

It is claimed for the roll-way that it is safer than the railway, since there is no danger arising from the breakage of wheels, trucks, or axles, while from the nature of the locomotion, friction, and mode of construction, they will be more durable and need less repairing. Ordinary railroads can be converted into roll-roads at a comparatively small outlay.

#### MORTAR.

The mode in which lime acts, and the changes it undergoes with the lapse of time when worked up with sand to form mortar are, even at the present day, very imperfectly understood, and would well repay investigation. Lime, while giving out superficially the water with which it has been mixed, absorbs also superficially a certain quantity of carbonic acid gas; but this absorption does not reach, in ordinary cases, to any great depth, for the central portions of mortars which have been exposed to the air for many ages are still found to contain an abundance of free lime. Thus Dr. Malcolmson was able to detect a large portion of hydrate of lime even in the mortar taken from the Great Pyramid.

A certain amount of combination between the lime and the silica of the sand does evidently take place, for each grain of sand is found to be externally converted into hydrated calcic silicate, which compound acquires gradually considerable hardness, and therefore contributes largely to the setting of the mortar. Miller states that a mixture of carbonate of lime and lime, sets harder than a mortar of pure lime alone; so that it would appear that for many purposes, lime which has been slaked by exposure to air, and therefore contains a considerable proportion of carbonate, is to be preferred to that rapidly slaked by water. All old mortars, treated with an acid, yield a small proportion of gelatinous silica, a fact which proves that combination has taken place between the silicic acid and the lime.

There are, however, certain practical points connected with the production and behaviour of good mortar that have been carefully studied, and are worthy of being more widely known.

Supposing the lime employed be of good quality (fat), and the sand to be of medium sharpness, clean, and free from clay, the best proportion for ordinary purposes are 1 part lime to 6 or 7 of sand. Such a mixture will have but little tendency to crack, will dry slowly, but harden very completely.

Pure lime, worked up without sand, forms a mortar which cracks as it dries. If the quantity of sand above recommended be diminished, the mortar exhibits also this tendency to crack. Mortar made with a larger proportion of sand is short and difficult of application; its hardness also is not so great as with a due quantity of lime. Mortar made up with lime-water instead of common water, is of far superior quality to the ordinary article. The lime after slaking will produce a very much stronger and better mortar, if passed through the meshes of a very fine sieve.

The sand should not consist of rounded grains, but of particles bounded by flat surfaces; it should not be too fine in texture, and should be perfectly free from any saline matter or clay. To obtain it of equable size (and this is of great importance) it should be sifted in the open air to remove the finer grains and dust, and the second sifting, which serves to cleanse it from coarse rubble and clay, should be performed in a running stream of water, which removes at once the clay and finer particles.

The use of blood, skimmed milk, &c., in the hope of producing a mortar of greater hardness, is to be deprecated, unless when very inferior chalky limes are employed. In other cases the mortar does not set with its wonted hardness, and after the lapse of a year or two, the surface becomes covered with a fungoid vegetation, which naturally brings about disintegration of the whole mass.

The North Sydney *Herald* regrets to learn that destitution is still prevalent at the Lorway Mines, and that the pinchings of hunger are severely felt by many. A few have obtained work, but most of the poorest yet remain unemployed. The people of Sydney Mines have nobly come to the front in contributing to the relief of their brethren.

#### MISCELLANEOUS.

The Goderich breakwater will be sixteen feet above low-water mark, with a breadth of 100 feet.

GROTTED gypsum, or plaster imported for agricultural purposes has been transferred to the free list.

NOVA SCOTIA and Cape Breton have 93 light houses besides several fog whistles.

IF gilt frames are varnished with copal varnish, they can be washed with cold water without injury.

THE New York city authorities, who once peremptorily refused to allow the American Telegraph Company to lay its wires underground, are now seeking to compel all the companies to bury their wires.

KANGAROO LEATHER.—In Australia kangaroo skins are becoming an important article of traffic, and experts declare that they make the toughest and most pliable leather in the world. Boot uppers of this material are said to be both comfortable and durable. It also makes the best of morocco whip, gloves, &c. Of these skins some are exported in their raw state, and others after being manufactured. The kangaroo is widely distributed throughout the colonies, and great numbers are slaughtered, yearly, for their skins.

SILVER mining news published in the *Albion Pioneer*, of the 2nd inst, is as follows:—"The Silver Islet mine has stopped paying the men until the 1st of June, with the exception of \$5 per month, which is allowed each man. The erection of the stamp works is proceeding very quickly. The Shuniah mine, with only four men at work, continues to take out from a barrel to a barrel and a half of very rich silver, and has done so for weeks. Thunder Bay is expected to start with renewed vigour upon the opening of navigation. 3 A mine is also expected to start again, although nothing very definite is known regarding it as yet.

THE hydrographic office at Paris has begun a process of engraving on copper which promises, by its rapidity and the moderation of its price to be very widely useful. It consists in substance, first, in covering a plate of copper with a thin shell of adhering silver, upon which is spread a thin layer of colored varnish; second, in drawing thereon, with a dry point, the lines of topography, and lettering, precisely as one engraves with a diamond upon stone, third, in corroding the traced parts by means of the perchloride of iron.

#### THE SEAL FISHERY.

The 5th of April was a memorable day in the old port of St. Johns, Newfoundland. Two of the sealing vessels returned from their cruise laden with booty. The steamer "Greenland" had 25,000 seals on board, as many as she could possibly load. She was followed by the "Proteus," with 42,000 seals, the largest number by far ever brought in by one vessel. The seals were fine harps, in excellent condition. The value of the 67,000 seals brought in by those two steamers is \$198,000. Our correspondent writes:—"The sealers did not leave St. John until the 15th March, and 10-day the "Proteus" seals are valued at \$100,000. Good work for three weeks." We should think it was. A big Bonanza. These steamers brought good accounts of other vessels. The following were reported by them as fully loaded: Ranger, Walrus, Hawk, Iceland, Nimrod, Commodore and the Mic Mac were seen entering the seal m-adows with every chance of filling up. These vessels unloaded as quickly as possible, and started on their second trips, and may bring many more seals. The young seals are born on the ice about the middle of February; and as they grow rapidly, and yield the finest oil, the object of the hunters is to reach them in their babyhood, while yet fed by their mothers' milk, and while they can make no effort to escape. So quickly do they increase in bulk that by the 22nd of March they are fat and in the most desirable condition to be taken. For six weeks they are fed by their mothers on the ice, and soon after the 1st of April take to the water, and then pursuit is almost useless. The hunters, after that date, turn their attention to the old ones.