

Science.

Marine Glue.

Practical horticulturists are well aware how soon many substances employed in gardens become decayed; for example, wood, the cords of straw mats, cloths, canvas shades, etc. Means of preventing this have been long sought after, but all hitherto tried imperfectly answered the purpose. It appears that the difficulty is at last surmounted, and that the marine glue affords an almost indestructible coating for wood, iron, canvas, and other substances which are injuriously affected by long contact with air and moisture. A widow lady, Madame Audouin, who takes an interest in manufactures, has lately presented to the Central Horticultural Society at Paris, some specimens of cloth and canvas adapted for horticultural purposes, which had been prepared with marine glue, and which she said would last, exposed to all weathers, for almost any length of time. The president of the society, thinking that this invention would prove of great use, nominated a commission for verifying the statements announced by Madame Audouin, and its report has been highly favorable.

Marine glue, invented by Mr. Jeffrey upward of ten years ago, is a substance resembling pitch in its composition, and possesses all the qualities of the latter without its faults. It is as insoluble in water as pitch, and it does not melt with the heat of the sun, neither does it scale and crack by contraction from cold. It glues pieces of wood together, with great firmness, is impervious to water, and according to the preparation which it undergoes, it has the property of being either inflexible, or pliable and elastic; and it may be thinly used as varnish for any article to which its application would be desirable. It has been experimentally employed for several years, and every year affords additional proof of its utility. M. Pepin, botanic gardener at the Museum of Natural History, assisted by some members of the Central Society of Horticulture, has given much attention to the use of marine glue. Five hundred props of oak and chestnut have been in the ground some two, and others three years, without the slightest change. Various land-owners and horticulturists, and among them the Duc de Roban, and M. Bella, of the Agricultural Institution of Grignon, have had cloths, canvas, and wood work prepared with marine glue and have acknowledged the beneficial results. The trials made at the museum have been equally satisfactory. We ought therefore, to consider this composition as a great acquisition, and doubtless its application to horticultural purpose will soon be general. It will save much of the expense which is every year incurred by the deterioration of a considerable portion of articles used in gardening.—*Revue Horticole*.

A Happy Illustration.

The *Courier des Atats* Unis, in an article on the calorific ship Ericsson, illustrates the operation of the wire apparatus in alternately heating and cooling the same volume of air in the following apposite manner:

"The great fundamental principle of the transmission of caloric cost the inventor twenty years of reflection to realize in this machine. It consists in using constantly the same heat to warm the air which is made to enter the cylinders. The apparatus by means of which this principle is applied is called a regenerator, and we can form a clear idea of it by supposing a man has his mouth filled with a warm metallic sponge; if he draws in his breath, the exterior air, in traversing the pores of the warm sponge, will itself be warmed, and will arrive warm into the lungs, whilst the sponge having parted with its caloric, will have become cold; if he exhales the air thus warmed, this air, in again traversing the sponge, will come out reduced in temperature. If instead of producing these movements by the contraction of the muscles of the breast of the individual, an ordinary bellows is adapted to the mouth to produce the inhalation and the exhalation, we well nigh have Ericsson's machine."

Stained Wood.

Wood is stained by the application of any of the ordinary liquid dyes employed for wool or cotton. They sink deeper into the wood when applied hot. When the surface is properly stained, and dried, it is commonly cleaned with a rag dipped in oil of turpentine, after which it is varnished or polished. Pale-colored

woods are stained in imitation of ebony by washing them with, or steeping them in, a strong decoction of logwood or galls, allowing them to dry, and washing them over with a solution of the sulphate or acetate of iron. When dry, wash with clear water, and repeat the process if desired. Mahogany stain: logwood, two ounces; madder, eight ounces; fustic, one ounce; boil two hours and apply several times to the wood boiling hot; when dry slightly brush over with a solution of pearlash, one ounce in one quart of water; finish off when dry with wax or oil tinged with alkanet. The wood may be previously washed over with strong aquafortis, and when dry, the following stain used: Pure socotrine aloes, one ounce; dragon's blood half an ounce; rectified spirit, one pint; dissolve and apply two or three coats to the surface of the wood: finish off as above.—*N. Y. Eve. Post*.

Erysipelas—Cranberries.

We are able to record another case of the complete cure of erysipelas by the simple application of raw cranberries pounded fine. The patient was a young lady, one side of whose face had become so much swollen and inflamed that the eye had become closed, and the pain excessive. A poultice of cranberries was applied, and after several changes the pain ceased, and the inflammation subsided, and in the course of a couple of days every vestige of the disease has disappeared. The case occurred in the family of one of the editors of the *Palladium*, and we can therefore vouch for its truth.—*New Haven Palladium*.

Preserving Properties of Coffee.

M. E. Robin speaks highly of the preserving properties of coffee. For example, meat dipped in coffee, rather strong, which had been allowed to cool, and then left in the air for three days, had been preserved without any change worth mentioning. Another piece of the same meat placed in a similar quantity of coffee, in the same manner, had a bad odor at the end of ten days, and putrid at the end of three weeks. The question of its certainty of preserving is one of interest to domestic economy.—*Maine Farmer*.

Declivity of Rivers.

A very slight declivity suffices to give the running motion to water. Three inches per mile, in a smooth straight channel, gives a velocity of about three miles an hour.—The Ganges, which gathers the waters of the Himalaya Mountains, the loftiest in the world, is at 1800 miles from its mouth, only about 800 feet from the level of the sea—about twice the height of St. Paul's in London, or the height of Arthur's Seat, in Edinburgh—and to fall these 800 feet in its long course the water requires more than a month. The great river Magdalena, in South America, running for 1000 miles between two ridges of the Andes, falling only 500 feet in that distance—above the commencement of the 1000 miles, it is seen descending in rapids and cataracts from the mountains. The gigantic Rio de la Plata has so gentle a descent to the ocean, that at Paraguay, 1500 miles from its mouth, large ships are seen which have sailed against the current all the way by the force of the wind alone; that is to say, which on the beautifully inclined plane of the stream, have been gradually lifted by the soft wind, and even against the current, to an elevation greater than that of our loftiest spires.—*Arnott's Physics*.

The Farm.

Pulverization of the Soil.

It may be doubted whether any branch of agriculture is better deserving of attention, and more worthy of care of farmers, than improved tillage. Tillage may be distinguished from the ordinary operations of the farm in consisting of the preparation of the soil for the crop, and subsequent cultivation during the growth of plants when applied to hoed crops. It is therefore the foundation of all successful farming, and worthy of far greater care than is usually bestowed upon it.

In the ordinary mode of preparing the soil for crops very great imperfection is generally observed. The land is poorly plowed, the harrow applied in the most superficial manner, the seed scattered upon it, and the roots left to work their way as best they may among the lumps and clods in which the land abounds. It is clear to see that by this method but very imperfect results are obtained, as it is by the most minute division of the particles that the roots of plants are enabled to draw from the soil the greatest amount of sustenance and support. When the surface of the earth is baked and lacks a proper degree of moisture

and warmth is not secured for the proper development of the grain; and when impartial tillage only is effected, the deficiency in crop will be in proportion.

There are different modes of tillage practised, but most of them very impartial in their results. The system most nearly approaching to perfection is undoubtedly most profitable, and should be recommended to the practical notice of farmers. It may be doubted whether, if double the labor per acre was expended in the reduction of the soil to a fine tilth, so as to be completely pulverized, the farmer would not as a general rule receive much greater returns for the expenditure than in the ordinary mode. It is thus that our gardens, naturally no better soil than the balance of the farm, are made to produce so abundantly.

We once knew a field of corn, which on a good fair soil, only produced an average crop, or some ten or twelve acres, without manure, of eighty bushels per acre—a crop so much above the average as to lead to inquiries into the cause of so extraordinary a yield. The proprietor, a very intelligent and enterprising man, gave the following account of the mode of cultivation practised:

The ground was plowed early in spring to a depth of eight inches, and instead of receiving a single harrowing, was worked with the harrow and cultivator until, in the language of the proprietor, it was as mellow as an ash heap, and a man walking over it would settle in to his ankles in fine earth. Here was the whole secret of the great crop. The land was finely and thoroughly pulverized, a mellow tilth was obtained, the soil retained its moisture uniformly, the roots found no obstruction to their movements in search of food, the nutritive matter in the soil was so reduced and distributed as to be readily and easily taken in by the mouths of plants, the after culture was easy and consequently thorough and effective, and the crop as a natural result, unusually large and profitable.

Now we think those of your readers who will investigate the subject will agree with the writer that in thorough tillage may be found the antidote for many of the disappointments and failures in the management of our arable lands.

If farmers will cultivate less land, and do it more thoroughly and perfectly, there can be but little doubt that greater crops will be obtained, and the profit on the labor be comparatively greater. It would at all events be a consolation to witness such a condition of the agriculture of the country as would result from perfect tillage and thorough pulverization.—*N. Y. Farmer*.

Agriculture in France.

A letter writer for the Republic says: "A trip of six hundred and fifty miles, from the north to the southern extremity of France, justifies me in the expression of my opinion that God's sun does not shed its rays on so fair a land, or one so thoroughly cultivated. The whole country is literally a garden. Every square foot, from the mountain-top to the lowest ravine, is made to produce something, if it be susceptible of it. Their mode of planting or sowing their crops, whether on plain or hill-side, produces the finest effect on the appearance of the landscape; the place allotted for each crop is laid out in squares or parallelograms with mathematical precision, and, whether large or small, the best garden could not be divided with greater accuracy. As there are no fences or hedges, and as the different crops are in various stages of maturity, you can imagine the variety of hues that meet the eye, and the magnificence of the panorama that stretches out in every direction as far as the vision can penetrate. I am sorry to add in this connection that seven-eighths of the agricultural labor is performed by females, while two or three hundred thousand stalwart men in uniform are idling away their time in the barracks of the cities and villages. In the absence of fences, cattle, secured by ropes, are driven about their pasturage by females; and sheep are confined within the required limits by boys, assisted by a shepherd's dog. Speaking of cattle, reminds me that, notwithstanding fresh pork is abundant enough in market, both in England and France, I have not seen a live porker in either country."—*Me. Farmer*.

Effects of Drainage on the Temperature of the Soil.

All the rain that falls upon our fields must either be carried away by natural or artificial drainage, or, having thoroughly saturated the

soil on which it falls, be left upon the surface to be carried off by evaporation. Now, every gallon of water thus carried off by evaporation requires as much heat as would raise five and a half gallons from the freezing to the boiling point. Without going to extreme cases, the great effects of the heat thus lost upon vegetation cannot fail to be striking, and I have frequently found the soil of a field well drained higher in temperature from 10 to 15 degrees than that of another field which had not been drained, though in every other respect were similar. I have observed the effects of this on the growing crop, and I have seen only one, a much inferior crop on the under-drained field, but that crop harvested fully three weeks after the other, and the setting in of unsettled weather, I have seen that crop deteriorated fully ten per cent. in value.—*Ag. Soc. Journal*.

From the Maine Farmer.

Breeding Horses.

It was thought, and predicted by many, that when railroads became established pretty generally throughout the country, horses would be little used. Indeed, we recollect once hearing it said in an argument against granting a railroad charter, that among other evils which railroads would bring upon us, would be the damage that would accrue to those farmers who were in the habit of rearing horses, as it would ruin that business entirely. Well, what are the facts? Railroads are pretty well established. Instead of their being no call for horses, there is more call than ever. Instead of ruining the business of breeding them, it is better business than it was when the argument was used. In breeding horses, farmers should be careful to breed from good blood. It is of great consequence to pay particular attention to this requirement. There is no denying that the blood of a long established breed will show itself through a great many generations, and often start out, as it were, years after it might be supposed to have been wholly obliterated by a course of breeding from other strains, in the common haphazard manner. We could cite many instances in proof of this position.

The last number of the *Wool Grower*, has some remarks upon the subject of breeding horses, and quotes from the report of the Committee, on horses, for the Chittenden county, (Vermont) Agricultural Society, as follows: "In addition to the hereditary transmission of qualities, it says—the progeny will inherit the united qualities of their parents. The good, as well as the bad qualities, will descend from generation to generation. Hence you will see the importance of a knowledge of the parentage, not only as to the sire, but also as to the dam. Peculiarity of structure and constitution will also be inherited, this is an important consideration, though too much neglected, for however perfect the sire may be, every good quality may be neutralized, if not overcome by the defective structure of the dam. Let the essential points be good in both parents, but if there be some minor defects in the one, let them be met, and overcome by the excellencies in those peculiar points in the other parents."

We would also advise you to let your breeding mares be in the full vigor of life. Do not put them to the horse too young, especially do not let your mares be incapacitated for work, by reason of old age. If so, you may expect that the foal will have a corresponding weakness, and scarcely will a single organ possess its natural strength. Our farmers are too negligent in the selection of their mares. They are tempted to part with their best mares, and to breed from those which are much inferior.

The Arabians, who have been celebrated for centuries, as being excellent breeders of horses, and whose horses are of the best blood in the world, pay very great attention to the qualifications and perfections of the mare. The results of such care in this respect, show themselves abundantly in whatever part of the world they are practised, and as good horses command a high price, those farmers in Maine, who propose to rear good first class horses, ought to furnish themselves with first class breeders, both sire and dam.—*Maine Farmer*.

Facts.—Common salt, applied as manure in gardens, will quickly destroy snails.

Soap stone powdered fine, and mixed with oil, diminishes friction, and is an excellent substitute for the usual composition applied to carriage wheels.—*Journal of Science*.