

ENGINEERING DEPARTMENT.

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Power for Stone-Crushers.

There is frequently more than one way of doing a thing; but there is usually only one way which is the best way. To discover that one best way, even in doing so simple a thing as breaking stones for roads, generally requires some thought, knowledge and experience.

For example, some municipalities still cling to the old-time method of breaking stone for roads, by the use of hammers and worn-out men who are pensioners on the municipality. There may be cases in which such a method is satisfactory, but they are very rare. Good labor is cheapest at any price.

In stone-breaking, there is no better laborer than a well-built, well-designed stone-crusher. To operate the stone-crusher power is required however. Some municipalities, for this work, use an expensive steam roller attached to the crusher. The roller is made for one purpose,—for compacting the metal in a road. To operate the motive machinery of a roller at so high a speed as is required for a stone crusher, to subject it to the jolting strains of a crusher, cannot but be very injurious to the roller. Of greater moment, perhaps is the fact that the roller is unprotected from the dust created in crushing the stone, thereby causing great wear. This ill-treatment of an expensive roller will tend to destroy it very rapidly, the resulting depreciation being very great, varying of course according to the extent of which it is so used.

The cost of operating a steam roller for power (in addition to the deterioration of the roller), will cost about \$2.50 per day for fuel, and \$1.50 per day for an engineer.

Better than this is to purchase a separate engine which can be operated for about the same daily cost, \$4. But costing much less than a steam roller, the resulting loss from depreciation is not so great. Some municipalities have purchased second-hand engines which have been used on threshers for \$250 and \$300, and which rendered very efficient service.

The town of Berlin, however, has one of the most economical sources of power in the province. An electric motor, receiving power from the local electric plant, does the work for \$1.75 per day. The motor, which cost \$250, is a small piece of machinery, requiring little care other than oiling and "pushing the button," when power is to be turned on or off. The motor is of very simple design, is protected from dust and weather by a small wooden covering, so that loss from depreciation is very slight.

Brantford has awarded a \$31,126 contract to Wm. Gibson, M. P. P., for the completion of a flood protection works.

The Smoke Nuisance.

Tall chimneys are very desirable, but the smoke they emit is very undesirable. The smoke nuisance is a very insidious one. It is not until it has assumed very vigorous and disagreeable proportions that the attention of the citizens is drawn to it. When public feeling is thus aroused, it is found that the very proportions which the nuisance has assumed is indicative of the difficulty of overcoming the cause. To replace the ordinary furnace with one so designed as to properly consume the smoke, entails expense—an expense which the owners of factories are generally found unwilling to undertake. The owners of the tall chimneys are generally among the most influential citizens, and as such, their wishes in such a matter carry great weight.

The chief source of smoke in objectionable quantities, it need scarcely be affirmed is the tall chimneys of factories, gas, electric and similar plants. Railway engines, too, are largely responsible. The smoke is an annoyance in its blackening effect on houses, its destructive action on furniture, clothing and interior house drapings. It is, in addition, stated on reliable authority to be unhealthy, an aid, if not more, to consumption. Carbon, of which smoke largely consists, is exceedingly absorbant, and in passing through the air gathers up the bacteria of disease. This pollution attaching itself to the lining of the lungs, forms a menace to health.

There can be little question as to the rights of the people to demand an abatement of this nuisance. It is now universally recognized that no individual or corporation should be permitted to destroy the property of others, nor create an unhealthy and annoying pollution of the air, when such can be reasonably avoided.

The cause of smoke is incomplete combustion. Experience with smoke consuming furnaces shows that the saving in fuel is sufficient to pay a handsome interest on the additional investment required. Since the nuisance can be abated without financial loss to the owner of the tall chimney, there remains little excuse for the continuance of the smoke nuisance even in the larger cities where to remedy the evil will necessitate a considerable outlay.

The smaller towns and cities should take warning. It will be a simple matter to insert in the building by-law a clause governing furnace construction, and the evil in this way forestalled. The larger cities should adopt similar means, but are also justified in proceeding in such a manner as will bring more immediate results.

The prevention of smoke from railway locomotives presents difficulties which do not arise in the stationary furnace, but while the remedy would be less complete, the lessening of smoke in any degree would add to the comfort, not only of those who reside near a railway, but to the travelling public as well.

Forestry in New York State.

New York is the first state to recognize the value of expert knowledge of forestry to the extent of establishing a school where the subject can be properly studied. Such a department has just been opened at the Cornell University and the state has turned over its 30,000 acres of forest land as a field for the practical application of the theories worked out in the classroom.

There are two classes of lands upon which forests will be cultivated when this country wakes up to the necessity of replacing the virgin forests now disappearing so rapidly under the axe of the lumberman. One is the waste lands, mountainous or otherwise, such as the Adirondack wilderness in New York, the pine barrens of Michigan and Wisconsin, the mountainous regions of the west. This class of lands was formerly covered with a dense growth of timber. New York is trying to preserve the remnant of the timber not yet taken off, and has purchased the vast tracts mentioned, located in the Adirondacks and the Catskills. The denuded portions it will be difficult and in some cases impossible to again cover with timber.

The other class of lands will be the fields which are more or less valuable for the purpose of tillage, in more level states including the great prairie states. Here there is now a tendency to reserve or cultivate a wood lot on every farm of appreciable size. This lot is frequently on the less valuable, the least workable part of the farm, and is fairly permanent even under present conditions. In fact in the prairie states there is an increase in the wooded area with the increase in settlement. None of the farmers and very few of the large land owners have any knowledge on the subject of forestry, and fail to make the most of their work. None of them have as yet discovered the fact that the wood lot may be made the most valuable portion of the farm if it is rightly managed and the necessary time is allowed it. Our American hurry to get results is against a scientific cultivation of forests, either on a large scale or on individual farms, and it will probably be necessary for the stable government to take in hand the work which men of comparatively short lives are not disposed to enter upon.

Other agricultural schools having similar facilities will doubtless follow the lead of Cornell and establish schools for the study of the problems which will arise in their own states. The next twenty years will see a large advance in public opinion and a good start made towards a comprehensive and practical system of forestry in this country.—*Municipal Engineering.*

Mrs. Boomer, school trustee of London, is endeavoring to have domestic science placed on the school curriculum, and will probably succeed in so doing.