of same, it may be interesting to observe that the table can be used in many different ways and thus increase it value.

Let the following notation be used for convenience and abbreviation of terms:—

V_1 = velocity required in feet per second—f.p.s.
V_2 = velocity given in table for 1% grade—f.p.s.
Q_1 = quantity required in cubic feet per second—c.f.s.
Q_2 = quantity given in table for 1% grade—c.f.s.
S = slope in feet per 100.
D = diameter of pipe in inches.

(1) Given S and D required Q_1 and V_1

EXAMPLE: $S = 2.25\%$; D = 44 inches flowing 7/10 full; $Q_2 = 99.28$; $V_2 = 12.65$; $\sqrt{2.25} = 1.5$.

$Q_1 = 99.28 \times 1.5 = 148.92$ c.f.s. Answer.
$V_1 = 12.65 \times 1.5 = 18.97$ f.p.s. Answer.

(2) Given D and V_1 required Q_1 and S

EXAMPLE: D = 40 inches running full; $V_1 = 3$ f.p.s.; $Q_2 = 90.39$; $V_2 = 10.36$; $S = \left(\frac{V_1}{V_2}\right)^2$ or $\left(\frac{Q_1}{Q_2}\right)^2$.

$S = \left(\frac{3.00}{10.36}\right)^2 = 0.084\%$. Answer. $\sqrt{.084} = .290$

$Q_1 = 90.39 \times .29 = 26.21$ c.f.s. Answer.

(2a) Given D and V_1 required Q_1 and S

EXAMPLE: D = 18 inches flowing 2/10 full; $V_1 = 2$ f.p.s. at 2/10; $Q_2 = 0.83$; $V_2 = 3.32$.

$S = \left(\frac{2.00}{3.32}\right)^2 = 0.36\%$. Answer. $\sqrt{0.36} = 0.6$

$Q_1 = 0.83 \times 0.6 = 0.498$ c.f.s. Answer.

(3) Given V_1 and Q_1 required D and S

$\frac{Q_1 \times V_2}{V_1 \times Q_2} = 0$; $\frac{Q_1 \times V_2}{V_1} = Q_2$; $\frac{V_1 \times Q_2}{Q_1} = V_2$; all approximate.

EXAMPLE: $V_1 = 4$; $Q_1 = 10$; $\frac{Q_1}{V_1} = \frac{10}{4} = 2.5$; $Q_2 = 2.5\,V_2$

Look down the full flow 1% table for the discharge figure, which is approximately 2.5 times the velocity figure, and it will be found at 22 inches, which is the answer.

$Q^2 = 17.94$; $V_2 = 6.80$

$S = \left(\frac{10.00}{17.94}\right)^2 = .310\%$. Answer. $\sqrt{0.310} = .557$

Check: $17.94 \times .557 = 10$ c.f.s.
$6.80 \times .557 = 3.79$ f.p.s.

(4) Given S and V_1 required Q_1 and D.

$\frac{V_1}{\sqrt{s}} = V_2$. (See table for the figure or one larger at 1% grade.)

EXAMPLE: $S = 0.50\%$; $V_1 = 3$ f.p.s.; $\sqrt{0.50} = .707$; $V_2 = \frac{3.00}{.707} = 4.24$ = 12-inch pipe. Answer.

Q_2 for 12-inch pipe at 1% = 3.40 c.f.s.
V_2 for 12-inch pipe at 1% = 4.34 f.p.s.

$Q_1 = 3.40 \times .707 = 2.40$ c.f.s. Answer.
$V_1 = 4.34 \times .707 = 3.07$ f.p.s.

(5) Given Q_1 and S required D and V_1

EXAMPLE: $Q_1 = 15$ c.f.s.; $S = 0.40\%$; $\sqrt{0.40} = .632$.

$Q_2 = \frac{Q_1}{\sqrt{s}} = \frac{15.00}{.632} = 23.73$. Nearest figure in table = 26-inch pipe. Answer.

$Q_2 = 28.27$ $V_2 = 7.67$
$Q_1 = 28.27 \times .632 = 17.87$ c.f.s.; $V_1 = 7.67 \times .632 = 4.85$ f.p.s. Answer.

(6) Given Q_1 and D required S and V_1

EXAMPLE: $Q_1 = 15$ c.f.s. at 5/10 full; $D = 30$ inches; $Q_2 = 41.64$ for full, $V_2 = 8.48$; 20.82 for 5/10 full, $V_2 = 8.48$.

$S = \left(\frac{15.00}{20.82}\right)^2 = 0.52\%$. Answer. $\sqrt{0.52} = 0.72$

$V_1 = 8.48 \times 0.72 = 6.1$ f.p.s. Answer.

The calculations were made by slide-rule. With the above explanations and examples the table is made very handy for everyday use.

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Wallace & Tiernan Co., Inc., manufacturers of chlorine control apparatus for water and sewage purification, have moved from 136 Liberty St., New York, to a larger and new factory at 137 Centre St., corner White St., New York City.

The Provincial Government of Manitoba maintains a road department under a provincial highway commissioner, while municipal organization is active. The province is divided into 100 rural municipalities with population varying from 600 to 5,000 in each. The municipal council (controlling local expenditure) consists of a reeve and four or six councillors, half of whom are elected for one year, and the remainder for two years. Municipal organization is very similar to that of Ontario. The expenditure under the good roads act is made under the direction of engineers of the provincial department and in conformity with well-defined systems within the municipalities operating under the act. Towards the expenditure of $374,790 for the season of 1915, the Provincial Government contributed $141,700. The general features of the Manitoba good roads act are as follows: 1. The council must initiate the scheme of improvement. 2. Council must then submit the system to the good roads board of the province, by resolution of the council. 3. The scheme is then examined and reported on to the board by one of the engineers of the department. 4. If the board approves, the scheme is recommended to the Lieutenant-Governor by the Minister of Public Works. 5. If it is finally approved there, the secretary-treasurer of the municipality is notified. 6. The council submit to the ratepayers a by-law to which their assent must be obtained. The vote of the people is required in each and every case. They vote that these roads will be the main roads of the province. 7. After assent of ratepayers is received, the scheme may go ahead and receive the prescribed assistance under the act. For an earth road this is one-third of the cost; for a gravel road or any more permanent form of road than earth, one-half of the cost. The road mileage of the province is 31,000.