

than any other coating. For fences and out-buildings this method means a great saving in time. Yet ordinary whitewash is not as economical as a cement whitewash. While the former requires frequent renewals, the cement wash often remains satisfactory following several years wear. The combination is best made in the following proportions: Mix together one peck of white lime, a peck and one-half of hydraulic cement, six pounds of umber and four of ochre. The lime is first slaked and mixed with two ounces of lampblack moistened with vinegar. Then add the other ingredients. Allow the paint to stand for three hours or longer, stirring frequently. The addition of half a pound of Venetian red renders the appearance more pleasing and adds to the value of the paint.

If ordinary whitewash is used at all, the addition while hot of a small amount of flour mixed with boiling water, will prevent the whitewash from rubbing off so readily.

For finishing interior work, varnishes are best to use. They give an extremely hard surface which protects the wood beneath, and they are easy to clean thoroughly. It is not advisable for anyone but an expert to attempt to mix them at home, for many good ones are on the market as well as plenty of worthless mixtures called varnishes. True, varnish is a solution of resins or gums in some suitable liquid, such as alcohol or oil of turpentine mixed with linseed oil. Those in which alcohol acts as the solvent are spirit varnishes and are far inferior to the oil varnishes in many ways, chiefly because the alcohol evaporates entirely, leaving the varnish so hard as to easily crack and chip. The oil varnishes, on the other hand, should never get brittle.

Nova Scotia.

R. P. CLARKSON.

Rotation and Cultivation.

Editor "The Farmer's Advocate":

As the time is approaching when we as farmers will be once more turning our attention to the planting of the spring crops, a few words on the subject may be appropriate. To properly treat this subject it will be necessary to go back the full length of a rotation. Part of our farm being high land and part low land, we practice two separate rotations. The high land is not well suited to growing corn, the soil being too heavy, and on this we use a two-year rotation, consisting of wheat or oats and barley, seeded with red clover, and the next year cut for hay or pastured. Part of this is sown with fall wheat, the rest is plowed at a depth of six inches in the fall, and sown to oats and barley mixed the following spring. The land sown to wheat is well manured, but we do not manure the ground sown with oats and barley. It is our practice, as far as possible, however, to alternate these crops; that is the fields having wheat in the present rotation will have oats and barley in the next rotation. So that the land is manured once in four years.

On the low land we practice a three-year rotation consisting of oats, seeded with red clover, cut for hay or pastured the following year, and planted with corn and potatoes the next. The corn and potato ground is always manured, and this ground is plowed six inches deep in the fall preparatory to sowing with oats in the spring. These low lands are all tile drained, and I might just say in passing that the best oats in the field grow over these drains, and besides, we can get on the field to work much earlier in the spring, which also increases the yield of grain.

As to preparation of the seed bed, as soon as the land is fit to work it is gone over with the disc harrow or spring-tooth cultivator to loosen it up and let the air in to warm it and hasten drying. It is then usually left a day or two before further working, after which the ground is well stirred with the disc or cultivator or both and thoroughly pulverized by the frequent use of the drag harrow, this latter operation being considered very important as it leaves plenty of fine soil to cover the seed. The grain is sown with the drill and the ground immediately harrowed. About five days after sowing the grain clover seed is sown, and the ground harrowed again to cover the clover seed and break the crust if one has formed, and thus help to conserve moisture.

Norfolk Co., Ont.

H. S. AUSTIN.

A member of Parliament recently remarked on the public platform that he sold 2,100 pounds of apples to a canning factory, the labor connected with which would cost him \$8.00. In return he received five pecks of corn, valued at \$4.06 and a check for 14 cents. Since the exchange on the check would amount to 15 cents he still has it. This will be valuable information to take to the House of Commons, where men high in the legislative art of the country are saying "Educate the farmer to grow two blades of grass where only one grew before." The slogan should be "give him a chance" and make possible a market where he may economically, profitably and satisfactorily dispose of that extra blade of grass.

The Concrete Aggregate.

Editor "The Farmer's Advocate":

Before it is possible to have strong concrete there must be a clean aggregate. The aggregate, to the man who is not likely to be doing any great amount of concrete work, may be considered to mean everything in the concrete except the cement. Sand, in this sense, is also included instead of considering it to be part of the matrix. The aggregate proper is of crushed stone, gravel or cinders.

All things being considered it is possible to get a stronger concrete with crushed stone than it is with gravel, particularly when the stone dust, or "crusher run" as it is called, is left in. This being finer than sand and at the same time much harder is very useful in filling the voids. Stone is sold by the ton at an average price, in most towns, of one dollar and forty-five cents. For the most part one inch stone is the best for farm concrete. This means that the stone is small enough so that it will just pass through a one-inch ring. It is often the practice of dealers in builders' supplies to sell crushed stone with ordinary sand and dirt in it as crusher run stone. The easiest way for the inexperienced man to find out if this is so, is to wash some of the stone. Stone dust will not dissolve and will form into a sort of paste, while the dirt will simply wash away. The more dirt the weaker the concrete. Another little trick is to sell stone of a very inferior crushing strength to that of a stronger power. Some dealers are in actual ignorance of the crushing strength of their stone and, to the man not doing work on a large scale, it isn't necessary that the buyer should know their strength. This trick is hard to guard against, but striking the stone with a fairly heavy sledge will give a general idea. Stone of a high crushing strength will break into gritty fragments

the workers standing on the bench below. In doing this, care should be taken to make benches wide enough so that there is no danger of the bank falling. The surface in front of the workers should be spaded level. The idea is to keep pushing back the pit by layers, and to throw down in rough divisions the different gravel met with by the men at the screens. This is the common method used in most of the modern gravel pits, but in a pit from which the farmers are hauling and where there is not a man in charge, difficulty might arise. One or two men dipping into a pit anywhere at all, simply spoils the gravel pit for everyone using it. To ensure a good road into the pit, the gravel should be taken out in a circular formation. The circle-pit allows more room to turn, leaves a low grade to the road and is fairer to all using the pit. The principal thing to watch is not to dig into the bottom of the pit, because the gravel slumps far quicker.

In connection with the pit there is the screen work. Two screens, at least, are necessary; one for sand and one for gravel. These screens can be bought at any wire manufacturing or ornamental iron works. The price depends on the mesh and on the size. They should be about three feet by five. The sand screen should be one-quarter or one-eighth inch mesh, and the gravel of one-half inch. The wire should be mounted on a frame of two by fours, and have two supporting legs. Screens made out of light metal are the best, as they are strong and will not bend too much. These screens will average in price, about three dollars each.

Screening is not as simple as it looks, but with a little practice the inexperienced man will soon learn enough for his purpose. The screen is mounted on a board platform with a board built around the edge. The gravel is simply thrown against the sloping screen and is caught as it falls by twisting the shovel. The gravel should be thrown against the screen at least twice. In fine sand work it will be necessary to use a screen finer than one-quarter inch. Putting fly-wire against the screen will help, although such sand is more useful in plastering than in concrete.

Gravel may be said to be of three kinds: screen, pea, and pit-run, or bank-run, named in order of commercial value. Pit-run is just as the gravel is taken from the pit without screening, and is not that gravel taken from a part of the pit in which there is a shelf of coarse gravel. It, therefore, has pea and small-screen gravel in it and is quite



Mutual Confidence.

while weak stone will be ground to powder. Trap-rock and crushed granite are the two best stones but they are too costly to use anywhere, unless there is a great deal of traffic. Nearly all crushed stone is strong enough for farm concrete, except limestone. This should never be used, because the lime gradually affects the concrete. This stone can be recognized by throwing water upon the pile, thus causing the limestone to show white in comparison with the rest. Washing is the best way to remove loam from stone but, owing to the difficulty of doing this in the country where it is seldom possible to get proper pressure, this work should be done at the supply yard. The distance from the crusher renders the use of stone out of the question to most farmers and therefore the selection of gravel is of more importance.

Gravel concrete, while of only about seventy-five per cent. of the strength of stone concrete, is strong enough for all farm work, provided there are not too many large stones included. Gravel pits are of different depths but the best gravel is usually found at some distance below the ground level. It will be noticed that the gravel appears to run, in what is known to gravel pit men as "shelves" and the greatest care should be taken to preserve this formation and to prevent the sides caving in. This can be done by stripping back the top soil for a distance of several feet, before beginning to take out the gravel, and then cutting down a little at a time,

satisfactory for all small farm concrete jobs, such as walks and floors if it is reasonably free from soft sand and dirt. It is not suitable for walls of any size. In getting out pit-gravel, care should be taken to see that the top soil does not fall down and that soil seams are avoided. It is well to remember that it is almost impossible to remove soil, once in, from this gravel. Pit-gravel is usually the best for drainage, if not too fine, and this applies to all uses because the more gritty particles in it, the better. It should be coarse enough so as not to pour through the closed fingers and is not advisable to use when there is more than five per cent. of soil in it. The finer the gravel and the more dirt, the more cement needed and the harder it is to get a proper wearing surface of smooth concrete.

The gravel left after the pit-gravel has been thrown against the coarser screen is known as "screen-gravel" and is worth about twice as much as pit, or about one dollar and a half a load of one and one-half yards. This gravel should be of different sizes which can be arranged by mixing the different pockets of gravel. The very large stones should not be used, because they will make holes in the walls. The less soil in it the better. Dirt can be removed by screening and by washing like stone, only it is much easier to wash. A slow stream, from a pump for instance, will do. Once the gravel is wet in the pit from rain, the dirt cannot be removed until