Science.

The Origin of some Agricultural Inventions.

A Devonshire farmer invents a modification of the rotary churn, in which, by making it revolve in an outer casing of warm water, tempered by the aid of the thermometer, he can at all seasons of the year command the best degree of warmth for separating the butter, and thus finish the process in a time at once brief and uniform. The French minister sees this at the Society of Arts and encloses a description of it to Paris. A model is made, somewhat altered, and exhibited at the "Exposition." A Scotch director of the Highland Society has a copy made of it, carries it over to Edinburgh, where the scientific principles of its construction are highly lauded, and for the next six months all the Ayrshire armateurs are treating their friends to butter made in ten minutes, and amusing them with the wonders of the French churn. A Yorkshire smith, living in the midst of heavy land, fixes harrow teeth into a long cylindrical axle at uniform distances, and fitting two of these axles together, so that the teeth of one shall play between those of the other, when it is dragged along the land, forms a machine admirably adapted for the tearing of heavy brittle clods asunder. It is known to few, and attracts little notice at home; but it gets to Norway. Seen there by an Englishman, it is pronounced, as it is, a thing of first rate excellence, and under the name of the "Norwegian harrow," it obtains a distinguished place in our future agricultural shows. A Scotch Presbyterian minister puts together, in 1825, an adjustment of wheels and scissors-blades, so working that when pushed along a corn-field at harvest-time, it cuts down the grain as if done by hand, and far more cheaply and expeditiously. His brother, a farmer, improves upon, and adopts this machine, and for a dozen successive years, employs it in reaping his crops. But, it also, is seen by few. The National Society gives the inventor a prize of £50, but makes little noise about it. Nobody cares to make a fortune by pushing it, and although, in 1834, several were in operation in Forfarshire, few of the wide-awake Scotch farmers thought of adopting it as a saving of labour, even when the hardest times had come. But four of the machines were sent to New York from Dundee, the chief place of manufacture. Thoughtful, pushing emigrants, settlers in the North American prairies, where wide flat fields, easily covered with waving corn, offered speedy fortunes to those who could command hands to reap it, saw, or heard, or read of these machines. The reaper was re-constructed, modified in different ways, as so complicated a machine could not fail to be, and probably for the better, by ingenious mechanics was brought into successful operation, made by thousands for the farmers beyond the American lakes, and obtained a deservedly nigh reputation, as a means born of doing work well and of saving labour much. In 1849 we saw it at the great State Show in Western New York, and brought it thence to London in 1851. The *American* reaping-machine proved the main attraction of the United States department of the Great Exhibition. Implement makers vied with each other in seeking to secure the privilege of manufacturing the patented machines for the English market; thousands of practical men became persuaded of its economical applicability to our English soil and crops: hundreds of machines were bespoken by English cultivators, and all the while no one knew that the original model machine was at the very time quietly cutting its yearly harvest on the farm of Inch Michael, in the Carse of Gowrie.—*Edinburgh Review.*

Typhus Fever.

A gentleman has handed us the following remedy for typhus fever, taken from a newspaper a few years ago:—

"Put one tablespoonful of yeast in a gill of warm porter; stir it well, and while it is warm give it to the patient repeating it every six hours, while any symptoms of the fever remain; then reduce it to ten hours, and as the patient gets better, increase the distance of time till it becomes once in twenty-four hours.

"This remedy has been used by Lady O'Brien. In seventy-two cases on her estate, seventy recovered. It has since been introduced into the fever hospital at Parsonstown, with great success."—*Cork Constitution.*

The Farm.

Cultivation of Wet Lands.

We are continually applied to for information as to the management of wet lands. We answer either under-drain, and sub-soil plow them, or move to another locality. Sub-soil plowing wet lands without under-draining them is useless, as the sub-soil will again pack itself in a single season as perfectly as before plowing. Deep plowing in wet lands is of but little use. Excess of water is always unfriendly to vegetation, and as most wet lands have outlets much of the matter held in solution may be carried away. The plowing of one day scarcely benefits the growth of another; for when all the surfaces of particles are lubricated by water, the soil soon settles to its original hardness. The presence of water in the soil prevents admission of atmosphere, and, therefore, the chemical changes necessary to render the roots of former crops fit food for future plants do not occur. Acetic acid is loamed and the land becomes sour, full of sorrel, and other parastic plants. Many persons have stated that they have no outlet by which they can drain their wet land, but few instances can be found where the digging of a well at a low point will not furnish this desideratum. It is true that occasionally we find soils in which a well will be contiuually full to its top, but in 95 cases in the hundred, within a few feet from the surface, we will meet with some strata capable of receiving and carrying away large amounts of water.

Many wells of twenty feet or more deep will furnish 500 gallons of water per day, without reducing the height of the water in the well; and the reason, evidently is, that the water for miles around occupying the strata which supplies the well, is struggling to find its level, and, therefore, furnishes any quantity which is taken out from the bottom of the well and which went to disturb that level. For the same reasons if we pour into the well one thousand gallons of water per hour, instead of taking them out, they will only go to increase the height of water in the well to the extent of their depth, after being spread through the whole of this strata perhaps for many miles; and thus a single well of ordinary width and not of extraordinary depth, will often drain an entire farm, and the main drains may readily be made to pass into its mouth. Sometimes the ordinary Artesian boring is found to be fully sufficient for carrying off the results of drains, and these can now be bored so cheaply, that it would be difficult to find a wet field not capable of being restored.—Ed.

Influence of Newspapers on Farmers.

Newspapers wield an influence which control nations, not by brutal force, not by the din and smoke of war, nor the arbitrary mandatees of a despot, but by a still, impulsive power, which penetrates the mind for good or for evil; they exert as great if not greater influence over the public mind than all the orators of the professions as moral or immoral agents. Newpapers conducted by good, well-informed, high-minded editors, will disseminate, in the public at large, as much useful knowledge and as much moral principle, I believe, as our schools and colleges.

Farmers and mechanics are daily reaping benefits from the instructions which they get from reading newspapers conducted by good, scientific, and judicious editors. But few, comparatively, would know the improvements which are yearly taking place in agricultural and the mechanical arts, were it not for this channel of conveyance. Many a man gains knowledge from a source, unconscious from whence he derived it, and of course is unable to render "honor to whom honor is due."

Intelligence seems to spread and enlighten the people in a nation in proportion to the freedom which is allowed by government to the circulation of the thoughts and opinions of each other by newspapers; look at the laboring classes in despotic Europe, where a paper is not permitted to circulate without passing the censorship of a government tool, and see the difference between them and those living under the liberal governments of England, the United States, and all other liberal governments. Under despotic rule, ignorance is the huge chain which binds the people to servitude; when that chain is once sundered the despots tremble in their shoes for consequences; there is no chain strong enough to bind a virtuous and intelligent people. Let farmers, mechanics and all people who are dependent upon their wits and hands consider well their situation and responsibilities, and let them discourage vitiating publications from entering their doors, to do more toward corrupting youth than all the clergy in the community can counteract.

Rotation of Crops.

The subject of the rotation of crops is necessarily an important one. It is a question of chemistry, or the process by which plants live and are nourished. To understand the question requires some knowledge of the substances composing the soil, the water and the air, separate and in contact. It presupposes some acquaintance with natural history, and especially botany, or the science that treat of plants and their properties. The earth, air, and water, are the three grand agents by which the farmer works, and it should be his business to become acquainted with the elementary constituents of these several objects, and the influences they exert over the seeds when in contact. Farmers carefully attending to a few simple experiments, facts, principles, and rules, established by other experimentalists, would obtain by this method so much practical enlightenment, as to well repay them for any trifling pecuniary outlay or time they might incur.

These remarks occur in consequence of reading an experiment which has taken place by Professor Daubeny on the rotation of crops, and on the quantity of inorganic matter abstracted from the soil, by various plants under different circumstances. This gentleman undertook the researches in the expectation of verifying the theory of DeCandolle, who attributed the deterioation experienced by most crops to the deleterious influences of the root excretions. For this purpose he set apart, a number of plots of ground in a Botanic Garden, uniform as to quality and richness, one-half of which was planted each year, for many years, with the same species of crop, and the other half with the same kinds succeeding each other in such a manner that no plot should receive the same crop during the continuance of the experiments. The crops experimented upon were spring wheat, barley, turnips, hemp, flax, beans, tobacco, buckwheat, clover, oats, beets, mint, endive, parsley, &c. After a careful chemical examination of the crops, the Brofessor arrives at the following conclusions:

First. That the falling off of a crop after repetition depends, in some degree, on the less ready supply of certain of the inorganic ingredients which it requires for its constitution; not but that two crops equally well supplied by the soil with these ingredients may take up different quantities of them, according as their own developement is more or less favored by the presence of inorganic matter in the soil in a state of decomposition.

Secondly. That it is possible that a field may be unproductive, although possessing abundandance of all the ingredients required by the crops, owing to their not being in a sufficiently soluble form, and therefore, not directly available for the purpose of vegetation; so that in such a case the agriculturalist has his choice of three methods:—the first that of imparting to the soil, by the aid of a manure, a sufficient quantity of these ingredients, in a state to be immediately taken up; the second, that of waiting until the action of decomposing agents disengages a fresh portion of these ingredients of the soil, (as by letting the land remain fallow;) and the third, that of acelerating this decomposition by mechanical and chemical means.

Thirdly. That it is probable that in most districts a sufficient supply of phosphoric acid and of alkali, for the purposes of agriculture, lies locked up within the bowels of the earth, which might be set at liberty, and rendered available by the application of the artificial means above alluded to.

Fourthly. That the aim of nature seems to be, to bring into this soluble, and therefore available, condition these inorganic substances by animal and vegetable decomposition; and, therefore, that we are counteracting her beneficial efforts when we waste the products of this decomposition by a want of due care in the preservation of the various excrementitious matter at our disposal.

Fifthly. That, although we cannot deny that plants possess the power of substituting certain mineral ingredients for others, yet that the limits of this faculty are still imperfectly known, and the degree in which their healthy condition is affected by the change is still a matter for further investigation.

Lastly. That the composition of various plants as given by various experimentalists differs very widely, and leads us to conclude that we are supplied with an additional argument in favor of the importance of having the subject of ash analysis taken up by a public body possessed of competent means and facilities for deciding between the conflicting authorities, and supplying us with a more secure basis for future calculations.

The above excellent article is from the *Farmer and Mechanic*, and is undoubtedly to a certain extent true in its rationale. We admit freely that many crops will be refused by soils in which the same crops have been grown the previous season, for the reason that the necessary inorganic constituents are not available to plants, and that time is necessary to develope them from their hiding-places in each particle of soil by a further comminution, and by such other influences as are continually going on in the earth; but while this is the cause of the necessity of rotation crops with some plants, there are others that cannot be repeated in the same soil, notwithstanding the presence of large amounts of all the inorganic constituents they require; and this arises from a large deposit of excrementitious matter given off by the crops themselves.

We are aware that this is not true of all the crops,—thus the onion has been grown at Wethersfield for one hundred years, in succession, on the same soil; But could the cabbage be so grown?

If we pull a cabbage from the ground, when it is finishing the formation of its head, and immediately wash the dirt from its stalk under a stream of water, then plunge it in a glass jar of chemically pure water, we shall observe the following phenomena:—In a few hours the water will become milky, in a few more it will deposit a floculent mass, and if this substance be applied around the roots of a growing cabbage it will die, and if applied to a beet or other root, will accelerate its growth.

Now it it evident that cabbages not only receive what is required for their nourishment, but part with large amounts of excrementious matter taken up with water and carried into the cabbage or its root, but not required for its formation or growth.

The accumulation of this excrementitious matter prevents the growth of cabbages, and either until the growing of another crop capable of feeding upon these substances, or a sufficient time for them to undergo a chemical change in the soil is necessary, before cabbages can be successfully grown, and the presence of all the inordinate constituents necessary for the formation of cabbage would not prevent such results.—*Working Farmer.*

Do Crows Reason?

As the question of the rational powers of animals is yet a mooted question, we throw in the following act to "help the cause along."

The miller at Cape Elizabeth, a few days since, saw two crows light upon the mill pond. One got firm footing upon a cake of ice; but the other, less judicious in the selection of his landing place, pitched into some pulpy snow, from which he found it impossible to extricate himself. Crow No. 1 immediately came to his rescue, and tried to push him out of the scrape. Finding, however, that this was impossible, he stopped, cocked his head one side in apparently knowing deliberation, then chatted for a moment with his unfortunate comrade, and flew off.

The miller thought he would watch the *denouement*. In about ten minutes, crow No 1 returned with two others. These three put their heads together in consultation, flew around their imprisoned brother and examined his condition, and then by a joint effort raised him up and stood him upon the ice. This being accomplished, they rubbed against him to warm him, brushed the snow from his wings, and finally all departed together—the saved crow being in the centre of the others, as though it was still necessary to watch after his welfare.

If anybody can produce a stronger incident in *Crow*nological history, let him bring it on —*Eastern Argus.*

A Sentenious Saying of Dr. Witherspoon.—Not to hit a mark is to miss it; almost persuaded to be a Christian is to remain an impenitent sinner; almost to enter the gate to heaven, is to sink down to hell.