

when it becomes mild, operates in the same manner as powdered limestone; but in the act of becoming mild, it prepares soluble out of insoluble matter. The solution of the question, whether quick-lime ought to be applied to a soil, depends upon the quantity of inert vegetable matters that it contains. The solution of the question whether Marl, mild lime, or powdered limestone, ought to be applied, depends upon the quantity of calcareous matter already in the soil. All soils are improved by mild lime, and ultimately by quick-lime, which do not effervesce with acids and sands more than clays." This last sentence will apply to the slaty land adjoining to Halifax. The soil is shallow, resting on a rock containing a great quantity of Pyrites, the mineral from which Vitriol (the common green copperas) is formed. From this rock a portion of vitriol has been introduced into the soil, and this solution of vitriol (or copperas water,) is now in summer always rising to the surface of the rock through the small fissures in its surface. It is there decomposed; instantly, if it comes in contact with lime, soda, or potass; and more slowly by fertile mould, and peat earth. The iron (for copperas is iron combined with sulphuric acid) falling in the form of yellow ochre. This ochre soon hardens, forming the rust we now see on the slate rocks, and changing the rich mould with which it is mixed into a dark brown rusty gravel which is perfectly barren. In reclaiming waste lands in Scotland which have a turfy surface, soil covered with heath, (which there is the natural shrub of those soils that would here be occupied by Kalmia,) (dwarf Laurel), about 200 bushels of quick-lime to the acre so decomposes the turf, that without any other manure a good crop of oats is taken from the land, and then laying it down to grass, it makes a rich pasture. But were that quantity of quick-lime applied here to a soil containing a great quantity of vitriol; such, for example, as is found near Bank-head, it could not have much effect, because the vitriol would neutralize the lime and prevent it from decomposing the half decayed vegetable matter. But if a large quantity of mild lime, that is to say, broken limestone, oyster shells, Bermuda gravel, or old plaster from buildings that are burnt or pulled down, were first applied to neutralize the acid of the vitriol, the quick-lime would then be useful.

Upon the hills of Scotland, turfy ground neatly covered with heath, which produced but very little, and very coarse grass, by a top dressing of 150 or 200 bushels of lime, has been changed to excellent pasture of white clover and other sweet grasses, and this fertility has in some cases continued for 30 years, but if this pasture was ploughed and a crop or two of grain taken without manure the land was much impoverished.

Upon tillage land the first application of lime is best made by spreading it upon the grass land that is to be ploughed for sowing grain. After a rotation of 4, 5, or 6 different crops, two of which ought to be dunged, and one or two of which are always clover, the land should be pastured for 3 or 4 years, when lime may be again used, remembering that eight or ten years ought always to intervene between two applications of this manure. For this second application the lime ought to be compounded with three or four times its quantity of peat earth, the wash from roads, scourings of ditches, or earth from the headlands of fields. In the state of New York, lime in a quantity not exceeding twenty-five bushels to the acre has been found useful, while an additional quantity did not appear to make any alteration in the crop.

In the Eastern part of the Province there are masses of limestone which fertilize the soil that is in contact with them in a the principal agent in making land barren, does, with the proper proportion of carbonate of lime, serve to fertilize it.

remarkable degree: this rock changes to a black rotten stone where it is exposed to the air. Vitriolic soils would undoubtedly be permanently improved by spreading a quantity of this stone, broken into small pieces, upon them. This stone may be found in the lower settlement of Musquodoboit, and in many places on the high lands between Antigonish and St. Mary's river. It would be best in trying experiments with lime, to try proportions varying from 10 to 200 bushels to the acre. In France a compost made with about 12 bushels of lime, and seven or eight times the quantity of rich mould, has been found sufficient for an acre. It is applied every third year, in rows through the field—the alternate spaces being manured with stable dung. After the lapse of three years, the dung is applied to the part that was limed, and the lime compost to that which was dunged. It is asserted that the fertility of land manured in this way has continued to increase for 60 years.

T. S.

BREEDS OF CATTLE.

As the greater share of the horned cattle procure most of their living in summer from a poor pasture, of which there is in many places an unlimited range, it would be useful to raise that breed which thrives best on such a pasture. A great difference would be found in the flesh which different cows acquire on our ordinary pastures, the small cattle do not all fatten, but the very large are almost invariably poor. If no calves were raised except those of the cattle who are the most thriving, our own bread would improve, but it is certain that crossing the breed has produced considerable changes, both for the worse, and for the better. A pretty dear experiment with the former result has been tried here by introducing the blood horses.

Valuable breeds have been procured from small males and large females. The English blood horse was introduced by a large breed of mares from Denmark, crossed with the small Barbary horses procured from the wreck of the Spanish Armada.—The hog now most valued is from the small Chinese boar and a sow of a larger breed. A very large breed of hogs was imported here between 40 and 50 years ago; at three years old they weighed about 500, but it was soon discovered that the great size could not be kept up without an expence in feeding which the pork would not pay for. The large dangling ears of this breed still continue, but the great size has long since disappeared. The Chinese pig is of a small size, with short legs and nose, and a broad back, of quick growth, and great breeders. The pork is much superior in flavour to the common kind. They might probably be procured from New-England, where they were formerly known by the name of the Guinea breed. They thrive better in pastures than the large breed. If we had them we might with a good chance of success try for a new breed by putting the Boars to some of the best of our own breeds. We have in the Province the Irish grass pig which thrives in pastures.—A Bull of the small Kerry breed might introduce a kind of cattle who would thrive better upon the pastures where three-fourths of our cattle live in summer than our common breed. Of large breeds for fattening, it was, I believe, the decided opinion of Bakewell that the long-horned were the best.

T. S.

MANGEL WURTZEL.

There is reason to believe that upon the warm sheltered soil between Annapolis and Windsor, the Mangel Wurtzel would be more profitable for feeding cattle than potatoes. Near Halifax, in a warm season, sixty-five bushels have been raised upon seven rods of ground very well manured with manure from the pigs pen.