

[From Norton's Scientific Agriculture.]

Substances which Constitute the Inorganic Part of Plants.

The substances hitherto described have all been those that are found quite abundantly; but that which is now to be mentioned, the Oxide of Manganese, is more rare. Many species of our cultivated plants are found to be without it in their ash far more often than with it; and when it is present in the soil, we cannot, from any experiment hitherto made, see that their growth is more luxuriant.

In some trees it is said to exist abundantly; but for the ash of our cultivated crops generally, I am inclined to think that it can scarcely be considered an indispensable constituent.—Manganese is a metal somewhat resembling iron, but much less abundant. It also is always found in some compound form, never as a pure metal. It forms oxygen; and one of these, the black oxide, is of much value in certain manufacturing processes.

For these purposes, it is mined whenever it is found in large quantity. This black oxide may easily be obtained and shown to a class. As it is now largely used in some manufactures, it is a cheap article.

Silica is a substance that exists abundantly in almost all plants often forming more than half of the whole ash. We see a nearly pure form of it in the common quartz crystals, or cornelian, or flint: these all consist almost entirely of silica. Specimens of silica, in some form, may be found in almost every neighborhood, as it is one of the most common minerals. When perfectly pure, it is a very hard, white substance, tasteless, and quite difficult to melt.

The fine grains in ordinary sandstones are particles of silica. It is not dissolved in water, and even strong acids produce little effect: how singular then that it should be found so abundantly in the interior of plants!

Chlorine is a kind of gas. It is easily prepared by mixing a little muriatic acid with some of the commercial black oxide of manganese; a gentle heat being then applied, chlorine is given off, and is conducted into receivers in the manner before described under oxygen and hydrogen. Water, when cold, absorbs it largely, and therefore the water in the receptacle where the gas is collected should be hot. It is, however, so much heavier than common air, that it may be collected in sufficient quantity by carrying the conducting tube to the bottom of a jar or bottle.

The top being partially covered, so as to prevent too free access of air and consequent agitation, the vessel can be filled with chlorine as readily as with water. If the glass is white, it will be perceived that the chlorine now filling it is of a decided green color.

The sense of smell should be tested cautiously in this case, as the gas has a most suffocating and distressing effect when inhaled even in small quantity. The consequences of a single breath of it taken by mistake, are often felt for days in its irritating effect upon the lungs and throat. The method of collection last mentioned will show that it is heavier than common air, but this may be farther illustrated by pouring it from one glass into another.

Phosphorus takes fire spontaneously in this gas, and so do several of the metals when powdered, antimony for instance. A taper plunged into it burns at first with an enlarged red smoky flame, but soon goes out.

Chlorine has a peculiar power of bleaching, and is used very largely in the arts for such purposes. Almost any of the ordinary calicoes may be bleached by placing them in water saturated with it. The color of red cabbage liquor is very easily destroyed by a very small quantity.

It unites with soda, one of the bodies already mentioned, and forms common salt, a substance having harmless properties in itself, and differing most widely from either of those out of which it is formed.

Sulphuric acid is the common oil of vitriol. It has commonly been called an oil, because of its thick oily appearance, but has few other properties of oils. It is, like them, rather soft and agreeable in its first feeling upon the skin, but this sensation is instantly succeeded by an intense burning pain; for the acid is so powerful in its corrosive effects, as to destroy both skin and flesh wherever it touches. Cloth is at once by it, eaten out in holes.

A very small quantity taken into the mouth and swallowed is fatal, as all of the internal passages are destroyed or seriously injured by its contact. There have been many cases of death from accidentally swallowing even so small a portion as part of a spoonful.

The name acid would naturally cause us to suppose that this liquid would be sour; and a taste of it even when largely diluted with water, shows it to be so in the extreme.—When thus diluted, so that the skin may not be at all affected, it is not poisonous, and has a rather agreeable taste.

If paper saturated with blue litmus, a substance to be found in many apothecaries' shops, be dipped into this or other acids, it will become red; if the paper thus turned red be dipped into a solution of potash or soda or ammonia, it will become blue again. This furnishes a test by means of which we can tell whether fluids are acid or alkaline.

Sulphuric acid is occasionally found in springs, uncombined with any thing. There are some in western New York, near Lockport, where the water as it comes from the spring is sour as vinegar, owing to the presence of free sulphuric acid.

This is a much heavier liquid than water.—A stream of it poured gently into a cup of water from a small distance above the surface, can be seen to sink directly to the bottom. When agitated so as to mingle it with the water, the

mixture becomes quite hot, because a chemical union takes place between the two liquids.

This acid, except in such cases as the above, is always found in a state of combination with some other substance, and then can not be recognized by any of the properties which I have mentioned. In some of these forms of combination, it is very abundant. One of them, and an important one to the farmer, is gypsum, or plaster of Paris.

This, as is well known, is a solid, and has no acid taste: it, however, consists of sulphuric acid united with lime, forming what is termed by chemists sulphate of lime. In every 100 lbs. of plaster of Paris are about 33 lbs. of sulphuric acid, 46 lbs. of lime, and 21 lbs. of water.

Epsom salts consist of sulphuric acid and magnesia; alum, of sulphuric acid, alumina and potash. From all of these the acid can be separated by chemical means. It is used largely for various manufacturing purposes, and is made by burning in sulphur (brimstone) with certain precautions, large leaden chambers.

Not less important is the next body on our list, phosphoric acid. It is also very sour, and is usually seen as a white powder. If a stick of phosphorus is burned, white fumes are seen to rise in large quantity.

The phosphorus unites while burning with the oxygen of the air, and forms phosphoric acid. If these white fumes are passed through water, it will become sour, as it dissolves the acid: they may also be condensed on a cold glass plate.

This body can be shown in a yet simpler manner by burning a common locofoco match: the white smoke which goes off at first before the sulphur ignites, is phosphoric acid. Phosphorus is used in the making of these matches, because it is a substance that inflames easily by a little friction.

All who have rubbed them on a wall or board in the dark, have observed that they leave a quite bright, luminous trace, distinctly visible. If the match fails to ignite, the end of it will also appear bright, and the peculiar smell of phosphorus may be perceived.

Phosphoric acid does not seem to exist in so large quantity as sulphuric acid, as it does not constitute a principal portion of any of our rocks. It forms a very important part of the bones of animals.

Horse Stable Manures.

Special attention should be given at this season to husbanding and preserving the manures accumulating in the horse stables. Most other animals roam at large in the pastures, and their droppings are pretty well distributed over the soil, at least too much so to admit of there being gathered for improvement or preservation. We may remark in passing, however, that cows and frequently other animals, lie or stand in the milking yards or in some shady spot during several hours of each day. It would pay exceedingly well to have a load or two of muck or loam in such places, to mingle with all manure dropped, the mass to be piled up in a fence corner or other convenient spot. When cattle remain over night in a small yard, the surface should be coated with muck, earth or straw, to catch all liquid manures. These are quite as valuable as the solid excrements, though they usually go to waste.

To return to the stables: into these the horses are invariably taken at least once a day for a "baiting," and in many cases they are there the greater part of the time when not at work in the fields. During the hurrying season of harvesting and Fall sowing, we have observed that comparatively little attention is given to cleaning out the stalls. This is performed, sometimes once a day, and oftener not once a week. It is, or should be, well known that the dropping of horses both solid and liquid, are among the most quickly fermenting and easily decomposed manures. In warm weather, the process of decay commences almost immediately, and careful experiments have shown that one-half or more of the weight escapes in a gaseous form, in less than three weeks. The portion that thus escapes is also the best part, as it contains a large share of the ammonia.

To allow this loss either in the stables or from the heap into which the manure is usually thrown, is bad, very bad economy. If the stables are not thoroughly cleaned and deodorized daily, the horses themselves suffer in consequence. The horse, of all animals, is the most sensitive to sudden changes of temperature, and to impure air or want of cleanliness. Colds, influenzas, &c., are very common in horses, while they rarely exist in other animals.

At this season, the plow, harrow and other labors, tax the strength of the horse to the utmost. But after toiling and sweating for five or six hours in the field, they are tied up in close stalls for the noon or evening baiting; and usually they must stand in and breathe an atmosphere loaded with fumes and gases arising from their own decaying excrements.

First, we say, ventilate their stalls well. If there is not already one, provide a large opening at the head of their stalls, either by constructing a swinging door, or remove temporarily a board or two from in front or from each side of the head of their stalls. Horses feed much more comfortably and more freely when standing in a light, open stall, than in a dark, close one, and they also rest better.

Next, be careful to cleanse the stables at least once a day, especially in warm weather. Let the floor be scraped well, not merely removing the coarse materials. In addition to the cleaning, let the floor be constantly supplied with some deodorizer to absorb and retain the escaping gases. A bed of dry muck often removed and renewed, answers a double purpose. A weak solution of sulphuric acid (oil of vitriol) or of muriatic acid, or of stale vinegar even, often thrown over the floor, is of high value. The

acids may be diluted with a dozen or twenty times their bulk of water. Salt is also good for this purpose. Stable brine, though not so good as fresh salt, is better than nothing.

All things considered, Plaster of Paris (that is gypsum or sulphate of lime) is the best material for sprinkling into stables. This substance is cheap, easily obtained and easily handled, and when mixed with any kind of moist manures it will fix most of the ammoniacal gases which would otherwise escape into the air. Chloride of lime is sometimes used, but it is expensive, and besides it fills the air with chlorine gas, which is of itself deleterious to the lungs.

Lime and ashes are often recommended. They will hasten decomposition, and speedily dismiss the stronger gases, but on this very account they should not be used. It cannot be too often repeated that Alkalies, such as lime, potash, ashes, &c., should never be brought in contact with fermenting manures.

The preservation of horse manure after its removal from the stable is a matter of the highest importance. Properly preserved, the solid and liquid excrements of the horse constitute one of the most valuable of fertilizers. As they are usually disposed of, they are of small account. If mixed in the stable with plaster or muck and then kept under cover, they are ten times more valuable than if left to the washing of rains, and mingled with nothing to retain the ammonia.

The best method of preserving stable manure, is to mix with at least three times its bulk of muck, or loam if muck is not to be had, and sprinkle upon every part of it a little plaster of Paris. Then keep it under cover, and spread out sufficiently to prevent its fire fanging, though it is better to be piled in a mass and occasionally moistened with a few pails of water, if there is plenty of muck and a small quantity of plaster with it, say half a peck or more to each cart load. To take this much trouble may seem to some unnecessary, but our word for it, this plan is more economical by half than to purchase guano or any other foreign fertilizer.

One word more for the horse. As stated above, this animal takes cold easily. On this account horses should never be turned directly into the field when in a sweat from work, or from a warm stable where they have perspired for an hour or two. They should never be compelled to lie over night in a wet, unsheltered posture. Let them always have a dry plot, or, what is better, a shed or stable to retire to voluntarily when they have completed their evening's grazing. This is especially important if there be heavy dews, fogs or rains. A horse will never lie in an open field when a sheltered spot is accessible. Every farmer must have observed that, not only horses, but other animals seek the driest resting place to be found, and they generally lie under a tree or shed or by the fence. The above remarks, suggested by the inquiry of our Connecticut correspondent, embrace the main points of such an article as he desired.—[Commercial Register.]

WHY THE FOURTH OF MARCH WAS SELECTED.—The selection of the fourth of March as the day for the beginning of the Presidential term, seems to have been the result of accident. The old Continental Congress, when the ratification of the new Constitution by the necessary number of States had been ascertained, passed a resolution, Sept. 13, 1788, appointing the first Wednesday of the next January for the choice of the Presidential Electors, the first Wednesday of February for the election of President and Vice President, and the first Wednesday of March as the time for the organization of the new Government. The first Wednesday of March happened to be, in the year 1789, the fourth of March, and as the Administration which began on that day was limited to four years by the Constitution, the next and all succeeding administrations have begun on this day of the month.

Cut Off.

Walter Hynes is cut off from the Church of Jesus Christ of Latter Day Saints, for unchristian like conduct.
A. O. SMOOT, Bishop.
Dec. 7, 1886.

Eleventh Quorum Attention.

The Presidents and Members of this quorum are required to report themselves to Jesse P. Harmon, or they will be dropped.

The quorum holds meetings at the residence of Hosea Stout, 13th Ward, G. S. L. City, every Sunday at one o'clock p.m., where a punctual attendance is required.

There will be a general meeting of the quorum at the same place on the first Sunday in February next, at one o'clock p.m.—By order of the Council,
HOSEA STOUT, Clerk.

MARRIED:

In this city, November 30th, by Bishop Perkins, Mr. PETER J. POOL and Miss LUCY C. BERRY.

DIED:

In G. S. L. City, on the 1st inst., Elder JOHN GRIF-FITHS, late from England, where he labored in the gospel long and faithfully.

[Millennial Star, please copy.]

FOR SALE.

A FARM lying between the county and territorial roads, on both sides of Little Cottonwood, some 10 miles south of the city, containing 300 acres of excellent farming land, which will be sold entire or in lots to suit purchasers.

Cash, grain, cattle or horses taken in payment. Inquire of the subscriber on the premises.

23-1

JOHN W. BENROW.

GOLD! GOLD! GOLD!!

THE Subscriber wishes all those who are indebted to him either by note or account to call immediately and pay up in something besides promises for the following excellent reasons:—

- 1st. He needs something besides promises and has as many on hand as he can dispose of.
- 2nd. Promises will not pay the debts due him.
- 3rd. He wishes to be honest and pay his own.
- 4th. "A word to the wise is sufficient."

43-8

J. R. KIMBALL.

NEW ADVERTISEMENTS.**TAKE NOTICE.**

CAME into the lot of the Subscriber on the 6th inst., a brown and white COW, branded S on the left hip, and is supposed to be about ten years old. The owner is desired to prove property, pay charges and take her away.
SAMUEL BIRD, 7th Ward.

STRAYED.

FROM Spencer's pasture, a red COW, with white star in forehead, tips of horns sawed off and branded on both hips G H. She was last seen near Dr. Shurtliff's farm. Whoever will deliver her to J. B. Mathen, East Temple street, or to the subscriber in the 16th Ward, near the Union Square, shall be rewarded liberally.
(4111) E. P. THOMAS.

NOTICE.

FIVE Acres of Land for sale, immediately south of the church farm, one half of it rich and loamy, the other half what is termed adobe land, which raises moderate crops of wheat. From a spring on the lot above any quantity of water can be obtained. I have hauled a load of posts for fencing on the lot and on the north line there is a good ditch. I have also set out a few currant cuttings, which are doing well. It is a corner lot, has a clayey subsoil and I consider would be a desirable place for an orchard. Terms cheap for pay on the P. E. Fund.
ROBT. L. CAMPBELL.
41-3 Historian's Office.

TAX NOTICE.

THE FOLLOWING Land Claims and Improvements in G. S. L. City will be exposed to public sale on the 24th day of January 1887, at 11 o'clock a.m., at the door of the Council House in said city, to satisfy the Territorial and County Tax, and on 2nd day thereon, if it is not previously paid at my office, N. W. corner of Council House, G. S. L. City:—

| CITY LOTS. | WARD. | AMT. OF TAX AND COST. |
|-------------------------------|----------|-----------------------|
| TO WHOM ASSESSED. | | |
| Astle Joseph | 10 | \$20.14 |
| Allen Albert | 12 | 8.16 |
| Alkin Jones | 12 | 3.20 |
| Abrams Levi | 13 and 9 | 7.60 |
| Adamson Dugald | 19 | 19.56 |
| Bird Thomas | 5 | 7.70 |
| Barlow Israel | 8 | 13.38 |
| Boggs Francis | 8 | 8.43 |
| Brain Edward | 11 | 6.23 |
| Blake Benj. F. | 12 | 6.67 |
| Buckingham John | 12 | 8.00 |
| Brown James | 13 | 6.50 |
| Bachelor Wm. | 13 | 3.20 |
| Browet Mrs. | 15 | 3.20 |
| Boyd Geo. W. | 16 | 11.18 |
| Bingham (Bishop) | 16 | 6.80 |
| Buxton Joseph | 17 | 16.44 |
| Bigher H. W. | 17 | 11.29 |
| Boydack James | 18 | 3.31 |
| Coats Joseph | 1 | 4.30 |
| Cunnington Wm. | 5 | 3.20 |
| Colemere Geo. | 6 | 6.83 |
| Chift Daniel | 12 | 10.00 |
| Chift Albert | 12 | 3.20 |
| Craig John | 15 | 6.40 |
| Clayton Geo. | 15 | 3.75 |
| Cordon Richard | 15 | 10.63 |
| Conaby Samuel | 17 | 3.53 |
| Cooksley Henry J. | 18 | 5.73 |
| Cook Phineas W. | 18 | 13.04 |
| Clark Elizabeth | 19 | 4.30 |
| Dores Nichol | 2 | 4.30 |
| Dixon Stuart | 3 | 3.21 |
| Duffin Isaac | 6 | 9.68 |
| Dudley O. H. | 13 | 17.12 |
| Duncan Chapman | 17 | 4.30 |
| Dovey Thomas | 18 | 7.27 |
| Davis John 2d | 19 | 9.47 |
| Davis John | 19 | 16.96 |
| Everett Addison | 8 | 33.84 |
| Eastman Ozro | 17 | 8.70 |
| Foster George | 11 | 12.88 |
| Gribble Wm. | 13 | 9.80 |
| Gamble Daniel | 16 | 3.20 |
| Gallagher Wm. C. | 19 | 12.00 |
| Gadbury Fred. | 19 | 6.60 |
| Harvey John | 12 | 13.05 |
| Haskall Thales H. | 12 | 13.28 |
| Hawkins John | 14 | 11.35 |
| Haws Wm. | 16 | 6.40 |
| Hatch Ira S. | 19 | 6.40 |
| Horner Wm. E. | 19 | 11.61 |
| Ivins Israel | 11 | 23.00 |
| Jones Benj. S. | 17 | 3.20 |
| Jackson Wm. W. | 17 | 6.06 |
| Kelly Wm. | 7 | 6.40 |
| Kendall Wm. | 10 | 5.46 |
| Lawson John | 7 | 6.40 |
| Lord Chas. H. | 14 | 9.36 |
| Leonard John | 17 | 4.30 |
| Lindbury C. W. | 18 | 2.65 |
| Lewis John | 19 | 2.65 |
| Metcalf John E. | 4 | 15.97 |
| Mikesell J. H. | 9 | 6.61 |
| Mikesell John A. | 9 | 9.42 |
| Mechem Joseph | 13 | 10.60 |
| Morris Isaac O. | 15 | 4.35 |
| Margetts Rich. B. | 19 | 16.33 |
| Meredith Richard | 19 | 4.74 |
| Mulliner John | 19 | 4.30 |
| Neff John | 3 | 2.65 |
| Ninde Albert | 8 | 10.79 |
| Naylor Wm. | 13 | 3.20 |
| Norton James W. | 15 | 11.90 |
| Nebaker Geo. | 19 | 21.00 |
| Overlade Andrew | 10 | 5.07 |
| Owens Wm. | 19 | 2.10 |
| Pond Stillman | 2 | 16.57 |
| Pendleton A. J. | 9 | 6.66 |
| Price Samuel | 14 | 13.43 |
| Ponas Thomas | 16 | 3.20 |
| Robinson (Bishop) | 6 | 4.30 |
| Ralphs Thomas | 10 | 6.40 |
| Rivins Christians | 10 | 3.20 |
| Riley Charlotte | 16 | 8.70 |
| Seichrist Mrs. | 1 | 16.80 |
| Sperry Wm. L. | 7 | 9.25 |
| Stevens Alexander | 9 | 3.76 |
| Thompson Samuel | 2 | 8.64 |
| Thompson Walter | 16 | 6.06 |
| Taylor H. B. | 18 | 27.00 |
| Vanetten E. W. | 19 | 7.87 |
| Vanbury Andrew | 19 | 2.10 |
| Walden Benj. | 6 | 6.50 |
| Wright Jefferson | 8 | 10.05 |
| Wade James A. | 9 | 12.21 |
| Wiltshire James (or Kettlman) | 9 | 5.45 |
| Walt Frederick | 11 | 4.35 |
| Wardsworth James | 11 | 6.23 |
| Whipple Edson | 13 | 6.50 |
| Ward Wm. | 16 | 9.20 |
| Wilson Robert | 19 | 6.40 |

41-2

S. RICHARDS,
Ass't. & Col. G. S. L. Co. U. T.

Do unto o'hers as you would that they should do unto you.

ALL Persons indebted to Jennings & Winder are requested to call and settle on or before the 30th inst. And any having claims present them and receive payment that we may commence 1887 anew.
JENNINGS & WINDER.

N.B. Bevers killed and dressed at \$1 per head or pay \$1 and take the hide.
Boots, Shoes and Leather Exchanged for Green Hides, Oil, Red Pine Bark and Grain.