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Nec aranearum sane textus ideo melior, quia ex se fila gignunt, nec noster vilior quia ex alienis libamus ut apes.

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Agricultural Journal.

From the Monthly Visitor.
SCIENCE OF FARMING.

BY LEVI BARTLETT.

There are four other elementary bodies that enter into the growth and composition of plants, and it is from these the greater part of bulk of plants and animals are composed. These four substances are oxygen, nitrogen, and carbon. The three first of these are known to us only in a gaseous form. Carbon is pure charcoal, and when burned, it combines with the oxygen of the air in certain and exact proportions, forming carbonic acid.—These four are termed by chemists organic bodies, and they are susceptible among themselves (and with the organic constituents of plants) of forming an infinity of chemical combinations, and yielding an endless variety of products.

The atmosphere we breathe, and in which plants grow and live, is composed principally of a mixture of oxygen and nitrogen gases, in the proportion, of very nearly, twenty-one of the former to seventy-nine of the latter. It also contains, as a constituent necessary to the very existence of vegetable life, a small per centage of carbonic acid, on an average of about one twenty-five hundred part, and however incredible it may seem to those unacquainted with agricultural chemistry, yet it is a fact, that from this source is derived about one half of the solid substance of all plants that grow upon the face of the whole globe.

At the first view it would seem impossible that this apparently small amount of carbonic acid diffused through the atmosphere could supply to growing plants the carbon found in their solid parts, as it amounts to from forty to fifty per cent, of all trees; plants, and vegetables, in fact, all the parts of plants which are cultivated for the food of man or animals, and unquestionably most of this carbon is derived directly from the air, by the agency of the leaves of plants, although there can be no doubt but a small proportion of it is taken up by the roots mixed with water, and some of the inorganic matters that are in solution, such as potash, lime, &c.

When we reflect that the atmosphere not only entirely surrounds the earth, but extends in every direction about forty-five miles, "and if the whole acid were collected in a stratum or bed occupying the lower part of the atmosphere, such a stratum would have the thickness of about thirteen feet," and this would be spread over the waters of the oceans, seas, lakes, rivers, the deserts of sands, the frozen regions of the poles, and, in fact, over every part and place of the globe, and, by the wisdom of the Great Contriver, this gas is, in innumerable ways, returned to the air as fast as abstracted, by growing plants. Here, then our wonder ceases.

We know, if we take a given quantity, by weight, of well-seasoned wood, and distil it in a close vessel, or burn it in heaps, covered over so as to exclude the free access of air, wood charcoal is left behind. When this process is well performed, the charcoal will weigh from forty to fifty per cent as much as the wood did. The charcoal consists of carbon, with a slight admixture only of earthy matter and saline matter, which remains behind when the coal or carbon is burned in the open air. When the charcoal or carbon is burned in the open air, it combines with the oxygen of the air, to keep up the combustion, and the whole of the coal enters into a chemical union with the oxygen, and forms carbonic acid, or in other words, carbonic acid consists of oxygen, with a definite or fixed quantity of charcoal or carbon dissolved in it. This gas is composed of two proportions of oxygen and one of carbon. In this state it is taken up by leaves of plants. The leaves of plants are their lungs, and they possess the power of absorbing from the air carbonic acid, and in daylight it is decomposed, but much more rapidly in clear sunlight. When thus decomposed in the leaf the oxygen is set free, and is again restor-

ed to the atmosphere, but the carbon is retained and mingled with the true sap of the plant; and in obedience to those mysterious laws of chemical combination is made to form a moiety of the endless variety of wood, fruits, seeds, &c., which are the results of vegetable life.

It may seem a mystery how the leaf of a plant can take from the air the carbonic acid, when in such apparent small quantity, and separate the carbon from its oxygen. We grant it is a mystery; but then we know for a certainty the fact of the leaves of plants possessing this power of absorption and decomposition; it is the way the growth of a plant has been provided for—the Creator has so willed it.

Plants take from the atmosphere, by their leaves, carbonic acid, a deleterious gas, and decompose it, and restore to it the oxygen that is taken into the lungs of animals, which combines with the carbon of the food, and by the process of respiration is given off to the atmosphere in the form of carbonic acid the food of plants.

It is sometimes said that politicians and gamblers play into each other's hands for their own private good. Animals and plants perform a more honorable operation; they play into each other's mouths for the general good.

THE TOWN CHILD AND THE COUNTRY CHILD.

BY ALLAN CUNNINGHAM.

Child of the country! free as air
Art thou, and as the sunshine fair;
Born, like the lily, where the dew
Lies odorless when the day is new;
Fed, 'mid the May flowers, like the bee,
Nursed to sweet music on the knee,
Lulled on the breast to that glad tune
Which winds make 'mong the woods of June:

I sing of thee—'tis sweet to sing
Of such a fair and gladsome thing.
Child of the town! for thee I sigh;
A gilded roof's thy golden sky—
A carpet is thy daisied sod—
A narrow street thy boundless road—
Thy rushing deer's the clattering tramp
Of watchmen—thy best light's a lamp—
Through smoke, and not through trelleed vines,
And blooming trees, thy sunbeam shines.

I sing of thee in sadness; where
Else is wreck wrought in aught so fair?

Child of the country! thy small feet
Tread on strawberries red and sweet;
With thee I wander forth to see
The flowers which most delight the bee,
The bush o'er which the thrush sings,
In April while she nurses her young,
The den beneath the sloe thorn where
She bred her twins the timorous hare,
The knoll wrought o'er with wild blue bells.

Where brown bees build their balmy cells,
The greenward streams, the shady pool,
Where trout leap when the day is cool;
The shilla's nest, that seems to be
A portion of the sheltering tree;
And other marvels which my verse
Can find no language to rehearse.

Child of the town! for thee, alas!
Glad nature spreads no flowers nor grass;
Birds build no nests, nor in the sun
Glad streams coming singing as they run:

A maypole is thy blossomed tree,
A beetle is thy murmuring bee;
Thy bird is caged, thy dove is where
The poulterer dwells, beside thy hare;
Thy fruit is plucked, and by the pound
Hawked clamorous all the city round,
No roses, twinborn on the stalk,
Perfume thee in thy evening walk;
No voice of birds—but to thee comes
The mingled din of cars and drums,
And starting cries such as are rife
When wine and wassal waken strife.

Child of the country! on the lawn
I see thee like the bounding fawn;
Blithe as the bird which tries its wing
The first time on the winds of spring;
Bright as the sun, when from the cloud

He comes, as cocks are crowing loud;
Now running, shouting, 'mid sunbeams,
Now groping trout in lucid streams,
Now spinning like a mill wheel round,
Now hunting echo's empty sound,
Now climbing up some old tall tree,
For climbing's sake. 'Tis sweet to thee
To sit where birds can sit alone,
Or share with thee thy venturesome throne.

Child of the town and bustling street,
What woes and snares await thy feet?
Thy paths are paved for five long miles,
Thy groves and hills are peaks and tiles;
Thy fragrant air is yon thick smoke
Which shrouds thee like a mourning

cloak;
And thou art caged and confined
At once from sun and dew and wind,
Or set thy tottering feet but on
Thy lengthened walks of slippery stone;
The coachman there careering reels
With goaded steeds and maddening

wheels.
While flushed with wine and stung at play,
Men rush from darkness into day:
The stream's too strong for thy small bark,
There nought can sail save what is stark.

Fly from the town, sweet child! for health
Is happiness, and strength and wealth,
There is a lesson in each flower,
A story in each stream and bower,
On every herb on which you tread,
Are written words which, rightly read,
Will lead you from earth's fragrant sod,
To hope, and holiness, and God.

From the Maine Farmer.

"THINKS I TO MYSELF."

We are indebted to a worthy and observing friend for many of the following hints.

When I see a mass of chips accumulated in a farmer's back yard, remaining year after year, "thinks I to myself," if the coarser ones were raked out, they would serve for fuel, while the finer parts with the addition of soap-suds, &c., from the house, would afford a valuable source of manure.

When I see a convex barn-yard, "thinks I to myself," there is comparatively but little manure made there.

When I see banks of manure resting against a barn during the summer season serving only to rot the building—"thinks I to myself," that manure might be better employed.

When I see the drainings of a barn-yard finding their way into gullies and rivulets, while, with small expense, they might be thrown on to a valuable swell or declivity, "thinks I to myself," that farmer is blind to his own interest.

When I see a hog-yard not well supplied with materials for making manure, "thinks I to myself," that man suffers loss for the want of care.

When I see a piece of hoed ground in a mowing field, and the turf, stalks, and stones, that were carried out by the plow or barrow, not collected together, "thinks I to myself," there is something slovenish in the case.

When I see plowing done, year after year, in the same tract by the side of a fence or a gully, till a dyke of considerable height is thrown up, and of course a corresponding leanness in the interior, "thinks I to myself," there is a want of good husbandry.

When I see a stone wall topped out with a single tier of round stone, "thinks I to myself," the upper foot in the height of such walls ought never to have been put on, and look out for dull scythes and loss of hay.

When I see a fruit tree loaded with twice the top necessary for bearing well; and this perhaps partly dead, thereby keeping the needed rays of the sun from the under crop, "thinks I to myself," here is an indication of bad husbandry.

When I see stones piled around the trunk of a fruit tree, "thinks I to myself," here is an invitation to suckers, and to mice, and if dull scythes should follow, it would not be strange.

When I see a total failure of a crop of Indian corn, "thinks I to myself," if that man had bestowed all the manure and perhaps two-thirds the labor on half the ground, he would have had a fair crop and a fine piece of ground for a crop of Ruta Baga, the following year.

When I see a farmer selling his ashes for ten cents per bushel, "thinks I to myself," he had better have given his purchaser fifty cents to leave it for his corn and grain.

From Downing's Horticulturist.

RURAL LIFE.

The primeval employment of man is the most healthful of all occupations; healthful for the body, the mind, and the soul. What others pursue by which men obtain honest bread affords such vigorous training for the physical powers, such various and extensive ranges of mental exercises?

And where may the moral nature of man be preserved unscathed from vice, and grow and expand more, than amid rural scenes and beneath the purest air of heaven?

The farmer's life is not scratch, scratch, with the pen—tap, tap, with the hammer—or an everlasting unpacking and re-packing of the produce of another's labor. He walks forth under the open sky, his broad acres spread out beneath his feet; the blue concave, sunlit or starlit, or shrouded in clouds, is still above him.—Health claims him as her favorite child, and the glorious sun loves to kiss a cheek that is not ashamed to wear the ruddy imprint of such affection. Nature's own inimitable music of babbling brooks, birds breeze, or rustling foliage, enters his ear on its glad mission to his heart. He listens to instructive voices, continually speaking from the universe around him. His eye gathers truth from unwritten pages of wisdom, everywhere open before him. Each day, each month, season after season, year after year, these teachings are given to him, infinite variety, and endless in extent.

When, toward the close of a sultry day, the summer's blessing comes pouring down, and as, in the beautiful poetry of the sacred volume, "the trees of the field clap their hands," and "the valleys covered with corn, shout for joy," the farmer retiring from his labors to the friendly shelter of his cottage roof, improves his leisure hours with the treasures of written wisdom. So, too, while his fields are sleeping beneath frost and snow what profession affords more available opportunities for self-culture? Where was the lyric poetry composed that makes Scotland prouder of her Burns than of all her ancient race of warlike kings? Was it not between the handles of the Moss-gel plough?

Of all the employments that busy men here in this present state of existence, the cultivation of the earth is distinguished as affording the best opportunities for an extended range of mental discipline, for advancing in true refinement; for social, rural, and religious improvement!

And, now, last of all, agriculture shall put forth her highest claim. Of all men the farmer alone walks in the path where God himself first took the created image by the hand and led the way "to dress and to keep" his garden—the earth!—Confiding in God, the husbandman ploughs his fruitful fields, while the birds of spring are singing praises round him. Buoyant with hope, he scatters his seed upon the ground, and gratefully receives the early and the latter rain, coming down from heaven to give the increase. And never did rational man yet apply the sickle to the golden grain without some vague idea of gratitude to God the Giver of harvests!

Indeed, the husbandman's whole life, rightly viewed, is a "walking with God."

And though thousands may not often think of this, and but a few, even in any small degree appreciate it as they ought, nevertheless the assertions claims to be true.

GEORGE JACQUES.
Worcester, Mass., Dec. 6, 1849.