angle, not at a right angle. If the double pieces can not be bought of the tilemakers, a man with a head, a pair of hands, a hammer and a file, can make a fit out of the material on hand. When the tiles are down, the filling in process is mechanical; it can be done with the spade or shovel, or with the team and common plow by rolling down the earth on the top. It is well, however, that with hoe or spade the workman should bring down to the top of the tiles some of the earth dug out last, and firm it well in the bottom with the feet. With the bottom securely packed the remaining filling can come down according to the inclination of the one in charge.

Two extremes are to be avoided by the farmer when he begins underdraining his field. For one thing, he ought not to commence without counsel from *somebody*. It is a pity that not more in Canada are experienced in the work. But things are looking up, and the next year or two will see thousands of acres tile drained that are now half productive or unproductive. Let the farmer in beginning this work read the best articles on the subject, consult the most experienced men within reach, and use the best implements. For another thing, he must guard against listening to *everybody*. There are agnostics and skeptics in the agricultural sphere as in some other spheres. If we listen to those who do not know much upon the subject, but who make up for their ignorance by their thinkings, and supposings, and doubtings, and false prophesyings, we may be worried in a department of farm work in which there is a great deal of real pleasure. Let the work be done in the right way, and as soon as possible, and it will mean tens of thousands saved and gained to the farming community.

Summer Feeding of Swine.

The item of labor in porkmaking may amount to considerable or it may be very little at this season of the year and for several months to come. The process of porkmaking should commence soon after the litter is farrowed. The object should be to keep them growing as rapidly as possible from the first, because a day of standing still means a day's feeding without a return, and the fewer of those the better.

A series of green foods can be had in succession on most farms throughout the summer with very little preparation. The clover field supplies the first pasture and will last in good order until the green peas are ready to feed. It is not well to make sudden changes, as even a pig will get sick if unwisely fed. The new food may be introduced by throwing in a few forkfuls daily for a week before the permanent change is to be made. If there is then a small field of peas to be fed the pigs may be turned in at once, or it may be wise to hurdle a plot which can be "hogged off" thoroughly without any waste. Along with this, if sweet whey or skim milk forms the drink, which should not be fed in a larger quantity than eight pounds per day to a full-grown hog, steady and profitable growth may be expected. After the pea season has passed, second-growth clover or corn will be on hand to form the bulk of the diet. As finishing time approaches, a grain ration composed of corn, peas, barley or shorts will be profitably fed in conjunction with the green fodder. Fed in this way, the land upon which pork is produced will have gained fertility. Hogs and hog products have been holding their own remarkably well this season. As in days gone by, he is still the "gintleman that pays the rint."

Shallow vs. Deep Tillage for Corn.

A number of experiments in corn growing were carried on at the Missouri Agricultural Experiment Station for three consecutive years, when *deep* and *shallow* cultivation received due attention.

The *deep* tilling was done with the ordinary walking cultivator run four times at the depth of five or six inches. In the first cultivation the narrow shovels were used, afterwards the ordinary shovels.

The *shallow* tilling was done with an implement having a number of narrow knives running an inch or more beneath the surface, loosening the soil and effectually destroying the weeds in its path, but not lifting the soil sufficiently to cover the weeds in the hill unless quite small.

The results were: In every case shallow tillage gave the largest yield. The gain from this method ranged from 2.1 to 14.3 bushels per acre, or from 4 to 30.6 per cwt. In 1890, nearly one-third more corn was produced on the plots tilled shallowly than on those receiving the ordinary deep tillage. These results are corroborated by similar trials at a large number of Experiment Stations and the experience of the most successful corn growers in this and other countries.

Timothy Hay.

While clover hay is preferable for feeding all stock except working horses, it is the only sort for which there is always a market. True, in a winter like last, any kind of well-cured hay would sell for a good price, but we feel safe in saying that nine-tenths of the hay sold was timothy. An admixture of other grasses and even a little clover seems to militate against it in bringing the highest market price. When the crop is to be sold the market does not object to fairly well matured hay, but when a grower is to feed his own timothy, it is a mistake to leave it standing until the seed is about formed. When this is done the stalks become woody and thus less nutritious and less digestible than greener cut hay. The object should be to secure the greatest possible amount of assimilable nourishment for the animals, and according to common sense and the teaching of science, this is secured when the crop is cut as soon as possible after the first blossom appears. In order to get rid of the dust which is then present, it is well to delay cutting until that blossom is blown off. Cut at this stage, with suitable weather for curing, and the best possible timothy hay can be secured. The heads remain perfect, the substance that would make the seed if allowed to stand longer is all in the stalk, and the leaves are sweet and green.

In bright, breezy weather, timothy cut in the morning will be ready to rake up and perhaps haul in in the afternoon. By the employment of improved machinery the work of cocking can be dispensed with when a modern hay loader is made use of. The curing will be aided materially by a couple of runs over with the hay tedder, which will lighten it up to the sun and wind. When conditions are favorable for going ahead the mower may be kept at work a portion of each day, followed by the tedder a couple of hours later, and the wagons not far behind. The danger of having a large amount of hay damaged by a wet spell is then reduced to a minimum and the work passes off gradually and pleasantly, and the character of hay secured will be of the highest possible quality.

Buckwheat.

Among the grains that have not "slumped" to any extent in price within the last few years is buckwheat. This crop is grown more and more year by year in many sections, especially as a catch crop. There are several places in the rotation in which it can be advantageously placed. As a regular grain crop it is perhaps the best to sow upon dirty land, for the reason that it should not be sown before June 20th, which provides a grand opportunity for weed-killing before that time. As a destroyer of "couch" grass it is hard to surpass. By its luxuriant growth this troublesome weed seems to succumb almost entirely. From three to five pecks per acre is a good seeding.

In a well-advanced season like the present, barley, fall wheat, and early peas will ripen early, after which a fairly good crop of buckwheat may be secured from the same land. It will ripen if sown about August 1st, and furnish from a few acres a good return of fowl and hog feed. Whether or not it is desired to take a crop of seed from such a field, it will pay well to sow the land for a green manure crop. This will kill weeds, render the land very mellow for the following season, and add humus to the soil, which will increase its moisture-retaining power in a high degree.

When grown for a grain crop it may be cut with a self-binder, shocked and threshed like other grain. It must not, however, be tightly bound in large sheaves, else it will take a long time to dry. It should not be hauled more than a few days before threshing, lest it will heat and mold. Careful handling and a close covering to the rack when hauling is necessary to avoid much loss of seed by shelling.

We would offer one caution. Do not sow it on land upon which a clean grain crop is to be grown the next season, as some of the seed that shells will likely come up amid the grain. When feed grain or a hoed crop is to follow there can be no objection to growing buckwheat. As a bee-pasturage it is very productive of nectar, but the honey produced is of a strong, low-priced grade, but will answer well to feed the colonies upon during the winter.

Good Silage.

Silage that is not good is either sour, moldy or rotten. The cause of over-acidity is almost invariably immaturity of the corn at the time of filling. This is very often due to too thick sowing, which prevents the admission of sufficient sunshine to the ground among the corn while it is growing. A crop of immature corn is simply a lot of water held by green, woody fiber. If corn has been planted too thickly and has come up well, it will pay to thin it out by means of a hoe. In all cases we want the corn grown enough and sufficiently ripened so that it shall contain the largest amount of starch, which will, if properly put into the silo, come out in excellent form.

Moldy silage is due to a lack of moisture. It must be moist enough when put in to fill all the material, else mold spores will develop and mat the whole mass together. Lack of moisture may be due to the corn being allowed to over-ripen before cutting or else allowed to dry out after being cut. When the crop has passed the glazing stage or been allowed to dry out after being cut, sufficient moisture should be added when the silo is being filled to make up for the deficit.

Rotten silage is occasionally met with and is invariably due to the entrance of air. A slight crevice in the silo is enough to do the damage. To sum up: It is altogether the best plan to grow corn suitable to one's district, no thicker than to admit of each stalk bearing and maturing a good cob. Then cut it at the glazing stage and fill evenly and compactly, as it is cut, into a deep, strong, air-proof silo with properly constructed corners. Then there will be no over-sour, moldy or rotten silage deeper than a few inches of the top.

Road Improvement.

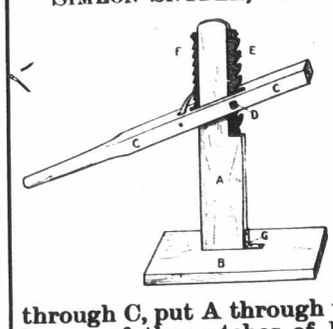
A note from Hon. John Dryden, Minister of Agriculture, Toronto, Ont., advises us that the services of Mr. A. W. Campbell, C. E., Provincial Instructor on Roadmaking, will now be available, as arrangements may be possible, to visit localities requiring same, in giving assistance to roadmasters, overseers of highways, and members and officials of municipal councils, without expense to the latter. As indicated in the May 15th FARMER'S ADVOCATE, in which a portrait and sketch of Mr. Campbell appeared, together with a seasonable article on road work, his principal duty will be to give assistance in the manner above indicated. He has visited several localities in that capacity already.

Cement Floors.

Never a summer passes but a great many new floors are needed and are constructed in stables and pens. We would say to our readers who are contemplating reflooring outbuildings, that one or two farms that have cement-floored stables should be visited to ascertain what satisfaction they are giving. We may say from our own experience that wooden floors, even if they could be put in for half the cost of cement, are much the dearer in the end. Not only will they soon wear out, but while they last they are not so healthful, are wasteful of manure, and are not so comfortable either for beast or man.

A Good Wagon Jack.

SIMEON SNYDER, Waterloo Co., Ont.:—"Take a piece of hardwood board for A and fix it firmly, by means of iron brace (G), into hardwood plank (B). Then bolt on A the pieces of iron, E and F. Take also hardwood for lever (C). Put a bolt through it at D—a pretty strong one, because it alone has to hold the weight. Then fix in H, make a hole through C, put A through this hole, and let D hang in one of the notches of E, and your jack is finished."



DAIRY.

Making Championship Butter.

The *Australasian* gives the following description of how the championship butter at the Sydney (New South Wales) Show was made, 55 factories competing, each one sending 5 boxes:—

"The milk was separated at a temperature of 85° Fahr., after which the cream was passed over a cooler which brought down the temperature to 60°. (Alpha separators were used.) It was then pumped into the maturing vat, when a starter was used to bring on the acidity to the desired stage, the cream being cooled down in the vat to 56°, and being occasionally stirred. The next morning—that is, 20 hours after the milk was separated—the cream was run into the churn, which before use was thoroughly rinsed out. Van Hassett's butter color, at the rate of ¾ oz. to 100 lbs. of butter, was added to the cream, and the churn was then started, being driven at the rate of 38 revolutions per minute. The butter commenced to come in thirty minutes. The churn was stopped, the butter being in a granulated form about the size of peas. The buttermilk was then run off and allowed to drain. A thorough washing in two waters was then given the butter, the last water coming away clear, and being at a temperature of 60° Fahr. The butter was then allowed to drain in the churn for thirty minutes, after which it was taken out of the churn and passed over the butter-worker, where it was salted at the rate of four per cent., and one per cent. of preservitas was added and slightly worked into the butter. The article was then placed in a trough and passed into a cool room, where it remained till the next morning, the room being kept at a temperature of 50°. When taken out of the cool room in the morning the butter was again passed over the worker to abstract as much of the moisture as possible and to get the right texture in the butter. Enamelled boxes were next brought into requisition, and in these the butter was packed, but not before a lining of parchment paper soaked in a solution of preservitas was placed in the boxes. The boxes of butter was then placed in the cool room till they were dispatched for Sydney on February 11th. The outside temperature when the butter was packed was 100°."

The Argentine Republic is rapidly becoming an important competitor for the supply of butter to British markets, as the result of the first year's operations, though these were largely experimental. Argentine butter has practically already become an established commercial success. Cattle and grass are plentiful and labor very cheap. Not only is the original cost of production small, but peculiar advantages are derived from the Argentine currency. Since 1885 the gold premium has risen so high that the purchasing power of £1 in gold is now equivalent to £2 10s. in the depreciated paper money of Argentina, in which, except as regards British machinery, the expenses in that country are paid.