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AGRICULTURE.

THE PROPERTIES OF AMMONIA.

The existence of Ammonia in the atmosphere, lately demonstrated by Liebig, is one of the most important discoveries bearing upon Agriculture, perhaps, ever made. Davy, and other chemists of the highest celebrity, had analyzed the air collected from the most sickly locations, where impurities might certainly be expected to exist, but with their nicest tests and best conducted experiments, they failed to detect any essential difference in the composition of the insalubrious air taken from the deadly coast of Africa, and that collected from the most elevated and healthy parts of Europe. The analysis of the air of the different places all gave the same proportions of the gaseous constituents—namely, oxygen, nitrogen and carbonic acid. It was evident, therefore, that if other matters, in addition to the gases named, and watery vapour existed, some other means must be found to demonstrate their presence, and, happily, the genius of Liebig devised a simple plan by which this has been effected, so far as the presence of ammonia is concerned. He knew that ammonia had a strong affinity for water, by which it is promptly absorbed, and that although it could be diffused through such a great bulk of air as to be placed beyond the reach of the ordinary chemical tests, it might nevertheless be taken up by rain water, and washed down in sufficient quantity to become apparent. Experiments made in his Laboratory at Giessen, with the greatest care and exactness, fully confirmed his views, and placed the presence of ammonia in rain water, and consequently in the atmosphere, beyond a doubt. It had hitherto escaped detection, because no one thought of seeking for it in the same way.

The quality usually termed softness, so peculiar to rain water, even exceeding that observed in distilled water, is owing to the presence of carbonate of ammonia. A small quantity of ammonia added to hard water, will generally give it the softness of rain water.

It has always been an opinion among husbandmen residing in countries where fields are often covered with snow, that the good effects observed from this winter covering showed the presence of some fertilizing salts in the snow. Common observation has in this, as in so many other instances, been corroborated by scientific research. A heavy rain on a deep fall of snow, must sweep down from the atmosphere to the earth a large amount of this very great fertilizer, which, being very volatile, will soon rise again into the air beyond the reach of plants, unless detained in some way or other. If the ground be loose, so as to permit the water to be speedily absorbed, the greater part of the ammonia may be secured, and made available to the growth of vegetation. And so it is prevented from flying off quickly by snow, the lowermost layer of which always contains the most ammonia.

As to the source from which the ammonia in the atmosphere is derived, it is sufficient to refer to the fact that it is the largest product of the decomposition, or putrifaction, of every species of animal matter, whether proceeding from insects or larger creatures. As putrifaction goes on more rapidly in some seasons than at others, the proportions of ammonia may naturally be supposed to vary, being less in winter, and greater in warm weather, when most essential to the growth of plants. A heavy shower in summer, after a long drought, must sweep down a great abundance of ammonia, and hence the farmer and gardener will always profit by having the soil well worked, and kept as loose as possible, about his growing crops, so that the water may penetrate rapidly, whilst most highly charged with its enriching ingredients.

If it be asked what are the direct proofs that ammonia promotes the growth of plants, the experiments of Sir Humphrey Davy may be referred to among others. He inserted the beaks of retorts, containing fermenting manures, into the soil among the roots of grass, which was found to grow much more rapidly than in other places adjacent.—The gases discharged from the retorts containing similar ingredients were found to consist chiefly of ammonia. Sir Humphrey regarded the results of these experiments as proving conclusively the advantage of applying manures to soils in a recent and fermenting state, rather than allow the ammonia thrown off during putrifaction to escape into the atmosphere.

THE USE OF PLASTER.

Mr. Editor.—I am inclined to think that those who repudiate the practice of applying plaster, labor under a very serious mistake. In a great variety of instances, I have noticed that those who the most bitterly oppose the use of this mineral, occupy soils immediately adjacent to those cultivated by the advocates of plaster, and who have been accustomed to use it fully on most of their crops. Now it happens that those who speak disparagingly of it as a stimulant of vegetable life, and who will not so much as listen patiently to their neighbours, *eulogia*, are generally complaining of short crops and "hard times." whereas the very reverse is the fact with their opponents. This demonstrates, conclusively to my mind, that gypsum, or plaster of Paris, as it is more commonly called, is either very much misunderstood, or a very partial substance, as it produces, on one farm of similar texture and geological formation, results which it by no means insures on the next lot. Some recommend it as being highly beneficial on clayey soils, while others apply it only on sandy loams.—Why this diversity of opinion? Does it not show satisfactorily, that those who apply it are under some error as to the effects it produces, or, rather, that it is good on all soils? On sward lands, there appears to be but little doubt, in most minds, that its action is favorable. Grain of every description is universally believed to be benefitted by it; clover in particular, derives great advantages from a liberal application of gypsum, whether it be sown in the spring or fall. Potatoes, also, among the weeded crops, most culturists prefer manuring almost wholly with it, where the soil is in good heart, and recently broken.—A very small quantity of it, sprinkled around a hill of corn after the first hoeing, seems to be favorable to the health and rapid development of the plants, and if the application be repeated two or three times, and a small quantity scattered broad cast over the field, the yield is augmented in a ratio much exceeding the expense. Now my opinion is that *plaster is good for all crops, and on all soils*, but some crops and soils require more of it than others, and hence it is that so much diversity of opinion exists as to its efficiency,—some farmers applying only a quarter of the quantity used by others, on the same soil and crop. If gypsum does produce advantageous effects, when applied in limited quantities, and that it does, there can remain not a vestige of doubt in any inquiring mind, is it not reasonable to infer from such indisputable and obvious *data*, that its beneficial agency would be probably augmented, by a rational augmentation of quantity?

I trust that every person who applies plaster, will endeavor accurately to ascertain, not only the chemical constituents of the soil and geological formation thereof, but note, impartially, the nature of the crop, the time of application, and the quantity used. In this way a valuable accumulation of facts would be soon attained, and practical men could, from deducting their own corollaries from such reliable *data*, arrange a system that would ensure, ultimately, the best and most profitable results.

When I commenced this article, I intended to review, briefly, some of the numerous antagonising theories and hypotheses which have sprung up so rapidly of late, in relation to the mooted question—"How does plaster act?" but I find, on more mature consideration, that such an undertaking would in all likelihood, be productive of no essential advantage, as the opinions and views of theorists are so numerous, that it would be impossible to do all or any of them justice. I shall therefore leave the consideration of this subject for those who have more leisure and inclination for theoretical review and disputation, hoping, however, in the mean time, that every practical farmer into whose hands this article may chance to fall will forthwith, in compliance to a fore going suggestion, become an experimentor, and thus assist in elucidating a question of so insignificant or secondary importance to the farmer, and which needs to be illustrated by more light than the pens of "scientific authors" have yet succeeded in throwing upon it.—*Scott's weekly Paper.*

To Banish Hen Lice.—It has been discovered that the following plan will effectually eradicate that pestiferous and destructive nuisance, *hen lice*:—Boil up a quantity of onions in water. When the onions become soft, mash them up, and with the water stir in Indian corn meal till sufficiently thick to give out to the hens and chickens when cool. They will eat it, and not a louse will be found in them twenty-four hours after, and they will cease to infest their roosting-places. We made a trial of the above remedy late last fall, and have not been troubled with lice since.

PROTESTANT CORNER.

From Correspondence of the N. Y. Evangelist.

WHAT HOPE YET?

Geneva, Sept. 15, 1848.

Hitherto Switzerland has afforded protection to the refugeess from Royal and Papal tyranny, but this shelter is now to be denied them. In obedience to France, Prussia, and Austria, the Council of the Swiss Confederation have just issued a decree, requiring the chiefs of the revolutionary movements in Italy, France and Germany, to leave the cantons in the course of three days. But where are they to go? They are here in a trap. These chiefs cannot get passports through any of the bordering countries.—Even the poor soldiers desiring to embark for America at Havre, were for a long time refused a passage through France!

The reactionary movement is strong and well-concerted by existing powers. The Pope has yielded much to France in surrendering his government of priests; but all hope of any action on the part of France in favor of liberty, worthy of the name of a Republic, is for the present arrested.—The Jesuits are now formally reinstated at Rome, Naples, and in Piedmont, and the Catholic Bishops throughout Italy have made a simultaneous effort to suppress the sale of the Bible and every other Protestant movement. They may triumph for a little while, but the vital seeds of religious liberty have been sown broad cast in that land during the stormy spring-time of freedom; and a harvest is not far distant when all the tares of Romanism will be given to the flames. Piedmont is not yet totally subdued to the Austrian policy, although the Marquis of Azeglio, the Minister of Worship and Instruction, who has proved himself a true friend of the Vaudois, has just resigned in despair of arranging matters well for his country. The Bount has refused, at least, to arrest Garibaldi and other important refugees; it will allow of their peaceably embarking at Genoa for foreign lands.

Among the Italian refugees in Switzerland, are, doubtless, some dangerous men; but many of them are far otherwise, and deserve a generous reception among the friends of order and true liberty. Mazzini unfortunately agitaates solely in a political sense; but there are others who comprehend perfectly that the real want of Italy is the gospel who write and argue everywhere in favor of liberty of worship and a systematic propagandism there, of evangliecal truth by means of the Bible and sound religious books. Although Rome could not be more awake than she now is to prevent this, and although the recent examination of the chambers of the Inquisition showed that every step taken, by our Protestant Societies in England and America is immediately reported to the Holy Office; yet it would be unwise to publish the details of the great encouragements that remain to us to keep at work. Protestant mind in Italy has developed itself wonderfully of late, and more favorably for the gospel than at the commencement of the revolution.

G. H. H.

Popery and Common Schools.—We have long been convinced, that the Roman Catholic Church in this country, regards our common Schoolsystem with extreme aversion. This has been made evident by the letters fron Romish Ecclesiastics here to their superiors or friends in Europe, which letters have by one chance and another found their way back to this country—by various hints thrown out in their speeches and newspapers—and by the most obvious undermining which European popery suffers from our common school system, and which must naturally provoke opposition to it. We have long been convinced that the time would come, sooner or later, when war would be declared by that church against common schools.

That time it seems has come in the state of New York already. The *Freeman's Journal* in a late article calls on Roman Catholics in that state, to be prepared to vote the November election, for candidates opposed to common schools. Those schools are pronounced by that Journal to be "irreglious, unjust oppressive, and only fit to be destroyed root and branch." What response this announcement will find among the mass of the Catholic voters, we cannot say. But we do not think the whole body will be wheedeled into a line at once to vote as directed by men, who having received their education in the cloisters of Europe, can only understand enough of American institutions to hate them heartily. Thousands of the Catholic population of this country have experienced the benefits of our school system in the education of their children, and we are not prepared to see them turn round and vote them down.