

made to do good service for small gardens or moderate sized pieces of ground. It is seldom artesian wells can be relied on for irrigating purposes, as they do not supply a sufficient volume of water. There are, however, exceptions to this rule. At the Asylum for the Insane, of London, Ontario, a well was sunk 80 feet deep, 8 feet across; but no water being secured at that depth, the Ontario Government concluded to bore down until water was obtained. After drilling 70 feet farther with a drill of 20 inches in diameter, a gravelly bed was reached at 150 feet below the surface, which filled the shaft and large well to within 30 feet of the top with excellent water. A thirty-horse power steam pump has been fitted to it, and the Superintendent of the Asylum informs me that he can pump 1,000,000 gallons of water per day, which would be a sufficient supply for only 200 acres of land. The deepest artesian well in the world is the one now being sunk at Pesth, a city of Hungary; it has already reached a depth of 3,130 feet, and the water rises 35 feet above the surface of the ground, and is 160° F. It is the intention of the city to continue boring until water at a temperature of 178° is obtained for the use of public baths, and it is expected it can be so utilized as to convert the surrounding region into a tropical garden. The present quantity of water obtained is 175,000 gallons per day, and the cost of the works is \$200,000. My own supply is forty pints per minute, and, as I have only two-thirds of an acre to cultivate, I find I have enough to drown out everything in the garden if the water was left running all the time. If water has to be raised a height, the cheapest motive power is, perhaps, the windmill. A self-regulating one of the smallest size costs about \$100, and, when the wind is favourable, will raise two quarts of water per second to a height of 25 feet; but much cheaper ones may be made by any ordinary mechanic at a cost of from \$10 to \$25, which will answer very well. Water raised from cold spring wells must be run into a tank to warm it, from which pipes and hose will be required to distribute it to the various parts of the grounds. Where streams are available the supply of water will be found more plentiful and its application more economical. It will not require storage tanks, as it will always be sufficiently warm to apply at once directly to the soil. Where only a low dam of two or three feet can be constructed the water must be elevated by an under-shot wheel, but where from four to six feet fall can be secured a breast wheel may be employed. If the stream is four feet wide and six inches deep, and the current runs at the rate of two miles per hour, it would give sufficient power to elevate eleven gallons of water per second thirty feet high, or a sufficient supply for about 24 acres of land. Many acres of our soil now supposed to be almost barren, if irrigated would make good the words of promise found in Scripture records, that "seed time and harvest should never more fail," whilst at the present day only a partial or accidental crop is realized. Man is at present at the mercy of the winds and the clouds, and when the rainfall is short and fortune is fickle in providing the needful moisture, the farmer loses his labour and his crops, or only gets a minimum return for his year's toil, whereas, if his exertions had been supplemented by an abundant supply of water, his efforts would have been crowned with success. It is true that large works could only be constructed by communities, but in almost any part of Canada such works could be built at a much less cost than it took to clear the lands originally from the primeval forest, and which the fore-runners of the present generation performed without a tithe of the capital now at the command of the farming population. The actual cost of irrigating works of a permanent character ranges from \$1 per acre when extended over large areas; and when from 10,000 to 50,000 acres are watered total cost will not exceed \$5, if soil and surface are favourable. To clear an average acre of timber land costs from \$12 to \$25, and the damage accruing from stumps, sticks and stones before these rot out or are gathered off, amounts to considerably more. In Europe land is dear; the cost of waterways for canals and ditches are exceedingly heavy; the countries are hilly and uneven, requiring expensive aqueducts to cross valleys and depressions, and there from \$5 to \$10 per acre is annually paid for water alone, besides the rents of the land. The numerous settlements which dot the States and Territories of California, Colorado, Utah and other localities, and the success which has attended the pioneer efforts in these outlying districts, where there have been so many drawbacks incidental to a want of knowledge in irrigation and the requirements of the climate and soil, will tend to attract our rural population towards new enterprises in this direction, and I venture to predict that before the next century turns a half revolution, the desirability of the fertilizing effects of water will be ad-