

Steckel's tide tables of 1887-88 at Quebec graving dock, give for spring tides at low water season	16½' to 18½'
and for maximum flood range	18' " 19'
minimum flood range	9' " 3½"
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the average of which is	13' " 6½"
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For maximum ebb range	18' " 3½"
Minimum ebb range	9' " 3¼"
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Giving an average of	13' " 8"
Again the maximum diurnal difference in high water levels during low water season is	4' " 3½"
and at high water season	3' " 3½"
while in the low water levels during the low water season, the diurnal difference is	1' " 4½"
and during the high water season	1' " 5½"

It is thus seen that one of the difficulties of dealing with the problem, is the constantly varying velocity which any system of gearing to be operated by the tides must be subject to, and which must be sometimes as great as from 1 to 3; since a rise at neaps of 6 feet can only create directly a motion having a velocity equal to but one-third of that due to a rise at springs of 18 feet in the same number of hours; because of the varying attraction or power of attraction of the moon and sun and according as they are in conjunction, as during what are called the silygies, when the moon and sun both pull the same way, or in opposition, as at full moon, when their pull or influence is exercised in opposite directions; and a minimum when the moon is in quadrature, when the then influences of the two attracting bodies are counteracting each other.

Again, as there are, during the twenty-four hours, two rises and falls of the tides and as at high tide, there is a momentary lull before the tide begins to ebb and at low tide a similar interval of what is called "slack water"; there must also be in the working of any machinery actuated directly by the tides, the same dead points or nearly complete stoppages, which would render such a power as that of the tides absolutely out of question, even if it could be economically utilized for such services as electric tramways, electric lighting or other services which require to be continuous and which, even if the motion of the tides were con-