pagating itself is by the root;" and as a proof of this, he refers to my first letter, wherein I related an experiment of a thistle being planted in a garden, having produced sixty plants in the spring, after (supposing) they had extracted all the pieces. Let it be observed, this thistle was placed in an artificial position, with rich, damp, and unctuous earth, with no other plant to share or obstruct the ramification of its roots, which cannot happen in a state of nature. I once grew a single oat plant, to see what could be done by high cultivation. I petted it all I knew how. It produced seventy-five stalks, which numbered three thousand grains; but, like the thistle, it could not be done in an ordinary way. There is, moreover, in my mind some ambiguity as to the precise application of his expression, "They are propagated by careless cultivation," which, perhaps, he would have the goodness to explain.

PUBLICOLA

Building Stone Fences.

A New Hampshire correspondent of the *Genesee Farmer* writes as follows on this subject.

"A stone fence built upon a light, porous soil, if laid with tolerable skill, will stand for a long time; but to construct one that will stand upon a wet, springy tract of land, especially if it is sloping, is far more difficult. The action of the frost will gradually loosen the foundation, and, when the ground becomes soft in spring, the stones are crowded out of place, and in a few years the fence is in ruins. When the line of direction is east and west, fences are injured most by frost, for the ground upon the south side is thawed earlier in spring.

"These difficulties, however, may be overcome. If the proposed fence is to be on a loamy soil that is not very wet, it will be sufficient to make a small ridge or embankment, say four feet wide and one foot high, to build the wall upon, but if the land is spongy, dig a ditch three or four feet wide, and deep enough to remain uninjured by the frost, fill *it with small stones, or partly fill and cover, and then* your fence will have a foundation which cannot be shaken.

The foundation well prepared, the next thing is to have the fence well laid. Only such stones should be used as will be firm and afford a good surface to build upon. They should be so laid as to secure these results, and endeavors should also be made to have each principal stone, in all except the lower course, rest upon two below it. It requires no little skill to build a stone fence well, but by following these rules one is not likely to go far out of the way; and when it is once made it is very durable."

Another correspondent in Oneida county, N. Y., writes as follows, adding that stone walls constructed according to this method in the most frosty sections of Wales have stood for centuries.

"Plough four furrows six or eight inches deep and ten inches wide; take all the sods, or turfs, and lay them on one side—also all the loose earth that is easily taken up with a shovel, and lay it on the same side with the turfs, both to be on the opposite side from the stones for the wall, then commence setting stones on the sides of the trench large enough to rise about three or four inches above the outside surface; then fill in with small stones until within two or three inches of the top of the border stones; then throw on a few shovelfuls of fine dirt, passing the shovel over it to make it level; then commence laying on the border stones, being careful to have them tip a little towards the centre, then commence again with the small stones and dirt as above described. When the dirt is used up, cut the turfs at suitable lengths and lay lengthways of the wall, bringing the edge of the turfs close up to the edge of the border stones, filling the middle space with small stones. In this way there will be about two tiers of dirt and two of turf—if more, all the better.

"It will be seen that this wall will be about forty inches on the bottom and twelve inches across the top, when raised about four feet in height. If there is no stone handy large enough to reach across the top, continue on as before until the top is well rounded off."

Canada Thistles.—When to Cut.—The N. Y. Agricultural Society has received a communication from John Ferguson, of Caldwell, giving his experience in fighting Canada thistles. He ascertained that cutting them, as he did, August 17th, 18th, 20th and 24th, was sure to kill them. He cleared his farm entirely by pursuing this course of cutting. There is a general concurrence in the opinion that August is the right time to mow thistles for the purpose of killing them.

Sandy Lands.

The common opinion is that the sandy lands of New England are its poorest lands and in conformity with this opinion, thousands of acres are suffered to lie uncultivated, to spring up to wood if they will, or afford a scanty crop of wiry grass to sheep that are allowed to run over them. If cultivated at all, it is with rye, generation after generation, either every year, or every alternate year, as the land may hold out, and without the application of manure! All this is wrong, both in theory and practice, and would not be continued if we better understood the nature of soils and how to treat them

Sandy lands are usually among our most *level* lands, and are cheaply cultivated on this account. They are light, and are ploughed at one-half the cost of adhesive soils. Twice as many acres of them may be hoed in a given time as can be in heavy and stony lands. Sinclair says sandy soils of a good quality, under a regular course of husbandry, are of great value. They are easily worked, and at all seasons; *they are cultivated at a moderate expense: are not* so liable to injury from the vicissitudes of the weather; and in general are sufficiently retentive of moisture to produce good crops, even in dry summers.

Sandy lands may be improved in several ways, and the plan adopted should depend upon surrounding circumstances. If they are adjacent to a clay pit, clay may be used; if near a deposit of muck, muck may be used, or both may be employed with decidedly beneficial results. If the land is too far from such sources of supply, then another plan may be adopted. It may be restored by turning in crops, green or dry, where they will decay under the surface. Sandy lands may, therefore, be reclaimed, wherever situated, and brought into a fertile condition, and at a fair profit.

One plan of operation is to plough under green crops, such as oats, millet, buckwheat or clover, when the crop is in bloom, reseed at once and plow in another crop the same year. If the land has been dressed with clay or peat muck, this operation greatly hastens the work of reclamation. Dana says that it is the experience of some practical men, that one crop allowed to perfect itself and die where it grew, and *then turned in dry, is superior to three turned in* green. The whole result is explained by the fact that dry plants give more *azine*, (the word means "earth," or the product of decaying vegetable matter) than green. Green plants ferment—dry plants decay. A larger portion escapes in fermentation as gas, and more volatile products are formed than during decay. The one is a quick consuming fire—the other a slow mouldering ember, giving off, during all its progress, gases which feed plants and decompose the silicates (that is, sand, flint, quartz) of the soil. These hard silicates in the soil have their uses, and an important part to perform. It belongs to us to supply them with vegetable matter. Feed them well with muck, straw, meadow hay, rushes, flags, or almost any other vegetables, and their decay will cause an evolution of carbonic acid gas, that decomposes the silicates of potash in the sand; that potash converts the insoluble into soluble manure, and lo! a crop." When once a crop is obtained, even on the poorest sands, there is the nucleus of fertility, and fair crops may be obtained from it perpetually. —*N. E. Farmer.*

The Treatment of Tree Seeds.

Our people are at last waking up to the importance of trees, whether for fuel, timber or shelter. The subject is already beginning to have a literature, as we last month noticed the "Forest Tree Culturist of Mr. Fuller. Upon looking over our correspondence, we find a great many queries as to the proper method of treating particular tree seeds, and we can best answer these queries in a lump. These seeds may be divided into two classes, one including those that must be sown as soon as ripe; the Elm and the Red and White (or Silver) Maples ripen their seed in the spring. As we have shown in a former number, the failure with these seeds is due to want of knowledge of the fact that they ripen in June, and that they must be sown at that time. If kept until the following spring, these seeds lose their vitality and fail, but if sown as soon as mature, they make strong young plants the first year. Other seeds needing immediate sowing ripen in autumn, and these are to be treated as nearly as possible as nature treats them. If late in autumn we look beneath the fallen leaves of an oak tree, plenty of acorns will be found from which the radicle has protruded, showing that germination has already commenced. This will give the hint as to the proper treatment of acorns, which are to be planted shallow, and the bed protected with a good covering of leaves or other mulch. Chestnuts, Horse Chestnuts and Buckeyes, Tulip Trees, Hickories and Walnuts are treated in the same way. Hickories and Walnuts are said to do well if mixed with earth in a cool cellar during winter, and we have succeeded perfectly well with Horse Chestnuts put in a box of earth and exposed to the weather all winter.

Seeds that are kept over winter should be preserved at a low and even temperature, and of course be quite dry before put away, to prevent mould. The following are among the commonly planted seeds that are usually to be had of seed dealers: Honey Locust, Osage Orange, the Ashes, Larch, Deciduous Cypress, Maples (except red and white), Spruces, Pines, and other evergreens. Honey Locust, if fresh, will grow without preparation, but if old, it should be scalded. Osage Orange must be sprouted; the others merely need to be sown in a light, rich soil. Evergreens are very tender when young, and are apt to be sun-scorched. These are best sown in beds where they can be shaded by a lattice work screen made of laths.

Young trees, like other young plants, require care, and no one need sow the seeds with the expectation that they will take care of themselves. Weeding, cultivation and thinning must be duly attended to, and if the little trees are likely to suffer from drouth, the ground should be covered with a good mulch of saw-dust. If they are left in the seed bed over the first winter, they will need to be covered with leaves. —*American Agriculture.*

Marl.

In the southern portions of New Jersey, Delaware and Maryland, there is used with success a valuable natural fertilizer with the above name. New Jersey in particular is underlaid with it, and in the largest and finest belt there are thousands of tons exhumed from the earth annually, and sent to all parts of the State. The Squankum enjoys the best reputation, being of a deep green colour, and containing a much larger proportion of valuable ingredients. It has been proved by years of experience to be the best and cheapest fertilizer for all kinds of crops. Immense quantities are taken out at the above place, and delivered *along the line of the railroad at small* cost. A dressing of one hundred to one hundred and fifty bushels is applied per acre once in three years. Its value is found in the fact that it contains nearly all the subtances necessary to make up the ash of our common plants. Prof. Cook, State Geologist of New Jersey, says: "A comparison of the analysis of marl with that of the ash of plants shows how abundantly it supplies the mineral substances needed for the growth of vegetation The following is the analysis of Squankum marl:

Water	19·600
Silica	51 162
Protoxide of Iron	18·200
Alumina	6·100
Potash and Soda	4 274
Lime	3 478
Magnesia	2 037
Phosphoric Acid	4·467
Sulphuric Acid	0·629"

The growth of white clover upon marl-heaps has come to be a test of its character. Those marls containing lime soon become covered with a spontaneous and luxuriant growth of clover.

Marl can be purchased in any quantity, in New Jersey, as low as $1 50 per ton, and in Delaware and Maryland at from $2 to $2 50 per ton.

The amount of Potash and Soda in a ton of Marl is 85½ lbs., which at 6 cts per lb amounts to	$5 13
Phosphoric Acid, 99 8-10 lbs at 8 cts	7 20
Value of a ton of Marl	$12 33

Besides these elements there is always a small quantity of ammonia. The sulphuric acid unites with the lime, forming sulphate of lime, also a valuable fertilizer; besides these, there are plaster and iron; but, at least estimates, a ton of marl is worth at least six times the price it costs in the above sections.

Hardening the Mould-Board of Ploughs.—A new metal has been discovered for the manufacture of the mould-board of ploughs which gives them all the hardness and temper of steel, in combination with the toughness of iron. The mould-board (good iron) is heated and dipped into molten iron. It remains there ten seconds, when the two surfaces become heated to a white heat, while the centre is not heated through. It is then immediately dipped into water, the surfaces come out harder than the highest tempered steel, while the interior is still iron and retains all the toughness and strength of the iron. The advantage claimed for this invention is that the ploughs made by the process will take the finest and hardest polish, while they will be tough enough to endure any reasonable knocking about in stony soils.—*N. Y. Weekly Herald.*