GOD SPEED THE PLOW.

God speed the plow-share! tell me not
Disgrace attends the toil
Of those who plow the dark green sod,
Or till the fruitful soil.
Why should the honest plowman shrink
From mingling in the van
Of learning and of wisdom, since
'Tis mind that makes the man?

God speed the plow-share, and the hands
That till the fruitful earth,
For there is in this world so wide
No gem like honest worth.
And though the hands are dark with toil,
And flushed the manly brow,
It matters not, for God will bless
The labors of the plow.

—[Mark Lane Express.

Successful Strawberry-Growing.

Mr. H. C. Collins of Clinton County, Mich., (Geary P. O.,) gives his experience in strawberry-growing, which is highly interesting to all who are now or intend to be engaged in the culture of "sweet strawberries."

"In May 1846, I commenced trying to raise strawberries. I then planted 6 rows of Boston Pine, 20 feet long, rows 18 inches apart, and plants 6 inches apart in the row, and two plants each, of Burr's New Pine, Crimson Cone, and Longworth's. I put the last three kinds 4 feet apart, so as to get new plants, and had all I wanted that year—from 68 to 194 to each plant. The Boston Pine bore about a quart a day through the season, and we thought very much of them; some berries were three inches in circumference, but, as soon as they were through bearing, I cut up every other plant, for they covered the ground; there were no weeds or runners, for we cut them off.

In August of the same year, I planted 6 rows, each of Crimson Cone, Longworth's and Burr's, 18 inches apart each way; I took them up with a trowel, so as not to disturb the roots, with a piece of dirt six inches square; and since I have transplanted in the same way.

In 1857, we took good care of the plants, and had from 4 to 6 quarts a day, sometimes more, but found that all the plants were too thick; so, after they were through bearing, I cut out every other plant through the whole, and cut off all the runners except a few to use and give away.

In May, I got three plants each of McAlvoy's Superior and Hovey's, and, in August, planted of each kind 10 rows, 2 feet apart each way, rows 20 feet long; and 15 rows each of Longworth's and Burr's New Pine, same distance apart. It took some time to cut runners and pull weeds, but the berries were very good, and from 3 to 5 inches in circumference—the largest.

In 1858, before the ground thawed in the Spring, I got two wagon-loads of oak sawdust and covered the ground around 10 rows, each of Longworth's and Burr's New Pine, 2 inches thick, and within 3 inches of the middle of the plants. Through the Summer they did better than any others, for no weeds grew, and the runners did not root through the sawdust, and were cut only once a month or so; the ground was not mowed, and was in better order for the plants than where it was weeded every two weeks, and as it kept moist, they bore rather better, too, and in picking after a rain they were clean. From all the plants we had all we could use and give away, beside all the birds wanted, and they had what they could eat, as we never shoot one nor frighten it away. After picking 50 quarts a day, they looked as plentiful as ever, and we have neighbors here, too, so we could use a great many; but, beside all we and the birds used, a great many were spoiled. The berries were much larger than ever before. Single plants of Boston Pine of the first planting had 12 stems of berries, and though they are 36x18 inches, they bore more than any others; but those with the sawdust did better than any others of the same age.

The soil is gravel, with a great deal of sand and a little clay mixed in; very easy to work, and is dry in a few minutes after a rain, though in a drouth it feels more moist than clay or sandy ground, and the vines never dry up on it. The garden is on level land, on the top of a small hill. It has no manure of any kind where the strawberries are, and I am sure that they do better than the plants of neighbors who have put them on very rich places.

In starting with any kind, I want only two or three plants, as from those I can raise any number of plants I want, and then they will be in the garden ready to transplant; and when it is done with the dirt on the roots, and all taken up with a trowel, at least 6 inches square, they will do well at any time, and one need not wait for a rain, as they won't wilt in a hot day.

I never let two kinds mix in the rows; and if Longworth's or some other kind, with perfect flowers, is within 30 feet, that is near enough to make Burr's New Pine, and Hovey's, bear full crops. We like Burr's New Pine best to eat, but they must be left on the vines longer after they are red than any other sorts. Next to Burr's, we put others in the following order, for flavor: Longworth's, Boston Pine, McAlvoy's, Crimson Cone, and Hovey's. The Crimson Cone are earlier than any other, and those with the sawdust were the richest in flavor of all."

Samuel Edwards, writing on strawberry culture, from the Evergreens, La Moile co., Ill., says:

"Always, if possible, plant on new ground; use no manure, as it induces a rank growth of vines, with no fruit. Rows three and a half feet apart, plants a foot to eighteen inches apart; cultivate as corn first season; the plants will cover the ground for the second year, when a moderate crop of very fine berries is produced. The third year any man on good prairie can harvest his hundred bushels per acre.

The next season, as soon as the frost is out of the ground some two inches, go over the "patch" with a harrow, tearing up one half the plants; a good dressing of leaf mold and ashes at this time is beneficial.

If much grass or weeds come up, mow it after gathering the crop, leaving it on the ground. We sometimes burn over the "patch" early in the Spring.

Spring is generally the best time for setting. We have had equally good success when set in August or September, if wet.

Planted seven acres on newly broken prairie sod in May, which bore good crops, with no cultivation. Have occupied the same ground six years successfully, with more profit than could be realized by plowing up the berries and putting in any other crop.

Every family ought to have strawberries as plenty as potatoes, for they can grow them as cheaply. Our city markets should be so abundantly supplied with them that the poor could afford to live on them, in their season, instead of affording only a meager supply, to be indulged in as a luxury by the rich."

Agriculture at Yale College.—To see Yale College stepping out from among the mists of antiquity and the graves of dead languages, says a late number of the *Scientific American*, and "taking up the shovel and the hoe," is certainly one of the signs of the times. She made her debut on this new stage on the 1st day of February, having secured the services of 25 leading agriculturists to sustain her in this first effort. These gentlemen are to take up all possible subjects connected with agriculture for the benefit of farmers and gardeners, young and old, and for their own material enlightenment. There are to be three lectures a day for the space of a month, each lecture to be followed by questions and a discussion. The list of names, in which we find Marshall P. Wilder, late president of the National Agricultural Society, Cassius M. Clay, of Kentucky, Lewis F. Allen, Esq. of New York, and other eminent men, beside Professors Silliman, Porter and Johnson, of Yale College, give the highest character to the undertaking. The advantages of this course are offered so cheaply ($10 for a course ticket) that it will draw together large numbers. The idea involved in this enterprise, namely, getting together educational capital by small contributions of knowledge from large numbers, is an important discovery. We do not see why it is not susceptible of very extensive and varied application.

Chickens in Gardens.

Those who have chickens, if they have no gardens themselves, should keep them off from the gardens of others. We print the following ordinance, relative thereto for the perusal of all concerned, trusting that they will "take due notice and govern themselves accordingly:"

Sec. 2. Be it further ordained that all fowl, such as turkeys, ducks, geese and hens, allowed to run at large, at any time during the season, from the first day of March to the first day of November in each year, shall be forfeited to, and liable to be killed by any person upon whose premises they may be found trespassing.

Crease, or Cracked Heels in Horses.—SYMPTOMS.—A fetid discharge from the heels. TREATMENT.—Keep them thoroughly clean, and apply, daily, the following wash: Corrosive sublimate 1 drachm, sulphate of zinc 1 oz., muriatic acid 3 drachms—dissolve in one quart of water. Give internally the following ball — Barbadoes aloes, pure, 6 drachms, nitrate of potassa 2 drachms—mix with molasses. After which give daily, for one week, sulphate of iron 1 drachm, in the feed.

Worms in Horses.—A correspondent of the *Prairie* (Ill.) *Farmer* says: "The best remedy I ever tried is this: feed your horses with plenty of ashes and tobacco once a week, and I will guarantee that they will never more be troubled with worms or bots.—Tobacco kills them and ashes carries them away. I have handled a good many horses and this is my remedy. I never had a horse troubled with bots or sick with worms."

Catechism of Agricultural Chemistry and Geology.

BY J. F. W. JOHNSON.

II.—OF THE ORGANIC FOOD OF PLANTS.

Q. Do plants require food as animals do?

A. Yes, all plants require constant supplies of food in order that they may live and grow.

Q. Where do plants obtain their food?

A. They obtain it partly from the air and partly from the soil.

Q. How do they take in their food?

A. They take it in by their leaves from the air, and by their roots from the soil.

Q. Do plants require two distinct kinds of food?

A. Yes, they require organic food to support their organic part, and inorganic food to support their inorganic part.

Q. Whence do they obtain their organic food?

A. They obtain their organic food partly from the air and partly from the soil.

Q. Whence do they obtain their inorganic food?

A. They obtain their inorganic food wholly from the soil in which they grow.

Q. In what form do plants take in organic food from the air?

A. In the form chiefly of carbonic acid gas.

Q. What is carbonic acid gas?

A. It is a kind of air which has no color, but has a peculiar smell. Burning bodies are extinguished in it, and animals die, and it is heavier than common air. It causes the boiling up of soda water, and the frothing of beer, and forms nearly half the weight of all limestone rocks.

[Carbonic acid gas may be formed by pouring dilute muriatic acid upon bits of limestone, or of the common soda of the shops, in a tall, covered glass. A burning taper is extinguished by this gas, but it does not, like hydrogen, take fire itself; it is so heavy that it may be poured from one glass to another, and when poured from a large tumbler a common candle may be put out by it.]

Q. Does carbonic acid gas form a large part of the atmospheric air?

A. No, the atmospheric air consists almost entirely of a mixture of oxygen and nitrogen gases. Five gallons of air contain about four of nitrogen and one of oxygen, but in 5,000 gallons there are only two gallons of carbonic acid gas.

Q. Do plants drink in much carbonic acid from the air?

A. Yes, they drink in a very large quantity.

Q. How can plants drink in so large a quantity of this gas from the air, which contains so little?

A. They spread out their broad thin leaves in great numbers through the air, and thus are able to suck in the carbonic acid from a large quantity of air at the same time.

Q. How do they suck it in?

A. By means of a great number of very small openings or mouths which are spread everywhere, especially over the under surface of the leaf.

Q. Do the leaves suck in this carbonic acid at all times?

A. No, only during the day-time. During the night they give off a quantity of carbonic acid.

Q. What does carbonic acid consist of?

A. Carbonic acid consists of carbon, or charcoal and oxygen.

[6 lbs. of carbon and 16 lbs. of oxygen form 22 lbs. of carbonic acid.]

Q. How do you prove this?

A. By burning charcoal in oxygen gas, when carbonic acid gas will be formed.

[To show this experiment introduce a piece of red hot charcoal into a bottle of oxygen gas until the charcoal is extinguished, when, upon putting a lighted taper into the bottle, he will find carbonic acid has been formed, for the taper will be extinguished.]

Q. Does the plant retain both the carbon and the oxygen contained in the carbonic acid that is absorbed by its leaves?

A. No. It retains only the carbon, giving off the oxygen again into the air.

Q. How do you show that the leaves give off this oxygen gas?

A. By putting a few green leaves under a tumbler or gas-receiver full of water, and setting them out in the sunshine, when small bubbles of oxygen gas will be seen to rise from the leaves, and to collect in the upper part of the tumbler.

Q. Do the leaves of plants drink in anything else from the atmosphere?

A. Yes, they drink in watery vapor.

Q. What purpose does this vapor serve?

A. It serves in part to moisten the leaves and stems, and partly to form the substance of the plant itself.

Q. In what form do plants take in carbon from the soil?

A. In the form of carbonic acid, humic acid, and some other substances which exist in the black vegetable matter of the soil.

[To form humic acid we have only to dissolve a little common soda in water, boil the solution upon finely powdered peat or rich dark soil, pour off the solution when it has stood to settle, and add weak spirit of salt to it. Brown flocks will fall, which are humic acid. This humic acid consists of carbon and water only.]

Q. In what form do plants derive nitrogen from the soil?

A. In the forms of ammonia and nitric acid.

Experiments with Potatoes.—There exists among farmers a great diversity of opinion respecting the most profitably way of planting potatoes. Some plant whole seed, and some cut it. Mr. Alfred Lapham, of Burrillville, Iowa, has for several years made experiments in this respect. Last year he experimented anew. He planted 23 hills with whole potatoes; 23 hills with cut potatoes, three pieces in a hill; and 23 hills with two pieces. The seed was averaged by weight and size. The result was as follows: the 23 hills of uncut potatoes yielded 55 1-4 lbs.; the 23 hills with three pieces 27 1-2 lbs.; the 23 hills with two pieces 34 lbs. The potatoes were weighed in presence of Mr. William E. Vallet, who certifies to the above facts and figures. Mr. Lapham says that the potatoes were all planted together in the same field, side by side, and the same quantity and quality of manure put in all the hills.

Farmers, Make your own Soap!

A correspondent of the *Prairie Farmer* is the author of the following, which cannot fail to be of interest to most, if not all of our farmer's wives. We print the article entire:

"Reader, if you are Mrs. Smith, who has 'kept house' forty years, and now wonders 'who can be so simple as to be unable to make soap without a book,' I do not write for you, but for Mrs. Jones, who, in her first decade of housekeeping, is learning much from that useful teacher—experience.

Mrs. Jones, my soap 'would'nt come' in the spring of '55. I carried a sample to several of my elder neighbors, but none could solve the problem; the grease and lye both were good, and the 'wrong time of the moon' finally took the blame. In '58 again my grease was good and abundant—bought a can of potash, which, with lye, would make a barrel and a half of soap. After boiling for two days, I found to my astonishment, 'the soap would'nt come.' I took a pint to a soap boiler, and asked him the reason. He replied, it would 'never be soap;' 'would pay me a trifle' for the mixture, and sell me some of his 'excellent soap.'

No—I told him I was 'resolved to have my own made into soap.' Then, by some casual remark he made, I was led to ask him if too much salt in the grease would prevent soap coming? The merry twinkle in his eye and evasive answer, convinced me I had a clue to successful soap-making. After returning, I skimmed off the grease into boiling water; then, next day, I put my lye into a large kettle again, and hardly had the freshened grease touched the bubbling lye before it was soap. If your soap-grease has much salt from rinds, etc., in it, be sure and boil your grease in water to freshen it, and despite of moon-signs you'll have soap, if your lye is good."

Insects not the Cause of Disease.—Mr. Chas. Waterton, of Walton Hall, England, presents some interesting facts in support of the consistent theory that insects are the *effect* and not the *cause* of disease. He says:

I invite the anxious reader to pay attention to any tree at which the Scolytus is pursuing his ordinary calling. Then, let him examine the same tree during the following summer, and he will find the little round holes in the bark, just as the insect had made them, without any alteration whatever. After this, let him take a gimlet and bore as many dozens of holes as he may think fit in the sound bark of some undeniably healthy trees. Let him visit these in the course of the next summer, and he will perceive every gimlet hole made up by new bark underneath the old bark.

He also states that a tree nearly severed by the axe, or blown over; and adhering by a strip no thicker than a man's hand, will continue to live, and sometimes flourish. The mere action of the insect, were the tree in health, would have no more effect upon it than the gimlet holes; hence, as the insect only attacks it when in a state of decay, it has not of course the power to heal up the holes,—the best evidence of its unhealthy condition, and the truth of the view taken.

Farmer's Citron.—Mrs. M. E. Rowell writes to the *Prairie* (Ill.) *Farmer* as follows:

"Don't smile until you've tried some substitute for our 30c a pound citron. Mrs. Smith has money, and 'can buy all the citron she wants,' but you, Mrs. Jones, wish for some citron for your cake and pies. Your husband having lost his crops for two years cannot afford such luxuries. So I will give you a recipe to outwit this ungratified want: Take fifteen large carrots, clean, boil till they begin to be tender; peel them, cut in slices across half an inch thick; put into a preserving kettle, add two quarts Sorghum molasses, a gill of mixed spices ground, four ounces root ginger crushed, two lemons sliced; boil gently six hours, then put into platters, and dry for use. It is a good confection—cut into small pieces for cakes."

We have also tasted very palatable pies made of the carrot. The carrot, in our estimation, with suitable culture, is one of the most profitable crops that can be raised.

Large Cow.—George Bond of Claremont, N. H., has a cow which it is estimated will dress from twelve to fourteen hundred pounds.

☞ Do not forget, in sowing your seed, to make some provision for feeding the insects.