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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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ACTION OF LIME.

Chemical investigation has led to the idea that one of the effects of lime, when applied to the soil, consists in its rendering soluble certain mineral substances which are essential to the growth and perfection of vegetation. Granite, trap, and slate contain potash, which is liberated by caustic lime. There is good reason to believe that this action of lime is of great importance, and that in many instances it is one of the principal causes of the increased productiveness which the application of this substance imparts to the soil. The following remarks from a valuable paper by Professor Johnston, serve eminently to illustrate this subject, and will be read with profit:—

The decaying vegetable matter in the stems, roots, and leaves of plants, which form the so-called humus of the soil, contain a large proportion of the inorganic matter which was necessary to their existence in the living state. As they decompose, this inorganic matter is liberated. By promoting this decomposition, therefore, lime sets free this mineral matter, and provides at once abundant organic and inorganic food to the growing plant. The result of the action of lime is no less important in reference to its fertilising quality than that by which it causes the production of those numerous changes in the purely organic matter of the soil to which I have already adverted.

If the vegetable matter decay rapidly, it will supply in abundance all the materials, both organic and inorganic, which new races of plants require to form their entire substance. If it be in an inert state, and decompose slowly, the food it contains remains locked up, and comparatively useless to vegetation. In quickening the decay of this inert or slowly decomposing matter, it is easy to see, therefore, how lime should render the land more fertile, and should do so more sensibly where vegetable matter is more abundant.

The mineral and rocky fragments in the soil are acted upon in a similar manner.

Among the early constituents of soils, there often exists fragments of feldspar and other minerals, derived from the granitic and trap rocks, as well as portions of the slaty and other beds from which the soils have been formed, and which as they crumble down, yield more and more of those inorganic substances on which plants live.

The decomposition of those minerals and rocks proceed more or less rapidly under the conjoined action of the oxygen, the carbonic acid, and the moisture of the atmosphere. But the presence of lime promotes this decomposition, and the consequent liberation of the inorganic substances which the rocks contain.

The silicates of potash and soda are among the most important compounds which these minerals and rocky fragments contain. These silicates, after being heated to redness with quick-lime, readily yield a portion of their potash or soda to water poured upon the mixture. The same result follows, but more slowly, when, without being heated, and silicates and the lime are mixed together into a paste with water, and left for a length of time at the ordinary temperature of the atmosphere. It is reasonable therefore, to suppose, that in the soil of our fields a similar decomposition will slowly take place, when quick-lime is mixed with it. It will take place also, though still more slowly, when lime is added to it in the form of carbonate.

By some, the liberation of potash and soda in this way is supposed to be the most important action exercised by lime in rendering the land more productive.—With this extreme opinion I do not agree, though it must be conceded, I think, that in numerous instances, a certain amount of benefit must follow from the chemical action it is thus fitted to exercise.

I have spoken of lime as liberating the inorganic constituents of the decaying matter of the soils. The stalks of the grasses, and the straw of our corn-bearing plants also contain silicates of potash and soda, which lime sets free in hastening the decomposition of the vegetable matter of which they form a part. Besides liberating, it further decomposes these silicates, as it does those of minerals in the soil, and sets their potash and soda free to perform those important functions they are known to exercise in reference to the growth of plants. I am inclined to consider this part of the action of lime as of nearly equal importance to vegetation in many instances, with that which it exercises upon the mineral silicates.

While the potash of soda is set free in a soluble state, the lime unites with a portion of silica, forming a silicate of lime of which traces are to be met with in nearly all soils. This silicate, again, is slowly decomposed by the agency of the carbonic acid of the atmosphere and of the soils, as I have already explained when speaking of this compound as one of the causes of the known fertility of soils formed from the decay of trap rocks.

Potash and soda exist sometimes in considerable quantity, in our stiff clay soils, in combination with the silica and alumina, of which they chiefly consist, from their extreme tenacity, the air is in a great measure excluded from these soils and hence chemical decomposition proceeds in them very slowly. The addition of lime alters their physical character, and by making them more open, admits the air, and thus promotes its decomposing action upon them. But it acts chemically also, in the same way as it does upon the silicates already spoken of, and thus compels them to give up more freely to the roots of plants those mineral substances by which their growth is to be made more luxuriant.

ACTION OF LIME ON SALTS OF IRON, MAGNESIA AND ALUMINA.—Salts of Iron.

—Lime, either in the mild or in the caustic state, possesses the property of decomposing the sulphate and other saline compounds of iron, which especially abound in moorish and peaty soils, and in many localities so saturate the subsoil, as to make it destructive to the roots of plants. Sprengel mentions a case in which the first year's clover always grew well, while in the second year it always died away. This, upon examination, was found to be owing to the ferruginous nature of the subsoil, which caused the death of the plants as soon as the roots began to enter into it.

When land is rendered unproductive by the presence of salts of iron, a dressing with lime will bring the land into a wholesome state without other aid than those of the drain and the subsoil plow. If sulphate of iron be the cause of the evil, the lime will combine with the acid and form gypsum, (sulphate of lime,) while the first oxide of iron which is set free will, by exposure to the air, be converted into the second or red oxide, in which state this metal is no longer hurtful to vegetation.

The drain and the subsoil plow are useful auxiliaries to the time in lessening the injurious effects of the compounds of iron, because they allow the rains to descend and gradually to wash away the noxious matter which has accumulated in the under soil—because they permit the descending water to carry with it portions of the lime in a state of solution and thus to spread its good effects through the whole soil—and because they admit successive supplies of air as deep as the bottom of the drains, by which, while the action of the lime is promoted, those other good effects also are produced which the oxygen of the atmosphere can alone accomplish. In fact, unless an outlet for the surface water be thus provided beneath, by which the lime may be enabled to descend, and the rains to wash away slowly the noxious substances from the sub-soil, even the addition of a copious dose of lime will only produce a temporary improvement.

Salts of Magnesia and Alumina.—Lime

decomposes also the sulphates of magnesia and alumina, both of which, but especially the former, are occasionally found in the soil too large proportions, and, being very soluble salts, are liable to be taken up by the roots in such quantity as to be hurtful to growing plants.—With the sulphuric acid of these salts the lime forms gypsum, as it does with the acid of sulphate of iron when this salt is present in a soil to which it is added: besides removing the evil effects of these very soluble sulphates, therefore, it exercises the beneficial action which gypsum is known to exhibit upon many of our cultivated crops.

Alumina has the property of combining readily with any vegetable acids and in the clay soils exercises a constant influence—though more feeble in degree than that of lime—in persuing organic matter to those forms of decay in which acid compounds are more abundantly produced. Hence, clay soils almost always contain a portion of alumina in combination with organic matter. These organic compounds decomposed by lime, and by the more energetic action of this substance, their constituents are sooner made available to the wants of the new races of plants.

[Selected for the St. John Courier.]

HARVEST HYMN FOR 1849.

O Nation, Christian Nation,
Lift high the hymn of Praise,
The God of our salvation,
Is love in all his ways:
He blesseth us, and feedeth
The creatures of his hand,
To succor him that needeth,
And gladden all the land
From glen, and plain, and city,
Let gracious incense rise;
The Lord of life and pity,
Hath heard his creatures cries;
And where, in fierce oppression,
Stalk'd fear, disease, and death,
He pours a triple blessing,
To fill and fatten earth.

Gaze round in deep emotion!
The rich and ripened grain
Is like a golden ocean,
Becalmed upon the plain;
And we, who late were weepers,
Lest judgement should destroy,
Now sing,—because the reapers
Are come again with joy!

O praise the hand that giveth,
And giveth evermore,
For every soul that liveth,
Abundance flowing o'er;
For every soul he filleteth,
With manna from above,
And over all distilleth
The dew-drops of His love!

Then gather, Christians, gather,
To bless, with heart and voice,
The good Almighty Father,
Who biddeth us rejoice;
For he hath turneth the sadness
Of his children into mirth,
And we will sing with gladness,
The harvest home of earth.

From the Farmer's Cabinet.

TREATMENT OF SICK ANIMALS.

There are many erroneous notions prevalent in the community, respecting injured or diseased domestic animals, and such unnatural or injurious practices as a consequence of these incorrect views, that no apology is necessary for an attempt to subvert the cause and interest of these useful creatures, which, if they had tongues to speak, would tell sad tales of the wrongs to which they have been, and still are, too often subject.

We do not propose to give an essay on the particular cases that require attention—our object is rather very briefly to ask the owners of domestic animals to be guided by a few correct principles, which are applicable to nearly all cases, and which will at least prevent us from doing harm, and be the means, probably, of doing much good. In the first place, then, we would in-

sist that when an animal is well he never requires any medicine; and when he is sick, we would protest against his being dosed with articles that are said to be 'good' for a particular disease, without any reference to its violence or the symptoms, as common sense would dictate, that remedies the most opposite in their character and effects, may be equally advantageous in different periods of the case.

Always distrust a man and the remedy, when your friend declares that an article is good, or a certain cure for a disease, without any reference to its symptoms—prescribing for the name of the disease itself—this is the very essence of quackery, in man or beast.

A large portion of the diseases of animals closely resemble those of the human family, and require a treatment conducted upon the same general principles—with some variations and some peculiarities, it is true; but none of those outrageous departures from common sense, which are too frequently witnessed.

A horse with pleurisy, or inflammation in the lungs, or apoplexy, requires a widely different treatment from one with cholera or worms. There is no more mystery about the disease of a horse or an ox than about those of a man, and a violation of natural laws is as productive of pain and injury in one as in the other.

There is too great a propensity, everywhere, to resort to active treatment in all cases—a feeling that is encouraged by the ignorant or designing for selfish purposes. An adviser in sickness is often most useful, and shows most skill, where he only tells us what is to be avoided and waits for indications for more active measures—doing little more than preventing ignorant but well meaning persons from interfering with the salutary and useful changes that may be going on.

Remember that there is a restorative power in nature to which it is always better to trust than to direct active remedies without knowing for what particular purpose they are given.

There is never occasion for the administration of the disgusting combination which the poor animal is made to swallow, from the mere whim of an ignorant horse or cow-doctor. Many a fine beast has been lost by his owner trusting to such prescriptions.

When your animal has fever, nature would dictate that all stimulating articles of diet or medicine should be avoided. Bleeding may be necessary to reduce the force of the circulation—purging to remove irritating substances from the bowels—moist, light, and easily digested food, that his weakened digestion may not be oppressed—cool drinks to allay his thirst, and to some extent, compensate for diminished secretions—rest and quiet, to prevent undue excitement in his system, and so on through the whole catalogue of diseases—but nothing to be done without a reason. Carry out this principle, and you will probably do much good—hardly any harm; go on any other, and your measures are more likely to be productive of injury than benefit. But as we have before said, our object now is not to speak of diseases in detail; it is rather to encourage our agricultural friends to think before they act; to have a reason that will bear examination for every step in the management of a sick or injured animal; to remember they have a powerful assistant in nature, (being fairly used,) and that specifics, as they are called, are much fewer and less to be trusted, than their proprietors would have us to believe.

We might, indeed, almost sum up what we would desire, in one general direction of five words:—TREAT YOUR BRUTES LIKE MEN.

MUSTARD PLASTERS.—When a mustard plaster is to be applied, there should always be a piece of clean muslin or gauze placed between it and the skin, unless the contrary is expressly ordered by a physician. The mustard acts quite as powerfully, and the whole can be removed more quickly, and without the disagreeable effects of dropping it about.