## NATURAL AND ARTIFICIAL FERTILIZERS.

The fertilization of the soil to render it more productive is the all-important object of the farmer. Various ways and means are used to accomplish this end, and each with greater or less gain. The first means used is in cultivation. A soil finely mixed and made mellow is fertilized to the extent of what is contained in the soil; that is, all the elements of native fertility are made available to the support of plant life when the soil is put in the finest state of pulverization. The beneficial effects of this artificial condition of soils is not fully appreciated by the common cultivator. We are too often led by the custom or habit of doing just such an amount of labor in preparing our land for crops, without regard to the condition to be gained. We plow and harrow by rule and call it fitted, without regard to whether it be fine or otherwise; but we should always be governed by the condition, whether it requires more or less labor. A coarse, lumpy soil cannot feed a crop to the extent of its capacity, for only the fine rootlets of the plant feed from the soil, which can no more take hold of the hard clods of earth than of a granite rock.

The portion of the soil which is made fine and soluble is only made available to the crop; hence, to make all the elements available in the soil it must be finely pulverized. This may be called the first means of fertilizing the soil. The next is in the application of such matter to the land as will supply the crop with food which is not already contained therein. Experience has taught us that animal excrement and all decayed animal and vegetable matter fertilize the soil, or, in other words, there is fixed in nature a succession of life, death and decay, the living plant being fed by the decay of the preceding one, and to supply the soil with the needed elements of plant food we have only to return that taken from it to keep up a perpetual round of production. Hence, the most natural manures to apply to the soil are decayed animal and vegetable matter, for they contain just what has been taken from the soil and are just what will restore it.—But this we cannot often do, for in husbandry a large portion of the soil product is carried away. Hay, grain and vegetables are grown only to be converted into meats, butter cheese, flour, etc., a large portion of which is carried away where it may perhaps enrich distant or foreign lands, or, what is more common, is thrown to waste where it does not again find its way to enrich the earth.

This system of carrying off without return will ultimately exhaust lands of their fertility. Evidence of this is seen in the deterioration of lands in all parts of our country where kept under cultivation, with no other resource than the barnyard for keeping good this drain upon the soil. Without some kind of manure we know that the best lands will fail to return remunerative crops, and the great question is, Where can we obtain such manure as will supply this inevitable exhaustion? Science has disclosed to us what properties are taken from the soil in cropping and which render it unproductive, and it also teaches us that such elements as our crops have been taking and using up are found in abundance stored away by an all-wise hand to meet the wants of the husbandmen, that bread may be produced for the family of man in all ages to come. These elements are found in the phosphate rock, the potash rock, the lime, sulphur, soda, magnesia, and other mineral properties which constitute the inorganic elements of all plants—all of which are sufficient to meet the wants of the world in all time to come. The sea has also contributed to supply the wants of the soil in the vast amount of sea-fowl excrement in the form of guano found in the islands of ocean, and by the unlimited quantities of fish which are taken to be manufactured into a rich fertilizer for the soil. In this way the sea is making return for the waste that is constantly going on all over the world in giving to the water the refuse and sewage of cities which contains much of the element drawn from and that has improverished the soil.

But it is not a voluntary operation of nature that will restore the wasted elements of plant food to the soil; it is only through the enterprise of the husbandman and the aids of science that these great supports to agriculture can be made available. In the order of nature there is no such thing as exhaustion or failure of the soil, but there is opportunity for increase and progress to meet the want of man to any number within the possibilities of increase. The resources for the fertilization of the soil are unlimited, and who can tell the capabilities of the soil when wisely cultivated and fertilized to its fullest need? The returns of the earth to reward the industry of the husbandman may be said to be unlimited, but pecuniary rewards are prescribed by the circumstances and conditions of surrounding things. That the elements of plant food as prepared by the honest manufacturer of commercial manures are beneficial, and need to be used to keep up the production of our grain farms there can be no doubt with those that have used them. The experiments of Laws & Gilbert, in England, in raising consecutive crops of grain for over thirty years on the same land, with none but mineral manures, securing an increased production thereby, is a convincing proof of their importance as fertilizers, and all who have for several years past used such in this country bear testimony to like beneficial results. This experience is only in corroboration of the common sense principle that if we restore to the soil that which we carry off in growing a crop it cannot be improverished or be less productive, and if we restore more than is taken away the soil must be enriched and made more productive.

It would then seem wise for every farmer who has exhausted the virgin fertility of his soil to supply such manures as will feed the plant and produce the crop desired. Supperphosphate of lime as now manufactured and sold by reliable parties in our country meets the greatest needs of our grain growers, though experience may show the need of other elements not usually contained, or it may be found economical to have special manures for special purposes and for special crops. But still there is another question to be solved which is as important to every farmer; it is whether these fertilizers will be sold at present at such prices that the farmer can grow his crop from them and leave him a living profit. We know they will be in the future, but they are now too expensive. The materials of which such manures are composed are held too high and the profits of the manufacturers are too great to leave any encouragement to the farmer in their general use. A good superphosphate should be sold to the farmer for much less than the present rates, and would then afford the manufacturers a larger profit than our farmers receive on the products of their farms. The manufacture of fertilizers is now in the hands of a few, who monopolize the trade and exact large profit, much against their general profit. It is true that farmers may make their own superposphates at less than they can purchase, but there are but few who will undertake the work, and none should, without experience and conveniences not usually at hand on the farm. We must continue to buy such goods as are prepared by the regular manufacturers—that is, if they furnish us with a reliable article and sell to us with reasonable profits and without commissions or agents' fees added. In all grain growing sections of the older States these fertilizers will be used, and farmers should buy directly of the manufacturer in such quantities as will be for their, as well as for his advantage. It is a large outlay to our Eastern farmers to buy the inorganic elements of the grain they grow and compete with the Western ones who have it ready in their soil, but it is a necessity which only due economy will enable them to practice.—F. P. Root in *New York World*.

## DAIRYING AMONG ANTS.

It is a well known and curious fact in entomology, of which every one who is at all familiar with this science is aware, that the common red ants, everywhere so numerous in our gardens and fields, are expert and skillful dairymen—dairymen in almost every sense of the word, except that they pursue this occupation for their own luxury and enjoyment, and much to the hinderance of every farmer and horticulturist. This is proof of the trait, which among human beings is known as foresight, though doubtless they do not deserve credit for the diligence which indirectly is retarding to the labors of our gardeners and farmers.

I will now endeavor, so far as I am able, to show up this little creature in his work of gratifying at least one of his luxurious tastes. He does not experiment in the breeding of his stock, but such as he rears are cared for with singular vigilance. The milch cattle of the ants are nothing more or less than aphides, or plant lice, the acquaintance of which every gardener must acknowledge. Although these insects are to be found in greater or less abundance on most plants, yet it is not everywhere we find the ants in company with them. Should we, however, while walking through a field bordering upon a pine wood, stop and examine the small, tender shoots of some straggling bush, most likely we would find them together, and with the aid of an ordinary hand glass, could bring before us the mysteries of ant dairying. We have, for example, a delicate, tender shoot, branching from the main stem; all along are to be seen these small light-green insects, with their suckers sunk into the tender bark, absorbing its sap, which, after undergoing process of digestion, is a fluid scarcely inferior in delicacy to honey. When the proprietors are not near to receive it, this juice is thrown to a distance by a jerking motion of the body, being expelled through two small, almost invisible tubes, projecting in the manner of horns from the back of the insect. Here and there, are to be seen a number of ants carefully picking their way among the motionless little insects, apparently fearful of disturbing them. Watching the movements of one of the ants, we observe him approach one of his cows, pause a moment, and then reach up to the extremity of one of the tubes and suck out the delicate nectar. It is a curious fact that the ants know how to milk these little creatures, should the liquid be difficult to find, patting and tickling the aphides on the sides of the abdomen with their extended antennæ, and eagerly drinking the little drop which is immediately discharged.

Thus the ants enjoy themselves until the time arrives when their herds are to prepare for a succeeding generation, and to pass out of existence. As soon as the eggs of the aphides are laid, they are taken possession of by the ants, who store them carefully away in their holes, thus making an early claim of proprietorship.—Early in the spring these eggs are brought out and exposed to the influence of the sun's rays until hatched. In the meantime all are vigilant in guarding the eggs from injury, removing them in their mouths to a place of safety on the slightest appearance of danger. Thus these little creatures set a good example to the careless and negligent herdsman, and well may he profit by the advice of Dr. Johnson, contained in the following lines, which were written with reference to the words of Solomon:

"Turn on the prudent ant thy heedless eyes;
Observe her labors, sluggard, and be wise.
No stern command, no monitory voice,
Prescribes her duties, or directs her choice;
Yet timely provident she hastes away,
To snatch the blessings of a plenteous day.'

The ant being a direct producer of this noxious insect, it is of course working against the interest of man, as before stated. Whether or not the juice secreted by the aphides is put to any other use by the ants than to regale themselves, yet remains to be ascertained.—P. B. W. in *Country Gentleman*.

## Liquid Manure for Flowers.

Put one bushel of the clippings of the horse's hoofs into a barrel and fill it up with water. Let it stand a week, when it will be ready for use. Apply it with a watering pot. All bedded plants can be watered with this liquid every other day if they are not bound. Newly re-potted plants should be watered once a week until they have plenty of working roots to take up the manure. It will also be found excellent for hard wooded plants if used once or twice a week. Two or three weeks after the plants have been watered with the manure the foliage generally changes from green to a golden yellow, moving from the stem down to the point of the leaf, which, however, lasts only for a few weeks, when it changes to a dark, glossy green. Plants under this watering grow very strong; the flowers are very large and bright in color. Plants thus treated can be kept in very small pots for a long time without being transplanted.—Flowers watered with this liquid manure will bring twenty-five per cent. more than otherwise; besides being in small pots, they are lighter, can be packed closer and are easier to be handled. The fertilizer is not a stimulant, but a plant food, and plants that are watered with it, if planted out, will continue growing and keep in growth, which cannot be said of guano. It is as powerful as guano, as quick in action and more lasting. —*Ex.*

## Celery.

At the late meeting of the Western New York Horticultural Society E. Rhulman, of Niagara county explained his method of raising celery. He employes a collar made of a piece of tin two or three inches wide and nine inches long; this is bent into a circular collar and put around the celery plant when it is first planted, and a little manure is placed outside the collar. As the plant grows the collar is raised up and kept in position around the crown of the plant, and still is retained in place after the celery is dug in the fall. He found Henderson's half dwarf to be the best variety.

## New Method of Preserving Fruits.

A foreign chemist has published a new method of preserving fruit which deserves a trial on a small scale, as it is so simple, yet it is deemed to be perfect in the preservation of the peculiar and original flavor: "Wash the specimens clean after gathering, and place in vessels of fluid composed of 200 to 300 grains of sugar to one litre of pure water, and 2½ grains to 3 grains of salicylic acid. The pots or bottles, with their contents, are then closely covered with common writing paper, and so kept in a moderate temperature, as any excess of warmth would cause too great an evaporation of the water. In this way the professor has found by experience that plums, cherries, apricots, peaches, grapes, strawberries, etc., can be preserved in good, sound condition for a whole year, each fruit retaining its original and peculiar flavor as fine as when gathered."—*Michigan Farmer.*

## Food for Horses.

It has become quite common of late to hear of the sudden death of valuable horses, and the wonder is that they should die so suddenly, when it was supposed that the best care was given in regard to their food, exercise, etc. The fact is, that very few owners of horses seem to be aware of the great danger of feeding fine meal to horses. Many an excellent animal is taken suddenly ill, and in spite of every effort for its relief, dies in a short time, the only thing out of the way in its case having been the feeding of fine meal. The trouble is, that frequently the meal hardens, literally bakes, on the walls of the stomach, forming an indigestible mass that cannot be removed, and from the suffering it causes, there is no relief but death. The livery men in towns and cities have discovered this fact, and for meal are substituting cracked corn, which is wholesome, nourishing and never attended with danger. It is time horse owners generally were make acquainted with these facts.

NOTICE—In the County Court and of Probate, Volusia County, Florida.

Notice is hereby given that after six months publication of this notice, I shall apply to the County Judge of Volusia County, for a discharge from my administration as administrator of the estate of the late James M. Elwood, deceased.

Notice is also hereby given that all accounts against said estate, not exhibited to me within two years after the date of my letters of administration of said estate, to wit., the 3rd day of July A. D. 1877 will be forever barred. Of which all creditors and persons entitled to distribution will take notice. A. R. ELLWOOD,
0 35 administrator &
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## Legal Notices.

MASTER'S SALE of Real Estate By virtue o 1s Decree o f, made ,and entered in the Circuit Court, I will sell a public outcry in front of the Court House door at Enterprise, Volusia County, State of Florida, on the first Monday, the fifth day of August, A. D. 1878, within the usual hours of sale, the following Real Estate, lying in Volusia County, Florida, and known and described as follows: Known as the Dunlawton place, being a grant by the Spanish Government to Patrick Dean, on the 13th day of August, 1804, by Patrick Dean to Bunch, by Bunch to Lawton, by Lawton to Anderson, by Anderson to John J. Marshall, including Sectional Grants forty-three, Township fifteen, south of range thirty-three, east, containing two hundred and ninety and nineteen one-hundredths acres, more or less, and section thirty-seven, Township sixteen, south, of range thirty-three east, containing seven hundred and sixty and sixty-two one-hundredths acres, more or less, bounded on the north by lands of R. N. Swift, on the east by lots four and five of section thirty-three, Township fifteen south, range thirty-three east, and lots two, three and four of section four, of Twonship sixteen, of range thirty-three east, and on the west by lot number one, section eight, Township sixteen south, of thirty-three east, lots one, two, four and five, of section five, Township sixteen south, of range thirty-three east, and the fractional southwest quarter of section thirty-two, Township fifteen, south, of range thirty-three east, containing in the aggregate one thousand and seventy-seven acres, more or less, also the land on which the dwelling of said J. J, Marshall is situated, immediately on the Halifax river, known and distinguished as lot one of fractional section three, Township sixteen south, of range thirty-three east, containing fifty acres, more or less.

Sold under and by virtue of a Decree made by the Judge of the Circuit Court on a bill filed to foreclose and inforce the lien of said John J. Marshall on said land for the purchase money thereof and sold to satisfy said lien and said purchase money.

Sold at the risk and for the benefit of —Pomeroy, a purchaser at a sale of said land and premises heretofore had, who having failed to comply with the requirements of said sale and pay the puschase money. Sold under and by virtue of a subsequent decree made by the Judge of the Circuit Court, at his risk and for his benefit.

Terms cash, purchasers paying for titles.
July, 1878. HEZEKIAH E. OSTEEN,
8-11 Special Master in Chancery.

NOTICE—On Monday, August 19th 1878 I will apply by petition to Hon. W. A. Cocke, Circuit Judge of the Seventh Judicial Circuit of Florida, at his residence near Fort Reid, Orange County, Florida, for an order to sell for the benefit of Margaret Watson, Elizabeth Watson and Florence Watson, minors, all their right, title and interest of, in and to certain Real Estate situated in Volusia County, Florida, and known as parts of n. w. ¼ of s. 6, t 19 s. r. 31 e.; and parts of s. 1, t. 19 s. r. 30 e,.
July 8 1878. MALISSA WATSON
10 14 Guardian of Minors above named.

IN THE CIRCUIT COURT—7th Judicial Circuit Volusia county.

William Allan vs. M. M. Hedges and Josephene M. Hedges. Amount sworn to, $517.81

The defendants and all others are hereby notified of the commencement of this suit, that an attachment has been issued, and that they are required to appear, plead or demur to the declaration filed in said cause, by the first Monday in October next, the same being rule day, or judgment will be taken by default.
May 29, 1878. JOHN B. STICKNEY,
C. B. BUCKNOR,
my29m3 Plff's Attys.

IN THE COUNTY COURT and of Probate, Volusia county.

In the Administration of the Estate of Arthur Rossetter, Jr., dececased: Notice is hereby given that I have been, by the County Judge of Volusia county, appointed administrator of the above estate, and that all persons having claims against the same are requested to file the same with me duly authenticated without delay, and all persons indebted to the said estate are requested to make settlement forthwith.
Beresford P. O., Volusia co., Feb'y 26, 1878.
A. T. ROSSETTER,
feb28-6m Administrator.

On Motion, Ordered that election district No. 16 be cmposed of the following described territory in Volusia county. All of township 17 south, range 29 east, less that portion lying west of the St. Johns river. Also section No's six, seven, eighteen, nineteen and thirty, in township 17 south, range 30 east, with voting place at Beresford.

On Motion, It was ordered that, that portion of section 28, township 16, range 33 east, lying south of Spruce creek, and sections 33, 34, and that portion of sections 35 and 26 lying west of Turnbull creek, in township and range aforesaid, now included in district No. 10, be set off and included in district No. 9.
JNO. W. DICKINS,
Clerk of Board Co. Commissioners.

IN CIRCUIT COURT of the Seventh Judicial Circuit of Florida, Volusia County. In Chancery.
Nathaniel Hasty and Elizabeth P. Hasty his wife vs. W. Howell Robinson.

It appearing from affidavit made before me that the defendant above named resides beyond the limits of this State, to-wit, in the State of Illinois, so that ordinary process cannot be served upon him. On motion of C. B. Bucknor solicitor for complainant: It is ordered that the defendant do appear, plead, answer, or demur to the bill of complaint filled in this cause, on or before the first Monday in December next, otherwise the same will be taken pro confesso. Provided that a copy of this order be published weekly for four consecutive months, in an official newspaper published in this Circuit.
Witness my hand and seal, this 24th day of July, A. D. 1878. JOHN W. DICKINS,
12 24 Clerk Volusia Circuit Court.
C. B. BUCKNOR, Comp'lts Solicitor.