an iron barrel and the air pressure let in on the top. A pipe from below communicates with the hose, to which is attached a branch about 10 feet long, made of 34 pipe, so as to give the operator great freedom of swing. The nozzle is 214 or 214 inches wide and barely 1-16 of an inch in depth. The natural result of allowing the whitewash to be delivered from such a nozzle of course would be to deliver it as fluid; but as it is necessary to deliver the whitewash in the shape of a spray, a small pipe is put in at the base of the hose to permit the air to enter, forming the central jet in the middle of what might be called the column of fluid whitewash, acting as an injector That turns the whitewash into very fine spray. There will be no success if the whitewash is not turned into spray. Whitewash applied as described adhered with such tenacity to the windows, which by neglect were left uncovered, that it cost sixty cents to clean each window in the shop. The whitewash holds on to brick work and wood work with a very firm grasp indeed. Th whitewash was lime and water, with three or four pounds of tallow added when the lime was being slacked and mixed up. The presence of the tallow could scarcely be recognized in the whitewash itself, but it does increase the tenacity. In the second operation the windows were protected from the spray by covering them with paper felt.

For THE CANADIAN ENGINEER.

## THE POWER OF THE FUTURE.

## BY THOMAS FROOD. I.

Steam has had its day, and a glorious triumph it has achieved; gas and electricity now contend for the primacy, and at present writing gas leads by a head. That what we term, for want of a better phrase, electricity, will ultimately become the primal force of earth -and, mayhap, of the universe-is my firm conviction. Meanwhile, there is a store of its lowest manifestation, viz., gravitation, running idle, enough for the needs of Ontario for the next century. In the early settlement of Ontario, harbors were the most desirable points, when wind on sails was the prime motor of commerce. Now the points to be sought after are those at which power is most accessible. Coal and gas fields, oil territory, water-power, peat bogs, and any new source of energy, will settle the sizes of future industries. The iron and steel works at Hamilton are a fine illustration of present conditions; while the power companies of Niagara and Sault Ste. Marie point to the coming conditions of the industrial world. Situated at a centre of population, on a fine harbor, with excellent railway facilities, those works depend entirely on transport for any measure of success. The iron must be carried from Hastings or Algoma to meet the coke from Ohio, and be handled by men trained in the great iron centres of America or Europe. The ore must be got for a trifle, the transport down to lowest handling, and all wages cut finely to leave a margin for capital.

Now, let us select a site, say in Algoma, where a good harbor, rich ore and abundant forest combine to furnish all that is needed except the machinery and labor to turn out the finished product ; where the land cleared for charcoal would furnish sustenance for the workman; where a healthy climate, pure water, abundant room to expand, and a chance of an independent home, would inspire the workman to activity and prudence; where the whiskey demon could be entirely eliminated and unsuitable associates boycotted, and which site will give best prospect of permanence? I could name sites where iron, copper, nickel, peat, hardwood, water power and shipping facilities by either water or rail could be obtained-all on one location. The older towns of Canada have had their day; and the manufacturer of the future who can find his material, food, fuel and power unlimited, will find it

cheapest to carry the workmen and tools to the work, and carry out the finished commercial product for distribution.

Any attempt to convey a clear idea of the waterpower now running idle in Ontario would be useless. Visit Ottawa, Hull, Arnpricr, Pakenham, Almonte, Smith's Falls, Carleton Junction, Renfrew, Pembroke, Peterboro', Trenton, Niagara, the Grand River towns, the Maitland and Saugeen towns, Clarksburg, and a host of other prosperous towns maintained by water power, and we have only viewed a few *fringes* of Ontario's grand garment of power, health and beauty !

The southern watershed of the Georgian Bay alone will amply vindicate my assertion. Beginning with the Severn and Muskoka Mills, not using one-tenth of their power, take the Magnetawan, and Seguin at Parry Sound; the French with its affluents alone could supply half a million horse power within 100 miles of its mouth; the Whitefish River is good for a hundred thousand more during its course, and I have passed several really useful streams so far. The Spanish River at Ramsay is as wide as the Humber and falls nearly 100 feet before it enters Lake Huron. On its affluent, the Vermillion, above 30 available mill sites could be selected; while its affluent, the Onoping, has a fall of 150 feet in 20 chains, within sight of the C.P.R. main line. A single fall on the Spanish, three miles from the Soo Line, is 60 feet in a few rods, and one mile below Spanish Crossing it falls 20 feet in one drop. The Sable, which joins the Massey, has more power than the Gand River, if utilized equally carefully. The Blind River would rival the Credit, and the Mississagua is nearly equal to the Spanish in length and volume; while the Garden and Echo are each full of power and foam. A moderate estimate of the power flowing into Lake Huron, from below the "Soo" to Waubashene, would exceed five million horse power, which at \$20 per horse power, makes a grand total large enough to pay off the debt of Toronto and leave a margin. In conclusion, the rocky banks at the falls, and the numerous lakes feeding these rivers, render the control of water and maintenance of dams much less expensive than along streams in alluvial soil, with no lakes for storage.

## II.

Knowing that "capital will never prospect," but fasten its grip upon any enterprise when its success is sure, and it is still hampered for means to operate profitably, we will premise that a number of young mechanics combine to be their own masters, receive God's gifts at first hand and utilize all the profits of their honest labor, organize a union of interests, wide enough to include all desirable classes for a new colony, and arrange terms of admission. I would suggest making two classes of stock to suit varied circumstances: inechanics' and farmers' at \$200 per share, and workmen's at \$100 each, with right to raise it to the higher grade whenever the holder is able. Agree upon the enterprise to be engaged in-wood-working, mining, pulp, or a union of several, with farming in all cases. Appoint men to select a site, and inspect all its advantages and drawbacks before final location. Then pay up and bank the stock, build boarding-houses, erect mills, and make enough clearing to ensure safety from forest fires-the latter is a prime essential. You are now ready to invite colonists, and begin your electric railway, carrying your power with you as you clear the forest, carrying back logs to the mill, firewood for homes