Soils and Crops

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KEEP THE SOURCE CLEAN.

The milk-consuming public is demanding better milk every year. If the dairymen desire to see their business grow, they must provide that better milk. Only too many of them still believe that no matter how dirty the milk they ship to the creamery, the cheese factory, the condensery, or milk distributing plants, that these various organizations are able by some kind of scientific magic to cleanse and renovate the products so as to make it satisfactory. While it is true that clarification and pasteurization can do wonders in that direction, they cannot do it all. This was brought home to me most forcibly not so long ago on inspecting a farm where milk was bottled for city delivery.

Everything about the dairy or bottling house was above criticism, the equipment was ample, and the methods good. In the barn conditions were by no means as satisfactory. Every experienced milkman knows that unless he gets clean milk to start with, that later precautions are only partially satisfactory. Inasmuch as the average dairy farmer is not concerned with bottling his own milk, he is able to concentrate his attention upon maintaining satisfactory barn conditions. When the milk comes from the barn it must be "right," or the best quality of milk cannot be set before the consuming public.

There no longer is any dispute about the right type of barn. In the modern dairy barn the floors are of concrete, and ample gutters are provided. Most new barns which are being built have sanitary steel stanchions. In other words, the cows are given a chance to stay clean. Chutes are provided, so that hay, bedding, and feed can be taken into the stable without raising a great amount of dust. Many large windows provide ample sunlight. In this kind of barn odors are reduced to a minimum. Nothing worse could happen to the milk than to have it contaminated with foul stable odors. A good ventilation system, which may be home-built, is almost a necessity, and will eventually be required by city inspectors.

There is nothing more disgusting than to go into a stable and see the cows covered with manure which is matted into the hair. Manure is removed at least twice daily out of every well regulated stable. The attendant also watches carefully to see that none of the droppings remain where the cows can lie down upon them, but pushes them into the gutters. Plenty of bedding follows as a matter of course. But in addition to the prompt removal of the manure, clipping the flanks and udders of the cows makes it much harder for filth to attach itself. Then if the cows are groomed or brushed so as to remove all loose hair, clean milking is much easier. It is even a good plan to take a steel wire brush and wash the cow's tails thoroughly about once a month in soap and hot water. If the cows are groomed a short time before milking, they should be chained up in the stanchion so they cannot lie down until milked. This is easily accomplished with a strap around the cow's neck, with a snap to fasten the strap to a little chain at the top of the stanchion.

The habits of the milker are important. I am not an advocate of absolute dry-hand milking, but like to wipe off the udder of the cow with a damp cloth just before milking, and to wash my hands after every cow. To keep enough milk in your hands so that it can drop into the pail is a filthy habit. Semi-covered pails, tests show, will keep most of the dust and hair from falling into the milk.

How to Plant a Tree

If You Give it Just About Half a Chance it Will Do its Best to Live.

BY FRANK A. WAUGH.

Plant it with the roots in the ground and the buds in the air. This is the only rule in transplanting young trees—at least the only rule to which there are no important exceptions.

Beginners in gardening do not feel like that. They have a superstition that planting a tree is a ceremony; that it has some astrology in it; that one has to consult the moon, the calendar and the Cyclopedia Universalis. Yet the truth is that a young healthy tree is very hard to kill. With the tree it is a matter of life or death; and the tree wants to live a great deal worse than we want to have it.

All the ancient and solemn exhortations to extreme care are probably bunk. Take one, often repeated, about preserving all the small, fibrous roots. Now ordinary transplanting does not preserve 5 per cent. of the aforesaid fibrous roots; and if 5 or 10 per cent. should be preserved by the conscientious gardener they would die and rot in the ground and a new set of feeders would be put out before the little tree really took up life anew.

Or take the other charming thought that all the main roots must be saved and carefully combed out by somebody's fingers, tenderly placed in their natural positions and softly bedded down with moist earth. Henry M. Stringfellow some years ago shocked the horticultural world out of that notion. He preached what he called "the new horticulture"; and his doctrine succinctly stated, was that all the roots should be cut off the transplanted tree and nearly all the top. When he was ready to plant there was nothing left but a stub of a root four inches long, a stub of a top four inches long and a label. And the most ridiculous part of his system was that his trees grew just as well as those coddled infants that were planted by the trained nurse.

WE CAN'T MAKE DEAD ONES GROW.

Another instructive example showing how much a young tree will stand may be drawn from the universal practice of the foresters. They feel obliged, for reasons of economy, to cut out all the frills and plant trees just as rapidly and just as cheaply as it is possible to do it. So they take a bucketful of nursery trees in one hand and a special spade or adz in the other, start in a bee line up the hill and plant as fast as they walk. A hole is forced in the raw weedy sod, the seedling is forced into the hole, the earth is firmed back with one jab of a hobnailed boot and the tree is planted. In spite of the unprepared soil and in spite of the competition of weeds and grass, nearly all these trees grow.

So we may with confidence approach our little task of transplanting our few garden trees. We will not ask them, either, to submit to any unnecessary rough-housing. On the contrary, we will do what we easily can to make them happy in their new homes.

But let us remember what Mrs. Thorne said to her married daughter when asked about cooking salt mackerel. Mrs. Thorne said, "In the first place I get a good mackerel." This is indeed highly important. If a nursery tree is dead when we begin to plant it no amount of ceremonious care will bring it back to life. It is probable, indeed, that 90 per cent. of the failures in transplanting small trees are due to exposures and injuries which occur between the time the tree is dug and the moment when it gets back into the soil.

Some of these injuries are due to careless digging and packing, to bad storage, to heating or drying in shipment or to exposure to the air and wind after unpacking. This last item of exposure is one of the most deadly; and inasmuch as it is wholly within the control of the tree planter himself he is inexcusable if he permits its occurrence.

THE SIMPLE JOB OF HEELING IN.

The next point at which the anxious tree transplanter may properly give himself some concern is in the preparation of the soil. Above has been cited the practice of the silviculturists in planting in raw sod; but this is not to be recommended for fruit trees, bush fruits, ornamental trees and shrubs or any other garden species. Indeed, all experience shows emphatically that any failure to have the land well cultivated, sweet and clean, greatly multiplies the percentage of losses.

If any number of trees are to be planted it is often necessary to keep them for a few days after their arrival from the nursery. They should be heeled in. The trees are taken out of the bale or packing box in which they are received. The roots are rolled in a puddle of thin mud. This process, known as puddling, is almost always followed by large planters and also by the knowing small ones. It covers the roots with a coating of soil, which greatly retards their drying out.

They are then placed in a trench, usually about eighteen inches deep, the roots are deeply covered with moist earth and solidly trodden down. Here they will keep for weeks provided the weather is not so warm as to start them into growth nor so dry as to desiccate them. Of course the effects of a very dry spell can be alleviated by heavy watering.

When the hour comes for the final planting the trees can be taken out of the trench and placed in a large pail or a barrel. In this receptacle will be some water and perhaps some soil, to keep the roots from drying. If many trees are to be planted the holes should be dug in advance or by a separate gang working ahead. If only a dozen or so are to be handled the holes can be dug one at a time as we are ready for them. The holes must be dug big enough and deep enough for the trees, remembering on the one hand that roots should not be rolled up and forced into the hole, and on the other that it is wise to cut off all long and sprawling roots.

Indeed, both roots and tops should be cut back at transplanting time. It is by no means necessary to go to the Stringfellow extreme, but considerable pruning is advisable. The best amount will depend on many variable conditions which cannot be discussed here; but the discussion may be spared the easier, since the trees are bound to grow in any case.

Using fresh sweet friable soil for filling in upon the roots is really essential, in spite of all facts mentioned at the beginning of this article. A tree bedded in straw, manure, sod, stones or clods hard as brick shards stands a poor chance. This clean soil should be firmed down by hard tramping. This, too, is important.

A common practice is to water trees heavily when they are planted out. If the ground is quite dry this treatment is advisable. On the other hand, if the soil is moist and in thoroughly good tilth this watering is unnecessary. In some cases it may even prove postively harmful. For example, if planting is done in clay, the watering and tramping of the soil may puddle it and lead to its baking, after which the tree will have a hard time indeed.

Another common practice is to apply manure or fertilizer about newly planted trees. The fertilizer may act as a mulch and do considerable service; but the plant food thus generously offered the little tree is seldom used. The transplanted tree has to spend the greater part of the new year building a new root system, and until this system has reached some development fertilizers cannot be gathered. There is, in fact, seldom any call for extra plant food before the second year.

There are then a few points which may be reasonably observed in transplanting young trees. First, get a good tree, one that is thoroughly alive. Second, keep it in good condition by appropriate but simple means till the moment of planting. Third, have the soil in the pink of condition. Fourth, plant the tree quickly, firm the soil and go on to the next one.

After this all that is necessary is to give the tree a chance. God made that tree with every twig, fibre and cell full of life and with no other purpose or expectation but to live. Living is its business; and as our purposes happen to coincide with those of the tree we ought to get on together with great success.

The Best Sources of Seed Grain.

Persons looking for reliable information as to where desirable seed of approved varieties may be purchased will find the Canadian Seed Growers' Association, 114 Vittoria St., Ottawa, one of the most satisfactory sources upon which to draw. This organization is composed of several hundred growers of high grade seed grain. They operate according to definite rules in order that their seed, if satisfactory, may be in line to receive the highest official seed grade, namely, "Registered Seed." This grade of seed is required to be pure as to variety, free from weed seeds and other impurities, contain not more than one seed of other cultivated crops per five pounds of seed, and germinate at least 90 per cent. Seed which does not quite comply with this high standard, in so far as freedom from other cultivated grain is concerned, but which does not contain more seeds of other cultivated grains than a total of 10 to the pound, may receive the official seed grade called Extra No. 1. It is one of these grades which the farmer should endeavor to secure for seeding.

The Association constitutes the chief medium through which the pedigreed seed produced at the Experimental Farm is propagated and brought into commerce. It also cooperates with our best seed merchants, the latter purchasing a considerable proportion of their supplies from or direct through the former. The Association is, therefore, in a position to direct prospective purchasers wherever they may be as to where they may most likely be able to secure Registered or Extra No. 1 seed of the varieties which will give them satisfactory results.

The commercial value of pure, vital seed of productive varieties is fully recognized by a great many of our best farmers. Unfortunately, however, it is not appreciated very fully as yet by the average crop raiser.

Special Trial Samples—In order to facilitate and encourage the distribution and trial of registered seed through Canada, the Canadian Seed Growers' Association is prepared to receive orders for 100 pound sacks or more of Banner, Victory of Gold Rain oats, O.A.C. 21 barley, or Huron, Marquis or Ruby wheat, at $3 per 100 pounds, f.o.b. shipping point, for the wheat and barley, and $3.75 per 100 pounds for oats. A money order attached to a letter ordering 100 pounds or more of one of the above varieties addressed to the Canadian Seed Growers' Association, 114 Vittoria St., Ottawa, will receive prompt attention.

The above amount of seed would give a farmer a very good start in good seed and at the same time would give him an opportunity to compare the returns from his own seed with those realized from the seed purchased.

Churning.

On many thermometers at 62 deg. the word "churning" is printed. If the manufacturers placed it there as a guide, many have mistaken it for a rule.

There is no standard temperature for churning, as conditions vary and many things should be taken into consideration; for example, low churning temperatures may be used when we have such conditions as rich cream, not too much in the churn, succulent feed, and cows fresh in milk.

Choose the temperature that will bring the butter in nice, firm graules in from 20 to 30 minutes.

A range of temperatures that will cover most farm conditions would be 54 to 58 deg. F. in summer, and 56 to 64 deg. in winter, so says Miss B. Millar, Dairy Dept., O. A. College.

In farm dairies the barrel churn is used, and having it about one-third full will make the work easier A great many of the long churnings are caused by having too much cream in the churn. Another cause of long churning is having the cream too cold. If, after churning about thirty minutes, there is no sign of butter coming, raise the temperature of the cream a few degrees. Take the cream from the churn, place the can in a vessel of warm water and stir the cream until the required temperature is reached.

With very thin cream it is difficult to gather the butter and it may be necessary to draw off part of the buttermilk and continue the work, revolving the churn slowly.

If the butter breaks and will not gather, but remains about the size of clover seed, take the temperature of the contents of the churn, add a quart or two of water a few degrees warmer, revolve the churn a few times, let it stand a minute or two, then draw off part of the diluted buttermilk, and continue the churning.

If a rich cream thickens during the process of churning and concussion ceases, add enough water at the same temperature to dilute it so that it will drop again.

Difficult churnings are caused in a number of ways but can be avoided if a little thought is given to the question.

When the granules of butter are about one-half the size of wheat grains, add a couple of quarts of water several degrees colder than the temperature of the cream and continue churning until the granules are the size of wheat grains, when the churning as a rule is completed.

If butter comes with the first drawn buttermilk, it is a sign that the churning is not quite completed. Give a few more turns to the churn.

The successful man keeps his mouth shut and his mind open.

Home Education

"The Child's First School is the Family"—Froebel."

Teaching Children to be Truthful by Example

BY HELEN GREGG GREEN.

Dropping in at my neighbor's next door, I found a worried mother and a tearful little girl.

"Why, Babette, what's wrong?" I asked the child.

"Mother just punished me for fibbin'," sobbed Babbette.

"For lying, Babette," frowned the mother.

"Oh, mother, I only—" began the child.

"Don't argue with me, Babette!" ordered the mother. "Run out and play! But remember, never lie to Mother again!"

A few days later Babette told me her mother was not well, so I called to see if I might help in any way.

While we were chatting, and Babette was playing with her dolls on the floor, we heard a knock at the door.

"Teresa!" called Babette's mother to the maid, "If those are callers, tell them I'm not at home."

Teresa obeyed.

Babette stopped dressing her dolls, and scurried to her mother.

"Why, Mother!" she said, "why is it you tell me not to lie when you do it yourself?"

The mother looked amazed.

"Why—why—" and she blushed scarlet, looking at me as if for help. But I was tongue-tied, and greatly embarrassed for the mother. Suddenly the tears started down her cheeks.

"Why, Babette, dear, Mother is ashamed! I never thought of this before. Why, how could I expect my little girl to be truthful when Mother's so untruthful herself? To think I've set such an example for my child."

"Why didn't I understand?" she said thoughtfully.

Yes, why didn't she think?

Do not parents know that children are very impressionable and are easily influenced by the right kind of example; and by inculcating proper ideas and ideals?

Yes, there's no doubt about it, parents must learn to think.

A young bride recently told me that as a child she thought her mother absolutely incapable of telling an untruth. And to her knowledge she never did.

A beautiful example, and a beautiful record.

Parents usually appear infallible in their children's eyes. And that is as it should be.

THE SUNDAY SCHOOL LESSON

APRIL 13

Elijah and the Struggle With Baal, 1 Kings 16: 29 to 19: 21; ch. 21; 2 Kings 1: 1 to 2: 12. Golden Text—No man can serve two masters. Ye cannot serve God and mammon.—Matt. 6: 24.

CONTINUATION OF THE STORY—We must now follow for a little more than two hundred years, the parallel history of the two kingdoms, Israel and Judah. Israel was the kingdom of the ten tribes, had much the larger territory, including all north of Judah and east of Jordan, and was richer, more populous, and more powerful than Judah. But Judah had the advantage of being more isolated from the outside world and less subject to its temptations, and Judah's kings inherited the ideals, the ambitions, and the prestige of the great reigns of David and Solomon. The kingdom of Judah remained, therefore, comparatively stable, and its royal line, with one tragic exception, unbroken for three hundred and fifty years. But Israel's kingdom was torn by frequent revolutions, its dynasties were short-lived and evil, and it came to a disastrous end when invaded by the Assyrians after two centuries only of troubled existence.

The historians have little good to say of the kings of Israel. Jeroboam set an evil example for those who came after him, and was remembered as the man who "made Israel to sin." His first act was to fortify Shechem and make it his capital. Then he established national sanctuaries at Bethel in the south, and at Dan on the slopes of Mount Hermon in the north, so that the people might not be tempted to go to Jerusalem to worship, thus recognizing how strong a bond of unity lay in the common religion. By his endowment and patronage of the northern shrines, he hoped to break that bond. At these shrines he set up images of Jehovah in the form of golden calves, thus degrading the worship of Israel's God to a level with that of Baal, he made new priests who were not of the old priestly families of Levi, and changed the date of some of the ancient festivals.

Ch. 18: 20. *Ahab* appears in some respects to have been one of the best of the kings of Israel. His father was Omri, the founder and builder of Samaria. He himself fought courageously and successfully against the Syrians who invaded his country and besieged Samaria, and at one time, as Assyrian records show, his armies fought side by side with the Assyrians against Assyrian invaders from the east. His treatment of the vanquished king of Damascus was generous and kindly, and he proved a brave and faithful ally of the good Jehoshaphat, king of Judah, whose son married Ahab's daughter. The evil influence in Ahab's life was the clever and unscrupulous princess, Jezebel, daughter of the king of Sidon, whom he married, and for whose god Baal he built a temple of Samaria, 16:29-33.

Mount Carmel was a high promontory, or spur, of the central mountain range, some distance north of Samaria, which extended westward and overlooked the sea. Its sides were clothed with vineyards which gave to it its name. Here it was that the king called a great assemblage of the people of Israel.

V. 21. *Elijah;* a man of Gilead, had appeared as the leader of the prophets of Jehovah in their protest against the bringing in by Jezebel of her god Baal and goddess Ashtoreth, and their priests and prophets. The immediate result appears to have been a bitter persecution of the champions of Jehovah, the slaughter of many of them, and the flight of Elijah. Some had escaped, but were in hiding under the care of the king's steward, and probably with the knowledge of the king himself, who cannot have favored the persecution, but was morally too weak to prevent it. Elijah, before his disappearance, predicted the drought which afflicted the land for three years. In the third year he suddenly appeared and challenged the king and the Baal worshippers to this meeting at Carmel. There must have been widespread discontent among the people or Jezebel would have sought to prevent the meeting. Perhaps she thought, however, that her numerous prophets would gain an easy victory over Elijah.

V. 22. *I only.* At Carmel Elijah stood alone. Had he failed, his life would have certainly been taken by the fierce partisans of Baal. There were other prophets, but they dared not show themselves, and many people who had not bowed the knee to Baal (19:18), but they dared not yet to take his part. He stood alone, sustained only by his faith in God, and he stood firmly, not halting (that is, "going lame") between two opinions, as he said the people of Israel and their king were doing.

Vs. 36-39. *Let it be known* God does not always reveal himself in this way, nor does he always decide in such a way as this, the issues between faith and unbelief. But Elijah's case was a desperate one, and the lightning stroke from heaven that kindled his sacrifice, was to him and to the assembled people, the answer of God.

APPLICATION.

God has usually advanced his own cause through the instrumentality of great personalities—Moses, Elijah, Amos, Paul. But even such great men would be powerless if it were not that the people were already feeling after the same truth. Your great men like Paul, or Luther, or Calvin, or Wesley, light the fuse, and the explosion takes place.

Elijah lived in a rough age, a rude and primitive time when the light of true religious faith was very dim. Therefore his treatment of his fallen priestly foes furnishes no guidance to us who follow the method of Jesus.

In the past men have justified religious intolerance and persecution by an appeal to Elijah's order that the priests of Baal should all be slaughtered. That was an unenlightened view of our Christian faith. Let us quote Farrar again: "Far wiser is the humble minister in *Old Mortality*, when he withstood Balfour of Burleigh, in the decision to put to the sword all the inhabitants of Tillietudlem Castle." "By what law," asks Henry Morton, "would you justify the atrocity that thou would commit?" "If thou art ignorant of it," said Balfour, "thy companion is well aware of the law which gave the men of Jericho to the Sword of Joshua, the son of Nun." "Yes," answered the divine, "but we live under a better disposition, which instructeth us to return good for evil, and to pray for those who despitefully use us and persecute us."

THE SWEET PEA

There are good and better ways of growing sweet peas. Poorness of soil and too thick planting are amongst the chief causes of unsatisfactory results. Sweet peas cannot succeed in the shade of trees or on the north side of buildings. They seldom do well if trained against walls, but must have light and air on both sides, although a wire boundary fence may well be used as a support.

Soils.—Sweet peas like a good, deep, rich soil. If it is poor, dig in plenty of good, well-rotted manure. The best time to do this is in the fall. If done then it will be in prime condition for cultivation in the spring, the frost during the winter mellowing the soil and making it in a good form for working. If not done in the fall, it should be done at the first opportunity in the spring, as soon as the soil is dry enough, so that it will not stick in working.

Cultivation.—Before sowing, cultivate the soil well with the hoe and garden rake until it is in good form for seeding. Get a garden line of a length to cover the row one wishes to sow, and, stretching it tightly close to the ground, draw out a trench with the hoe to about two or three inches deep, beside the line.

Seeding.—Sow the seeds about two inches apart, and, if there is any doubt about the seed not being good, sow a little more thickly in case some of the seeds do not germinate. After sowing the seeds, cover them with the soil which formed the ridge on each side of the trench. Do this with the back of the rake and press the soil down firmly.

Thinning Out.—When the seeds have germinated and sprouted through the soil about two or three inches, thin them to about five inches apart, picking out the weakest plants and leaving, as nearly as possible, those that are strongest. For exhibition bloom for the summer shows of horticultural societies or the later fall fairs the pea plants require even more space. Some regular exhibitors thin to a foot apart and find that it pays to do so. A strong plant given this amount of space will throw out lateral branches sufficiently strong to make a fairly heavy row, and each branch will bear a crop of bloom. One may go even further and cut away some of the laterals as tomato plants are pruned. Cutworms are very destructive and the usual poisoned bran should be used to keep them in check.

Supports.—It is generally considered that brush cut from the bush, about five feet long with plenty of twigs left, is the best support. Stick them in the ground on each side of the peas, pressing the tops of the brush well into each other. As this form of support is not always available, woven chicken wire, twine or string may be used.

How to get fine flowers with long stems.—Cultivate well during the growing season. This is done by stirring with the hoe eighteen inches on each side of the peas. Always keep the soil loose on the surface as this helps to keep it from drying out, which is important, especially in dry seasons. Peas always make the best growth when the soil is moderately moist and the weather warm. Extremely hot or extremely wet weather often spoils the bloom. If water is handy during a hot spell, it is a good plan to water them about twice a week either in the evening or in the early morning. This should be done thoroughly as a mere sprinkling does more harm than good. Another plan some growers of sweet peas have followed to advantage during hot weather is to spread litter of straw manure, or hay, two or three inches thick on each side of the peas. This is to help keep the moisture in the ground. It also saves a lot of work.

Cutting.—Always cut the peas when they are fully developed, i.e., when all the buds on the stem are open. Never allow the seed pods to form, and by cutting frequently a better crop of flowers is procured. In the cool of the evening or early morning is the best time to cut the flowers as it is much more pleasant work at that time and the flower stems are firmer.—Ontario Horticultural Association.