

or drawing coals from deep shafts, and which at the present day are not considered as safe as ropes for such purposes; and also to caution you that the popular idea of merely heating the chain to redness is not sufficient to restore the original degree of tenacity. To shew the unlimited extent to which iron machinery is now carried, we need only refer to Condie's steam-hammer, lately put up for Fulton and Neilson in Glasgow, where the huge mass that falls six feet high and weighs six tons is under perfect control, and then ask the speculative arithmetician, what must be the value of the machinery made in Glasgow annually when Condie's hammer cost £5000 sterling?

The trades of mason and bricklayer are usually united in the same person in this Province, although perfectly distinct in principle; their worthy representative in our community should therefore give us his experience in each branch, and shew whether the American, British, or Nova Scotia made brick is the best adapted to stand the severity of the climate; also, which kind of freestone is easiest worked, keeps its colour best, or resists the most perfectly the action of the weather. But the most important part upon which to impart information is the best mode of making and using mortars, cements, stuccos, and concretes. Mortar does not appear to have been known to the Assyrians or Babylonians, while the Egyptians used it in the construction of the pyramids, and the Romans considered it necessary to keep it for three years in a plastic state under water; and Pliny states that it was owing to this regulation that their buildings were not disfigured by cracks or crevices. Limes are classed as either rich, poor, or hydrate, and I believe there is scarcely any one in this community who knows to which class the lime that he is constantly using belongs. The three methods of slacking lime are either by immersion or maceration, secondly by sprinkling with small quantities of water, and thirdly by allowing the lime to slack spontaneously by absorbing the moisture of the atmosphere. Rich limes will increase four times their bulk in a state of mortar, hydrates not more than two and a half, while poor limes will scarcely increase at all in bulk.

This Province abounds with a great variety of limes and gypsums; how important is it then that it should be known to which of the above classes each kind belongs, for the rich limes will bear a large quantity of sand and gravel to be mixed with them, while the hydrates will bear very little. A mixture of lime and sand made into mortar diminishes as a general rule about three fourths of their collective volumes. Under ground, in the water and damp places less sand should be applied than in the open air, where it is exposed to the changes of the atmosphere. It is often a matter of importance to know the power of resistance of mortars, but as they differ within a very large range, it is not easy to state it precisely; we may, however, safely calculate for all practical purposes upon a resistance of 14 lbs. per inch superficial to a force acting in a direction to tear asunder—an effort of longitudinal traction. Of