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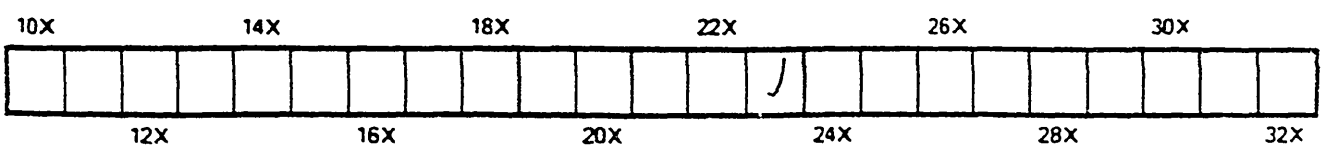

AGRICULTURAL JOURNAL,

AND

TRANSACTIONS

OF THE

Lower Canada Agricultural Society.

VOL. I. MONTREAL, MARCH, 1843. NO. 3.

Farmers have now many advantages in being able to connect "science with practice" in the conduct of their business, which were unknown fifty years back, or even more recently. At the period we refer to, farmers knew very little more than the practical part of Agriculture, and that not very perfectly. No manures were made use of except that from the farm-yard, burned clay, lime, and marl; very few works of merit on the subject of Agriculture had been published, and we believe a periodical solely devoted to Agriculture had no existence. There was not the same necessity for a large production of food fifty years back that there is now, as the population of the world was much less numerous then than at present. What is our position at this moment? We have numerous publications of the greatest merit on the science and practice of Agriculture coming out constantly; we have men of science and practical experience giving us the benefit of their experiments and practice without any expense to us; we have many new varieties of manures obtainable, that have been proved to be very beneficial to crops and grass, and if farmers are not to benefit by all these favourable circumstances and opportunities, it would indeed be extraordinary. It is only very lately the benefits of thorough draining have become known, and we believe it to be decidedly the best of modern improvements. Though farmers may not admit how much they are indebted to those men of wealth, who make experiments at great cost, and report the results to the world, it is not less certain that they derive great advantages from these reports, unless they have resolved to close their eyes and understandings against all instruction, and the most satisfactory evidence. If Agricultural science and practice are not to advance to perfection, the prospect of being able to produce food for a constantly increasing population, is a very gloomy one for contemplation. We do not expect unreasonable results from any improvements in our power to introduce, because we know there are limits to these things. We are convinced, nevertheless, that we have abundant latitude for all our skill and exertion before we are checked by such limits. The field for improvement is ample, and we are not likely to arrive at its boundary during this generation. If we only make all the improvements that are necessary and possible, and that are now known to us, we may rest satisfied with reasonable results, and leave to future generations to work out new experiments and discoveries as they are made. We would remind our friends and subscribers that this Journal is not published with a view to instruct farmers who require no instruction; but, on the contrary, for those who may feel that they want instruction, and also, for those who take an interest in the prosperity of Agriculture, and would be disposed to encourage its improvement. On these grounds, it is presumed, the Journal will obtain the support of many who are not directly engaged in Agriculture. It is the only publication, with one exception, in this noble Province of the British Empire, that is exclusively devoted to Agriculture, and it

will be strange if it should not have ample support amongst a population so dependent upon Agriculture. Whatever merit the Journal may have, it is difficult to believe that any farmer would withhold his support to a publication that can have no object but the advancement of Agricultural improvement, and the general prosperity, even though it would not be deemed by him who would give his support worthy of perusal. It is on public and general grounds support is expected. Every experienced farmer can contribute to the usefulness of the Journal by communicating his superior skill and practice in Agriculture, for the instruction of his brother farmers who may not have had equal opportunities of learning their business. For such communications alone an gricultural Journal might be very beneficial .o the country. If men of experience should find the Journal deficient in practical information and instruction, they can readily improve it by communicating superior information and instruction in the practice of husbandry. This, we conceive, will be the most useful and friendly course to adopt by all who do not find the Journal come up to their standard of perfection.

The following article we copy from a valuable little work, on the "CULTIVATED PLANTS OF THE FARM." Though the whole of it may not be applicable for us in Canada, it contains information that may be useful to the Farmers in any country.

WHEAT.—The word *Wheat* is derived from *hpeace*, Saxon; *weyde*, Dutch; *hwaitei*, Mæso-Gothic; *hweite*, Icelandic, from "hwit," *albus* (Serenius.) It is the grain of which bread is chiefly made.

The generic name of Wheat is *Triticum*, a word very satisfactorily derived by Varro himself from *tritum* (Latin,) *ground* or *rubbed*, because of the manner in which its grain is prepared for the food of mankind. It belongs to the class and order *Triandia Diggnia* of Linnæus; and the natural order *Gramineæ* of Jussieu.

1. Spring Wheat. *Calyx*, four-flowered, tumid, smooth, with imbricated awn; supposed to be a native of Siberia. This wheat may be supposed to be nothing more than a permanent variety of Winter Wheat, obtained by accidental circumstances.

2. Winter or Lammas Wheat *Calyces*, four-flowered, ventricose, even, imbricate, with little or no awn; *ears*, or spikes long, with the grains ranged in four rows, and imbricate; the *chaff* smooth, ventricose, or bellied. and not terminated by awns, or beards. Wheat has, however, occasionally short awns, but not the length of those in Spring Wheat. Native country unknown; the root consists of downy fibres. *Stems*, one or more, erect, straight, from three to five feet high, round, jointed, smooth, leafy. *Leaves*, linear, pointed, flat, many-ribbed, rough, entire, rather glaucous. *Stipula*, jagged, bearded. *Spike*, solitary, two or three inches long, dense, two-ranked, smooth; joints of the common stalk, bearded. *Glumes*, smooth. *Calyx* in the upper part of the spike, with a more elongated point. *Corolla* of the upper spikelets, frequently more or less awned.

Wheat being exposed to the severity of winter, its roots are most wonderfully disposed to withstand the inclemency of the season. The first, or seminal root, is pushed out at the same time with the germ; and that, together with the meal, nourishes the plant, until it has formed the crown. When this has become sufficiently large, it detaches a number of small fibres, which push themselves obliquely downwards. These are the coronal roots. A small pipe preserves the communication between them and the seminal roots. It makes an essential part of the plant, and is observed to be longer or shorter, according to the depth at which the seed has been buried. The crown, however, is always formed just without the surface; and its place is the same, whether the grain has been sown deep or superficially. As the increase and fructification of the plant depend upon the vigorous absorption of the coronal roots, it is no wonder that they should fix themselves so near the surface, where the soil is always the richest. The stalk, straw, or culm, as Linnæus calls it, is three feet high on an average, is jointed, cespitose, or in tufts: seventy-two stalks have been known to proceed from one root. The leaves are smooth, three lines wide, often much more, and on rich grounds of a very dark green colour. The spikes are close, weighty, and several inches in length. The lower flowers are imperfect, as is commonly the case in this order of plants. The glumes, or chaff of the calyx are ovate-lanceolate, and end in a point like a short awn; they each contain, for the most part, four flowers, but sometimes only three, and often five or six; but one or more frequently fall off without producing any grain. The two glumes, or chaffs of the corolla are equal; but the outer one puts forth an awn a little below the tip, an inch or two inches in length; sometimes, however, there is none: the inner one is hollow, awnless, and two-toothed. Between these, lies the seed, or grain, which is

villose, and the largest of its congeners. The *nectaries are small, fringed, and silky.*

A very great many kinds and subordinate varieties are comprehended under this most important and familiar species of wheat, which have not yet been sufficiently investigated either by the botanist or the agriculturist. The chief of these, are the White and Red Lammas Wheat; and these varieties will supply our subjects for description.

3. *Triticum compositum*, or Many-spiked Wheat. *Spikes*, compound. *Spikelets*, crowded. *Corolla*, awned. Native of Egypt, and cultivated at Naples and in the South of France. The *glumes* are smooth. *Awns*, three or four inches long. Linnæus' account of the Many-spiked Wheat is, that it is allied to the Summer or Spring Wheat, but that the spike is four times as large, and a hand in length; formed of spikelets in two rows, alternate, approximating from nine to twelve; the lower ones shorter, but the upper ones single. *Chaff*, smooth, keeled. *Awns* a hand in length. It is probably a variety of *Triticum hybernum*, rather than of *Triticum æstivum*, as Linnæus thought.

4. *Triticum turgidum*, Turgid, or Cone Wheat, and Barley Wheat. *Calyx*, four-flowered, tumid, villose, imbricated, obtuse, with a short point. Native country unknown. The *corolla* varies with or without long awns. The silky or villose glumes alone distinguish this from various awned or awnless varieties of *Triticum hybernum*.

5. *Triticum Polonicum*, Polish, or Poland Wheat. *Calyx*, three or four-flowered, pointed, naked, lanceolate like the corolla, which is compressed with a long awn; teeth of the *rachis*, bearded. Native country unknown. The plant grows large, and yields much flour; but being very easily lodged by rain, it is not much regarded by the farmer. There is no doubt of its being a distinct species. The strength of the whole plant, its large ears, and long, narrow, scarcely tumid glumes, readily distinguish it at first sight. Linnæus defines this *Triticum* as having a two-flowered calyx, the character of *Secale*; but Haller asserts the presence of one, if not two, imperfect florets.

6. *Triticum spelta*, or Spelt Wheat. *Calyx*, imperfectly four-flowered, elliptical, obliquely pointed, shorter than the long-awned corolla. *Straw*, very stout, almost solid. *Spikes*, strong, white. *Glumes*, very Glaucous. The origin of the species is unknown, and the specific character is unsatisfactorily stated It is much cultivated in the southern countries of Europe, and is given to horses in Spain, when barley is scarce. The bread made of it is very dry in quality; but no kind of flour is better for pastry. In the South of France, it is called *épéante blanche*, and is sown in the spring. It ripens in July and August, and requires very strong land. Spelt is supposed to be the *Zea* of the Greeks, and the *Far* of the Romans.

7. *Triticum monococcum*, or One-grained Wheat, or St. Peter's Corn. *Calyx*, angular, strongly toothed, about three-flowered; first floret awned, intermediate one imperfect. Native country unknown. It is much cultivated in the most mountainous parts of Switzerland, where it remains one whole year on the ground. The neat quadrangular form of the ripe ear, as if carved out of ivory, is very remarkable. The straw is hard and firm, and makes excellent thatch. It is less subject to smut than common wheat. The flour is of good quality, and much esteemed for gruels. The bread of it is brown in colour, and light in quality.

For the sake of conciseness, the wheats used in Britain may be reduced to the Red and White varieties, and the Spring and Lammas kinds. The latter is thought to have been got from the former by accidental circumstances, which have imparted the persistent quality. The awns constitute no permanent distinction in any graminous plant.

The Red Wheats are more hardy than the White varieties, and produce more largely on poor soils, and in late situations; but they are inferior in value, as the colour would tinge the flour, if so far driven as white wheats are in the process of grinding. But the flour of red wheats is of very fine quality. The different colours are entirely owing to the soils on which they grow, and it is not a little remarkable, that the grain sooner changes colour than the chaff or straw.

The soil that is best adapted for the growth of wheat, is a deep loam, inclining to clay, with a dry firm subsoil. It requires a large portion of alumen, and also of calcareous matter. Pure clays do not yield large quantities of wheat, but the quality is generally good.

A certain portion of nitrogen is essential to the production of good wheat, that element entering into the composition of the gluten, which will be found to abound in proportion as nitrogen exists in the soil, or can be supplied from the atmosphere. The experiments of Liebig seem to show, that the nitrogen of the atmosphere will not enter into the substance of plants, except in the form of ammonia; and hence the efficacy of manures has, of late, been estimated by the quantity of ammonia which they can produce. But this theory requires much experience for the confirmation of it.

Wheat thrives best on clays that have been well wrought, cleaned, loosened, and pulverised, by the process of fallowing; for, though the plant requires a compact subsoil, some land is found so very stiff and adhesive in quality, as to require loosening of the texture to adapt it for the vegetating of seed, and for the tillering of the roots of plants. Lands that appear to be loose on the surface will produce wheat, provided the subsoil be firm and compact, and at the same time healthy, and not of a repellent nature.

Besides being sown on bare summer fallows,

wheat follows as a crop on pea and bean grattans with one ploughing, and on potato and turnip fallows, and is also sown after tares, and on grass lands that have lain for two, three, or more years in pasturage.

A brief mention will be made of each process.

Clay-lands will have been duly prepared and cleaned by repeated ploughings, harrowings, and rollings, and the lime and manure applied and ploughed in by the month of September; and during that month, and very early in October, the seed-furrowing of the land will commence; and where the extent of clay-lands is great, and where the quality of the soil is wet, and the climate precarious, the whole strength of the farm must be combined for this most important purpose. The first day, ploughing only goes on; on the second, a sower enters, followed by two or three pairs of two-horse harrows, which will finish all the land that is ploughed. As soon as any part of a field is finished by harrowing, the water-furrows must be carefully cleaned out, and all cross-cuts drawn by the plough, and cut by the spade, that no water stagnate in any part. This point requires the most serious attention to keep wet lands artificially dry. On the wetter clays, sowing the grain in broadcast is yet found preferable to drilling, owing to the often inconvenient breadth of the ridges, the waxy adhesivenesss of the soil, and the great precariousness of the climate. In such soils, it is often necessary to harrow the ridges, by means of harrows attached to a tree stretching across them, and the horses walking in the furrows. Where the ridges are permanently wide, the tree reaches from the furrow to the top of the ridge on which the horse walks, which prevents the poaching of the side of the ridge by the feet of the animal. In every case of wet clay-lands, the water-furrows and cuts must be made with the least possible delay. A dry seed-time is of very great importance on such lands; and yet in wet seasons, when the crop is thinner on the ground, the ears are always found to be plump and heavy. But this may not compensate for the want of number of plants. At the same time, too dry weather does not suit for sowing clay-lands, if the clods, from hardness, do not break with the action of the harrows. A medium state is preferable.

Wheat is sown on the heavier turnip soils after the Swedish turnips are removed in autumn, and on the potato-grounds after the crop is raised. In both cases one ploughing is sufficient, with a previous harrowing, to prepare the ground for the drill machine. The lands that can be made to produce these green crops are of a drier nature, and the attention to water-furrows and cuts may be somewhat relaxed; but in many cases they are still necessary. The same may be said of pea and bean grattans, and of tare stubbels; only in case of foulness, the ground may require a scuffling to clean it of weeds before it is ploughed. On stiff close-bottomed loams, these crops form an excellent preparative for wheat.

In what is called the Norfolk rotation, viz., turnips, barley, clover, wheat; this latter plant gets one ploughing from grass, and the seed is usually deposited by the drill machine. The decomposition of the roots of the clover is thought to afford very soluble food for the wheat; and the natural looseness of the land is in many cases remedied by the consolidation produced by an implement called the "land-presser," which follows the ploughs, and presses the seams of the furrows by means of cast-iron cylindrical wheels, grooved to suit the interstices. But lands that require this artificial consolidation are not properly wheat soils, and the firmness had better be produced by the land remaining longer in grass. No finer specimen of farming can be seen than the drilled wheats in Norfolk, the rows straight as a line, and not a strayed pickle.

Wheat is, in some cases, sown by dibbling the seed in the ground, by means of prongs making holes in the land, into which the seeds are dropped. Machines are now invented to perform this work very correctly. Much benefit is supposed to be derived to light lands, by the treading of the feet of the work-people employed in performing the process; but, as before observed, lands that require artificial consolidation are not wheat soils, and may better be employed in lighter cropping. On all wet or damp soils, dibbling is altogether unsuitable, and drilling also, where wetness and adhesiveness prevail.

Four single times of harrowing are usually sufficient on proper wheat-lands, in order to cover the seed, and two on lighter loams after the drill-machine. Three bushels of seed to an acre may be stated as an average allowance, and less in early seasons, and on good lands.*

Previous to being sown, the seeds of wheat are now almost universally steeped in solutions of corrosive substances, in order to destroy the seeds of disease that are supposed to adhere to pickles. Various substances have been recommended, and are used; the most common are, stale, urine and common salt in a strong solution, made so powerful as to swim an egg. This liquid, or the stale urine, is put into a close tub: a bushel of seed is put into a smaller vessel, with a thin iron bottom thickly pierced with holes, which is sunk in the close tub, when the liquid rises; and on being strained, the light grain floats on the top, and is very carefully skimmed off. After frequent stirrings, the small vessel is raised, when the liquid escapes downwards into the close tub, and the seed, after being well dripped, is thrown on a boarded floor, encrusted with quick lime, carried to the field, and sown immediately.

*This quantity of seed is not necessary in Canada: from 1¼ to 2 minots, according to the state and fertility of the soil, is sufficient.—Ed. A. J.

How the effect of such a preparation is communicated so as to prevent disease, yet remains a secret; but the fact is settled beyond all dispute.

Wheat should be reaped before it is dead ripe, or the ears bend downwards; the yellowness of the straw below the ears indicates the readiness; and the meal will harden after being cut, and is always finer in quality than when dead ripe. The straw is also more juicy. The crop is best cut by sickle, and tied into sheaves; the straw is too tall, and the ears are too heavy for being mowed, as they fall over the cradle scythe. The expense of cutting an acre of wheat varies from six shillings to ten.

It is very customary to cut wheat crops high above the ground, and to mow and secure the stubble afterwards for the purpose of litter. But it may be preferable to cut the crop low at once, and tie it into sheaves of a moderate size. The crop is then built into ricks, or lodged in barns, thrashed by machine, or flail, and winnowed for use. These processes are all well understood.

Hard wheats contain most *gluten*, which, containing a portion of nitrogen, readily promote the rising of the *dough*, which is so very necessary for making good light bread. The quantity of this substance varies with soil and climate, from 5 per cent. in some soft wheats, to 30 per cent. in the hardest and most flinty. This presence of gluten fits the Italian wheats so much for rich paste. The soft wheats contain most starch, and are, therefore, the most fitted for brewing or distilling.

The choosing of wheat for seed, is a matter of very great importance. The finest wheat does not always make the best seed; but it depends on the nature of the land on which it grows. The proportions of gluten and starch in wheats vary much, and by those proportions, a perfect vegetation has been found to be very much influenced. These proportions are varied from the original seed by the quality of the soil on which the wheat grows, by its containing more animal manure or vegetable *humus:* and by increasing the one or the other, we may bring our wheat to have all the properties of the original seed. Some places in certain districts soon become known for yielding good seed; and to these, recourse must very frequently be had, as wheat is known to degenerate very quickly in other soils.

Wheat is very subject to diseases of different kinds; the most common in Britain being rust, mildew, ergot, the wheat midge, burnt-ear, and smut. Rust and mildew are very similar, and are consequently often confounded, and appear by infecting both the grain and the straw with a yellow ochre, which prevents the growth and the further development of the plant. The disease evidently proceeds from an atmospheric stroke, often pervading whole fields in a zig-zag direction, and following the course of the aerial blast. Against these diseases, no remedy has been found. The ergot is a bony excrescence into which the seed is transformed, and it is supposed to be caused by the puncture of some insect, introducing a virus which entirely alters the functions of the germ. It has a poisonous quality, and also a medicinal one. The wheat midge is allied to the Hessian fly, which, at one time, caused such wide depredations in America and Canada. It deposits its eggs at the root of the germ in the ear, and prevents the filling of the grain, the maggot living on the nutritive juices which should produce the farina. This disease is not very prevalent in Britain. The disease called burnt-ear, pepper-brand, and dust-brand, destroys the whole fructification of the plant, and attacks oats and barley, as well as wheat. It is often confounded with smut, but differs in having no fetid smell, and so very little specific gravity, that it is easily blown away by light winds, and (beyond the loss of the grain so turned into a light dust) no detriment arises to the crop, as in the case of smut infecting sound grain, and deteriorating the flour. Moist situations often produce many burnt ears, and are consequently supposed to proceed from the dews lodging in the ears, and producing rottenness. Washing and steeping form no preventatives, as in the case of smut, for the dust does not adhere to any other body. It has been supposed to be a variety of smut, which attacks the external part of the fructification before the skin of the grain is formed. But on this point, nothing beyond supposition exists.

Smut is the most prevalent and the most fatal of all the diseases which infest the wheat plant. It is found in almost every country where wheat is grown, being most prevalent on wet soils and in humid climates. The pickle is transformed into a brownish black powder, very fetid in smell; and it imparts its noxious qualities to the bodies to which it adheres.

Of the numerous and discordant theories, opinions, and conjectures, that have been promulgated on the subject of this affection of the wheat plant, no one has yet progressed beyond the limits of bare supposition; and even the most scientific theory yet entertained, of attributing the disease to the action of the seeds of parasitical fungi, under various botanical appellations, has not enlightened the agricultural world, otherwise than in exhausting patience, and arriving at no conclusion. Experience has long ago most amply shewn, that the disease is infectious: but how this infection is communicated, forms the grand puzzle, as sound and diseased grains are found placed side by side, on the same ear; and sound and diseased ears are found to proceed from the same root. This circumstance shows, that the infection does not proceed regularly from the root, or every part of the plant would be affected alike.

The disease is very infectious, and is cured, or at least very much modified, by steeping the seeds, previous to being sown, in strong solutions of corrosive substances. Jethro Tull relates,

that this fact was accidentally discovered by the sinking of a ship near Bristol, which was laden with wheat, and which being afterwards sold at a low price, was bought by the poor farmers in the neighbourhood, and sown by them for want of better, escaped smut, when nearly all the wheat in England was infected. The steeping of the seed, on being repeated, gave the same results, and has led to the use of other corrosives. The efficacy of corrosives has been most satisfactorily proved in the case of seeds being purposely rubbed and infected with smut-powder, and then washed, and which shewed fewer diseased ears than where washing of the seed was not applied. And this fact has been amply settled by a majority of similar results.

This is all that is known in the present state of science, as to the cause and prevention of smut. The real nature of the disease has hitherto eluded the search of the most scientific inquirirs; and the veil which nature has drawn over many of her works yet remains unbroken. But a hope may be very reasonably entertained, and even very confidently expressed, that the very great advances that have been lately made in scientific knowledge, and the unceasing efforts of genius in endeavouring to explore the secrets of nature, may soon render the mystery of smut as clear and intelligible as many other arcana of nature, which half a century ago were reckoned equally obscure. But on these subjects, it would be presumptuous to be sanguine, and unphilosophical to despair.

OBSERVATIONS OF THE WEATHER.

By the late Rev. W. Jones, of Pluckley.

Mists.—A white mist in the evening, over a meadow with a river, will be drawn up by the Sun next morning, and the day will be bright. Five or six fogs successively drawn up, portend rain. Where there are high hills, and the mist which hangs over the lower lands draws towards the hills in the morning, and rolls up to the top, it will be fair; but if the mist hangs upon the hills, and drags along the woods, there will be rain.

Clouds.—Against much rain, the clouds grow bigger and increase very fast, especially before thunder. When the clouds are formed like fleeces, but dense in the middle, and bright toward the edges, with the sky bright, they are signs of frost, with hail, snow, or rain. If clouds breed high in the air, in thin white trains, like locks of wool, they portend wind, and probably rain. When a general cloudiness covers the sky, and small fragments of clouds fly underneath, they are a sure sign of rain, and probably it will be lasting. Two currents of clouds always portend rain.

Dew.—If the dew lies plentifully on the grass after a fair day, it is a sign of another. If not, and there is no wind, rain must follow. A red evening portends fine weather: but if it spread too far upwards from the horizon in the evening, and especially morning, it foretells wind or rain, or both. When the sky in rainy weather is tinged with sea green, the rain will increase; if with deep blue it will be showery.

Heavenly Bodies.—A haziness in the air which fades the sun's light, and makes the orb appear whitish or ill defined; or at night, if the moon and stars grow dim, and a ring encircles the former, rain will follow. If the sun's rays appear like Moses' horns, if white at setting, or shorn of his rays, or goes down into a bank of clouds in the horizon, bad weather is to be expected. If the moon looks pale and dim, we expect rain; if red, wind; and if of her natural colour with a clear sky, fair weather. If the moon is rainy throughout, it will clear at the change, and perhaps the rain return a few days after. If fair throughout, and rain at the change, the fair weather will probably return on the fourth or fifth day.

Wind.—If the wind veers about much, rain is pretty sure. If in changing it follows the course of the sun, it brings fair weather; the contrary, foul. Whistling or howling of the wind is a sure sign of rain.

Meteors.—The Aurora Borealis, after warm days, are generally succeeded by the cooler air. Shooting stars are supposed to indicate wind.

Animals.—Before rain, swallows fly low; dogs grow sleepy and eat grass; water fowl dive much; fish will not bite; flies are more troublesome. Toads crawl about; moles, ants, bees, and many insects are very busy; birds fly low for insects; swine sleep, and cattle are uneasy, and even the human body.

Observations of Dr. Kirwan.

1. When there has been no particular storm about the time of the Spring equinox (March 21), if a storm arise from the east on or before that day; or if a storm from any point of the compass arise near a week after the equinox, then, in either of these cases, the succeeding summer is generally *dry*, four times in five.

2. But if a storm arise from the S. W. or W. S. W. on or just before the Spring equinox, then the Summer following is generally *wet*, five times in six.—*Garden Almanac.*

The following extract will show the quantity of rain that fell in England in the neighbourhood of London last year:—

"In taking a brief retrospect of the year 1847, we find it to be one of the dryest years on record. In no month did the fall of rain arise to two inches in this locality. In January, March, and June, the fall was below an inch. The fall for the whole year was 14.75 inches, being about ten inches below the average fall of twenty years. The number of wet days during the year was 149, being thirty days below the average. In 1802, the annual fall was 18¼ inches; in 1807, the whole fall was 18 inches. Hence 1847 has been

the dryest year of any on record in my possession. The highest temperature for the year, 88 degrees, occurred July 14; the lowest, 13 degrees, Feb. 11; making a range of temperature 75 degrees; mean temperature of the year, 49.78, nearly the annual average. The highest barometer occurred on the 3rd March (30.56), the lowest (28.53) occurred on the 7th December; range, two inches. Mean pressure for the year, 29.735, which is nearly the average of the year.

We believe the past year in Canada had very much the same character for drought and heat as in England. It appears, by late newspapers, that at St. Petersburg, up to the 21st December, they had no snow on the ground, but hard frost and a clear sky.

COMPOSTS MOST SUITABLE FOR GROWING FLOWERS.

Carnations.—1. Two-thirds fresh loam: one third rotten frame dung, with a little sand.

2. One-half loam; one-half rotten frame dung, with a little sand.

3. Five-sixths of No. 1, or No. 2; one-sixth leaf mould, good for Piccotees.

4. One-third loam, one-third peat, one-third two-year old cow dung.

Ranunculuses and Anemone.—Two-thirds loam, one-third rotten cow dung.

Dahlias and Narcissuses.—Loam well manured.

Hyacinths.—1. One-third sea or river sand; one-third loam; one-fourth rotten cow-dung; one-twelfth leaf mould.

2. Two-sixths grey sand; two-sixths well-rotted cow-dung, one-sixth tanners' bark, quite rotted; one-sixth tree leaves, well rotted.

Pinks.—Two-thirds loam; one-third two-year old cow-dung.

Tulips.—Good sound loam.

Auriculas.—1. One barrowful of loam; one ditto leaf mould; one ditto old frame dung, one ditto two year old cow-dung; one peck of river sand.

2. Two barrowsful of sandy loam; one ditto leaf mould; one ditto two year old cow-dung.

3. One-half rotten cow-dung; one-sixth loam; one-eighth leaf mould; one twelfth sand; one-twenty-fourth decayed willow wood; one-twenty-fourth peat; one-twenty-fourth ashes of burnt vegetables.

Polyanthuses.—1. One barrowful of sandy loam; one peck of leaf mould; one ditto old cow-dung.

2 One barrowful of well-rotted cow-dung, or leaf mould; one-half ditto white sand; two ditto good loam.

Heartsease.—Three barrowsful of fresh loam; one ditto one-year old horse-dung; one peck of sand.—*Garden Almanac.*

CULTIVATION OF PARSNIPS, CARROTS, &c.

Sandy soils are eminently calculated for the production of the Carrot. Light sandy loams, are also well suited for that crop.

All soils of a peaty character, well reclaimed moor or bogs, afford great facilities for cultivating the Carrot, for in all such it feels quite at home, and will seldom disappoint the farmer, unless by his own mismanagement. It is almost fruitless to attempt the cultivation of the Carrot, unless the ground is very deeply worked. It should be all trenched or subsoiled, at least 14 inches in depth, and the more the better. Carrots should follow a white grain crop, and be succeeded by another. They succeed best in drills sufficiently wide to admit the horse and hand-hoe between the rows. When the cutting plough and drill harrow are to be called into requisition, the drills should be from 20 inches to 2 feet apart; but they can be cultivated in drills from 12 to 14 inches apart, and tilled with the spade and the hand-hoe, which is more suited to small farmers.

The ground should receive a very deep, bold tillage, prior to winter; and it is a good plan to apply the manure at that period, as it is then thoroughly incorporated with the soil in spring, and has a tendency to preserve the Carrot from canker, which the application of manure at the time of sowing is often calculated to induce. When this plan is adopted the ground is cross-ploughed, harrowed, cleansed, properly pulverized, and formed into drills, either with the spade or the plough, in March—for Carrots should not be sown later than the latter end of March, or first week in April. The tops of the drills should be then flattened with the roller or back of the spade. If the drills are large, the Carrot seed may be sown in diagonal rows across the top of the drills, about 8 or 10 inches apart. If the drills are small, the seed should be sown along the top of the drill in one contiguous row. A channel should be made with the corner of a hoe or pointed stick, into which the seeds should be carefully sown by the hand. The seed should be previously mixed with sand, and well rubbed in the hand to make the seeds separate.

About 7 or 8 pounds of seed is requisite for an Irish acre, (4 lbs. for a Canadian arpent,) if the seed is clean. After the seed is sown a little of the finest mould should be applied upon the top of it, either by the hand, or with a rake. The drills should then be rolled, to consolidate or compress the surface. The seeds of the Carrot are often covered by the roller alone.

When the manure is applied in spring, it should be very well prepared. After the drills are formed the manure should be spread between the rows, as for potatoes, and covered in the same manner, and the same plan followed as that which I have already pointed out.

When the Carrots are six or eight inches above ground, they should be carefully trimmed with

the hand, and should be left at a distance from each other of from six to eight inches along the drills; they may be left a little closer when they are sown across the drills. This thinning may be partial at first, for the superfluous plants afford good feeding for pigs; but do not let this tempt you to allow them to remain too long unthinned, so as to rob, or in any way interfere with, the growth of the plants, which are to constitute the crop. Carrots may also be sown upon a flat surface, by making channels with the corner of a hoe, about fourteen inches apart, into which the seed should be sown, and covered with a rake or bush harrow, or a turn of the grass-seed harrow; after which apply the roller.

The white Belgium Carrot is by far the most productive, but the Altringham is more nutritive, weight for weight.

Carrots should be raised with a grape or three-prong fork, about the middle of November, or later if the weather be favourable, and vegetation still more or less active. They may be pitted like potatoes, or built up against the side-wall of a house in an oblique direction, and well thatched. In all cases they should be liberally mixed with sand or dry turf mould, in the pit or wherever they are stored.

The mode of sowing, and subsequent cultivation, &c., &c., of the parsnip, is so similar to that of the carrot, that I need not notice it separately. They require, however, to be a little wider between the drills, and between the plants.

The following return just published by the House of Commons seems to throw light upon the point.

The Corn Trade.—Some interesting statistical information is given in a Parliamentary return (yesterday printed) of the importation of foreign grain since the passing of the Corn Law Repeal Act (9th and 10th Victoria, cap. 22) on the 26th of June, 1846. From the 26th of June to the 5th of November, of wheat and wheat flour there were—5,281,814 quarters imported (4,609,334 foreign, and 672,480 British Colonial), whilst the quantities entered for home consumption in the United Kingdom in the same period were, 7,229,916 quarters (6,547,656 foreign, and 682,260 British Colonial); of barley and barley meal in the period there were 1,038,981 quarters imported (1,034,868 foreign, and 4,113 British colonial). The quantity entered for home consumption was 1,859,348 (1,155,218, foreign, and 4,130 British colonial). Of oats and oatmeal the quantity imported was, 2,238,088 (2,169,240 foreign, and 68,848 British Colonial). The quantity entered for home consumption, 2,438,799 (2,369,774 foreign, and 69,025 British Colonial). Of rye and rye meal the quantity imported was 267,832 (267,756 foreign, and 76 British Colonial); the quantity entered for home consumption 267,875, (267,799 foreign, and 76 British Colonial). Of peas and bean-meal the quantity imported was 496,827 (496,604 foreign, and 223 British colonial); the quantity retained was 579,141 (578,918 foreign, and 223 British colonial). Of Buckwheat and meal the quantity imported was 45,299, all foreign; and the quantity entered for home consumption was 45,955 foreign Of bere and bigg the quantity was 491, which was entered for home consumption. Under the head 'Aggregate of all sorts' the quantity (foreign and colonial) imported was 13,845,756; the quantity retained for home consumption (foreign and colonial) 16,841,282 quarters. The importations have been reckoned from the 26th of June, 1846, when the Corn Law Repeal Act came into force, to the 5th of November last."

We append to this a return moved for by Mr. Cayley, which includes the month of October, one of enormously large import of grain, while Sir Charles Wood's statement came down to the 10th of October only.

"*Foreign Grain.*—An account moved for by Mr. Cayley shows the quantity of grain that has entered the country under the operation of the Act of 9th and 10th Victoria, cap. 22, commonly called the Corn Law Repeal Act. It appears that since the passing of that Act, up to the 5th of November last, 7,229,916 quarters of wheat and wheat flour (chiefly foreign produce), 1,159,348 quarters of barley and barley-meal, 2,438,769 quarters of oats and oatmeal, 167,875 quarters of rye and rye-meal, 306,304 quarters of peas and peas-meal, 579,141 quarters of beans and bean-meal, 4,313,413 quarters of Indian corn and meal, 44,995 quarters of buckwheat and meal, and 491 quarters of bere or bigg, were imported and entered for home consumption in the United Kingdom, making a grand aggregate quantity of all sorts of grain amounting to 16,341,282 quarters."

We extract the following observations from an article on the glass of Bohemia:—

"This beautiful article is manufactured in various parts of Germany, chiefly in Bohemia, and always in the woody, mountainous districts. The materials from which the glass is formed consist chiefly of the same as those used in England; the manufacturers themselves seem to believe that there is no difference except in the proportions of the materials, and in the fuel, which is exclusively wood, and produces, by a little attention, a more constant and intense heat than can be produced by any coal; the feeding the furnace with the latter material, they say, always creates a change in the temperature detrimental to the fluid above and never sufficiently intense. The wooded mountains of Bohemia are entirely inhabited by a population, whose industry, morals, hospitality and kindliness of manners, do honour, not only to this rich and beautiful kingdom, but to the whole human race. Clean to a proverb in their

houses and persons, hospitable and amiable in their manners, simple in their habits, cheerful and devoted in their religion, they form, perhaps, the happiest community in the world. In passing through the country, a stranger would never find out that he was in a manufacturing district, but might fancy himself in the green valleys of a partly pastoral, partly agricultural, people.—Thickly inhabited, the beautiful little cottages, clustered into villages, or scattered along the glens, or sides of the hills, are embowered with fruit trees, and encircled with shrubs and flowers, which each cottager cultivates with a zeal peculiar to his race; on every side rich fields of grain or pasture stretch out like a vast enamelled carpet between the hills which are clothed in dense forests of spruce, fir, pine, and beech, filled with deer, roe, and capelcalzie; they extend in every direction, far beyond the reach of the eye, one vast cloud of verdure. The fabriques, or factories, are placed generally in the middle of one of these villages, the extent of which can only be known by going from house to house; so closely is each hid in its own fruit-bower, and so surrounded by shrubs and flowers, that the eye can only pick up the buildings by their blue smoke, or get a glimpse of them here and there as you advance; thus some of the villages are elongated to three miles, forming a most delicious walk along its grassy road, generally accompanied by a stream, *always* overhung by a profusion of wild flowers, the mountain-ash, and weeping birch; many of the former only to be found in our gardens."

CHRISTMAS PRIZE CATTLE SHOW.

SMITHFIELD MARKET, Monday, Dec. 13

The animadversion of *The Times* last year, combined with the judgment of reflecting persons, as to the practice of gorging animals intended for exhibition at the Annual Prize Show, have not been without effect in producing an abatement of what had become positively offensive to the sight, as well as involving a preposterous waste of trouble and expense. The great "fat" question is now subsiding into reasonable limits. On this subject it will be remembered, that the Smithfield article of 1846 contained the following remarks, which it will not be irrelevant to quote in the present place—"It has been whispered that the recent articles in *The Times* have been the subject of earnest deliberation among the members of the committee, and that while the powerful arguments of that Journal on one side of the question are admitted, on the other hand it is asked—are theoretical opinions to weigh against the judgment and experience of practical men? Whether anything of a positive nature has resulted from those deliberations is as yet uncertain, but it is not improbable that the strictures in *The Times* will, ere another year, have produced some effect upon the character of the show." Whatever influence *The Times* may have had in leading to an improvement in this respect, it is certain that this year's exhibition is much less objectionable on the score of excessive obesity than any preceding one for a long time past. The fact is gratifying in so far as it indicates that the owners, feeders, and breeders of cattle are accessible to reason, even on topics on which they might, not unwarrantably, conceive themselves to be the best judges. But, though the work of improvement has commenced, it must be yet carried on to a considerably greater extent. Admitting that it is a legitimate right on the part of noblemen, gentlemen, graziers, and others interested in such matters, to exercise their own discretion in the trial of experiments with a view of bringing animals into the most perfect condition at the cheapest rate; what is contended for, on the other hand, is that no such result has been produced by the course they have pursued. What they really have produced have been enormous masses of fat, not at a cheap, but at a dear rate; while the greater portion of the fat itself has been only fit for the tallow-chandlers, and they even complain of it as making bad tallow. Undoubtedly weight and worth are objects entitled to the first consideration, for the standard of profit is the greatest quantity of the best quality at the earliest maturity. But have these objects not been frequently lost sight of in a desire to produce mountains of unnatural flesh, for that flesh must be unnatural which is forced by a departure from all the operations of nature herself? What is required is a due admixture of fat and lean, combined with symmetry of form, and this at the lowest cost. When this purpose is accomplished, little will be left to be attained. Having touched only incidentally upon symmetry, it must not, on that account, be thought too little importance is attached to that branch of the subject. On the contrary, it is one of the principal points of the whole question, for the beauty of an animal is a material argument in favor of the skill and judgment of the breeder, and implies that it has other more solid and valuable qualities. If it were a question whether the Smithfield Club Cattle Show has answered the expectations to which its commencement gave rise, some difference of opinion might exist as to that point, but that upon the whole it has been productive of good may be taken as a position universally granted. By exciting a spirit of emulation it has stimulated the energies of breeders to vie with each other in rearing cattle by new, ingenious, and useful methods. The strictures that have been made upon its general character of late years have not been designed to injure it in public estimation, but they have sprung from an earnest wish to see an institution of a chiefly admirable tendency divested of everything in the shape of objection, and this could be done only by adverting to its abuse or defects.

Some observations were made during the cattle show, not reflecting on the impartial distribution

of the prizes, but expressive of surprise at the coincidence, from year to year, of the preference given to the Leicestershire sheep, to the exclusion of those of Oxfordshire and Glocestershire, many of the latter of which have often, and particularly the present year, exhibited great merit. No imputation was cast upon the uprightness of the judges; but the fact was mentioned as rather singular, for which reason it is repeated here. There may be nothing in it, but the question was pointedly asked—Are not the majority of the judges selected from Leicestershire or some of the adjacent counties?

Another matter was also spoken of, which, on account of its novelty, deserves a word of notice. It seems that amongst the judges appointed to award the prizes there is not a single butcher. In the opinion of some, butchers ought not to be excluded, as the judgment of the more intelligent individuals of that body would be entitled to weight; while others think the butchers would be too apt to look at substance only, and make form and symmetry but subordinate considerations.

The show for the present year was somewhat inferior in numbers to the last, but the beasts were of a more equal average in point of quality.—*Times.*

ON THE NECESSITY OF A MORE ENLIGHTENED AND EXTENDED SYSTEM OF AGRICULTURAL EDUCATION.

TO THE EDITOR OF THE MARK-LANE EXPRESS.

SIR,—The importance of the subject to which I would direct the most serious attention of the agricultural community is, I am sure, a sufficient apology for intruding my observations on your notice.

Education, properly directed, has such an immense influence, not only on individuals, but on classes, and the nation at large, that I am impelled by a sense of duty to our country, to drag the subject before the unwilling attention of the farmer.

Though there are few exceptions in enlightened quarters, yet the notion is too prevalent among some farmers that the so-called education which they themselves received when young is quite sufficient for the rising generation. Such men are content that while the other classes of the country are receiving an education in some measure suited to their intended pursuits in life, that their children shall be allowed to enter into the great arena of life in a great measure defenceless compared with the mailed and armed antagonists with whom they will have to cope; they are content that with an inferior amount of knowledge their children shall be left to contend with those who will bring a superiority of science with at least an equality of practice. The results of such lamentable oversight or ignorance will be that the original cultivators of the soil will be as effectually driven from their ancient possessions as were our barbarous ancestors by the strategy and skill of the legions of the victorious Romans.

It is to prevent the inevitable effects of such short-sightedness that I would endeavour to inform the minds and arouse the fears of the present generation of farmers, in order that their offspring may at least have some opportunity given them to prepare in a suitable manner for the difficulties which they will hereafter encounter. It is not in the order of things that for the future the farmer can successfully proceed without increasing his knowledge of science. The farmer's pursuits are closely connected with Nature's operations; yet how often is he found, from ignorance of her laws, engaged in an equal contest against her! The most varied phenomena influence in turn the produce of his farm or the amount of his profits. While full many a farmer rests in happy ignorance of their existence, the most active chemical affinities are at work in his soil, in his manure, in his crops;—The earth which he cultivates contains within itself the marks of its origin, which indicate the operations and changes which it has undergone, but to him they exist as does the landscape of nature to the eyes of the blind. Of the structure and functions of the different organs of the plants which he cultivates, or of the animals which he feeds, he entertains ideas most mysteriously confused; and, in fact, though Nature is working around him and for him, yet he is often totally unacquainted with the powers and extent of her operations.

And why all this? Because he has never yet had the eyes given him rightly to observe. He has never been made acquainted with the means which *practice in science* has pointed out as the best means of observing and detecting truth. His mind has never undergone that intellectual discipline which not only strengthens its subject, and gives power in the search after truth, but which also most efficaciously assists in the detection and overthrow of error. He has not been armed so strong in the truths which science has discovered, as to be able to cope with the power by which ignorance is so obstinately defended. Truth and error are often with him the same, for want of the means of distinguishing them: and effects are constantly referred to causes, to which they have not the most remote relation. In fact, in how many instances are his views narrow, his ideas limited, his knowledge small, his ignorance unbounded!

My remarks may, by many, be thought too severe; but though generally throughout the country there are many bright examples to the contrary, and while many counties are distinguished by the eminent agriculturists they have produced, yet I am pursuaded, from my own experience, of the general application of my remarks.

It is now nearly ten years since I began in my public lectures to call the attention of the farmer to the necessity of a more enlightened plan of

education, and the views I then and since have continually inculcated have been carefully put in practice in our own school. It is a mark of the advance which this question is making, that many other establishments have since arisen, who have directed their attention to an improved agricultural education; *but what are these among so many?* While antiquated plans for the dissemination of useful information continue to be acted upon by far the greater majority of country schools, and until a better system be extended to them, the advantages of science must necessarily be limited to a few. And the thinking farmer should bear in mind, that so long as he continues to be content with the miscalled education which most schools afford, so long will he find few masters who will make much innovation in their plans by the introduction of more improved methods, and a more extended series of studies.

The sciences of chemistry, botany, and geology, unfold to the mind so many new views, impart so much information, and are in every way so well adapted to assist the farmer in improving his practice, and forming a rational system of agriculture, that they can no longer with safety be neglected as a part of the education of the rising generation of agriculturists. And whenever we find the farmer insisting that his son be made acquainted with these sciences, we shall soon find a reformation in the provincial schools of this country.

But even though knowledge be increased, and opportunities be given, and seed be sown, and a return be expected, yet if the harvest be not gathered in, the labour will be wholly in vain. It therefore would not be amiss for some of our enlightened and generous landlords to employ their arithmetical and mathematical capabilities, in the pleasing task of calculating the amount of which the tenant farmer is annually defrauded by the unlimited preservation of game.

Though last not least, the education of the agricultural labourer is a matter of the highest importance. It will not be denied, that if he were to receive an education adapted to the practical operations he subsequently will be called upon to perform, the farmer himself would be greatly benefitted by the increase of intelligence and skill his workmen would undoubtedly possess. It is therefore to be hoped that the wants of this class of the community will not be overlooked, but that the light of science and of truth, whilst it illuminates the palace and mansion, may be permitted to dissipate the gloom and darkness of the cottage. In conclusion I trust public attention will become strongly aroused upon the subject of education; that information and knowledge of a proper kind will be more widely disseminated; that "practice with science" (that phantom of the imagination, so often heard of, and so seldom seen) may in reality become a denizen of our land; and that the energies and talents of all may in their proper spheres be directed to the improvement of the industrial resources of the country, to the increase of the physical comforts of the people, and to the intellectual and moral advancement of the nation.

J. C. NESBIT.

Agricultural and Scientific School,
Kennington, December 20, 1847.

FARMERS' CLUB.

EXTRACT FROM "SUGGESTIONS FOR THE FORMATION OF A FARMERS' CLUB, FOR THE IMPROVEMENT OF THE PRACTICE OF AGRICULTURE, IN THE NEIGHBOURHOOD OF READING."—While the present age is famous for the improvements it has seen introduced in every branch of science and manufacture, in no point of view perhaps is England more conspicuous than in the advancement now making in AGRICULTURE. In every county, and almost every parish, are to be seen men raising themselves to eminence by the superior cultivation of their farms; men who by a more judicious rotation of crops—by a better selection of implements—by a more rigid economy of manure—by draining, by subsoiling, and by shed-feeding, have gained a march in advance of the old lines of prejudice, and have set up the standard of improvement and invited their neighbours to their aid. And where is there a nobler field of emulation, or more honourable prize to be won, than in advancing the general practice of agriculture? Through a higher system of farming, the landlord sees the value of his property enhanced—from more perfect tillage and application of manures the tenant-farmer finds his crops increase in quantity and in certainty, rendering him more independent of seasons and of prices for his returns—while from the extra labour employed and better payment for increased skill, the labourer in his turn gains a better market for his exertions, and consequent comfort and independence to himself and family, the surest antidotes to his prevailing vices, and safe-guards for his good conduct. By mutual co-operation, the different ranks and classes assist and urge on one another, each link in the community profits by the exertions of the other, each has a mutual connection with and dependence on the other's welfare, which is essential to the harmony of society and the advancement of the general good. Why, then, are these bright examples so slowly followed? Why is the march of agricultural improvement so proverbially backward? Is not the reason to be found partly in the isolation of the farmer, who, living apart from his neighbours, has not the same opportunity as the artisan of witnessing and inquiring into the experiments that are made—partly that these very experiments require years to test them in their application to different climates and soils?"—*Reading Mercury.*

CORNWALL AGRICULTURAL ASSOCIATION.

At a meeting of this Association, which took place at Truro the week before last, Mr. Karkeek, of Truro, gave the following useful information. He stated that —Mr. Trethewy, Mr. Tresawna, and himself, went out to Messrs. Davey's farm, for the purpose of seeing the method of feeding cattle lately introduced there. The farm was taken in by the Messrs. Davey but a few years since, from the common at Tywarnhayle. The plan consists of feeding cattle in loose boxes, on a compound of linseed and rye meal, prepared as follows:—23 lbs. of crushed linseed is gradually mixed with 21 gallons of boiling water, in a copper; after which, 84lbs. of rye meal and a handful of salt is added; the mixture, having been well stirred, is cast into moulds, forming cakes 7lbs. each. The quantities of ingredients above mentioned will make thirty-six cakes, and the whole can be manufactured by a man and two girls in about one hour. One of these cakes, with ¾ cwt. of Swede turnips, and a bushel of straw and hay chaff (which last is also mixed with linseed mucilage), is given to an ox in six meals per day. The method of preparing the linseed and chaff is by dissolving 12 lbs. of bruised linseed in 240lbs. of boiling water; this is poured on straw, chaff, and hay, equal to fifty bushels, in a shallow cistern; whilst one person gradually pours the boiling mucilage over the chaff, another person turns and beats it with a beater till the liquid be perfectly absorbed. The expense of feeding an ox in the manner here described is one shilling per day. The consumption of the compound is gradually increased in quantity. Some feeders give from 14 to 21 lbs. per day, being nearly in the same quantities that linseed is given. The advantages derived from the use of the compound over the oil cake are very considerable. The oil cake costs, on an average, from £10 to £12 per ton; whilst the linseed compound can be manufactured with either pea, bean, barley, Indian corn, or rye meal, at from 60s. to 70s. per ton. Again, from the various trials which have been made by practical farmers, of the feeding qualities of the two articles, the advantages are in favour of the compound, weight for weight. The utensils required for manufacturing the compound are a 30 or 40 gallon copper, a hand-mill for crushing the linseed, (cost 50s.), a half-hogshead or two, half a dozen moulds, a hand cup, a three-pronged fork, and a wooden rammer, the whole of which may be purchased for 30s. Mr. Karkeek next described the Messrs. Davey's system of box-feeding. Their boxes are about nine feet square, sunk three feet (two feet is said to be quite sufficient) below the surface in one continuous excavation, and having sliding bars between the boxes, and a sliding trough placed in the boxes for holding food and water. The bars and troughs are made to slide upwards, as the manure accumulates underneath. Messrs. Davey's cattle had been placed in the boxes and fed in this manner for six weeks, up to Saturday, Dec. 4; and there was scarcely the slightest effluvia arising from the dung. From the constant treading of the cattle, the dung becomes so consolidated, that at the end of three months, when it is removed, it is generally cut with a hay knife into solid cakes about two feet square. The Messrs. Davey having tried the system only six weeks, cannot speak of its practical value; but from reports of practical farmers of the highest respectability, there is reason to believe that cattle may be easily fattened in this manner in four months; besides which there is the advantage of making a rich and valuable manure. Mr. Karkeek went on to say that, having some doubts respecting this method of feeding, he wrote to Mr. James Daubuz, of Offington, near Worthing, who had pursued the system for some time. Mr. Daubuz's reply was—"I purchased eight Devon oxen at Barnet fair, on the 11th of September, 1846, at a cost, including expenses, of £98. The cattle were examined by a Cornish friend of mine, who pronounced them to be a very indifferent lot; they were in very moderate condition. They had the run of the stubbles till the 11th November, when they were put into the boxes and fed on the linseed compound, manufactured from linseed, tail-barley, and tail-peas; commencing only with half a cake per day for each ox, and finishing with three cakes—averaging two cakes per day. They consumed in this manner, up to the 15th of March,

Tail-barley, 7½ qrs., at 24s.	£ 9	0	0
Tail-peas, 7½ qrs., at 36s.	13	10	0
Linseed, 3 qrs., at 56s.	8	8	0
	£30	18	0
Besides one bushel of steamed hay, half a cwt. of chaff, and one bushel of white carrots or Swedes, each per day.	10	2	0
	£41	0	0

They averaged on their sale, £21 6s. 3½d., the total being £170 10s. 4d." Mr. Karkeek went on to observe that in using "compounds" of this kind, there was the additional advantage of being enabled to consume profitably on the farm, a large quantity of offal corn which would otherwise be forced into the market depreciating the value of good corn. Mr. Daubuz, for instance, fed the eight bullocks entirely on offal barley and peas. In conclusion, Mr. Karkeek stated that Messrs. Davey had been growing their own flax on some of the land lately reclaimed by them from St. Agnes common. The fields were four acres, and put into linseed and clover in April last. The crop of flax was a fair average, and that of clover was abundant. But, leaving growing of flax altogether out of the question (although there could be no doubt that it might be profitably cultivated since it was found indigenous in the country), there could not be a question of the importance

of preparing a cheap material for the manufacture of beef and mutton, whether by cultivating linseed in this country, or by importing it, for the purpose of being formed into a compound with some of the farmers' home productions.

ROYAL POLYTECHNIC INSTITUTION.

F. H. Holmes, Esq., delivered some interesting lectures on agricultural chemistry at this interesting exhibition. This lecture treated on the organic constituents of plants and soils, the relative proportions contained in certain lands growing wheat, and proving that woody fibre, starch, and sugar, were all compounds in different proportions of water and carbon or charcoal; exhibiting numerous appropriate experiments illustrative of his subject. He explained that the source from which plants derived hydrogen was water that fell on their soils in the form of rain; the average amount of rain-water which fell on an acre of land in a year was said to be 4,500,000lbs. This was more than sufficient to supply the whole of the oxygen and hydrogen required by the largest crop of wheat. Oxygen, the lecturer remarked, formed a very important part of the atmosphere, as it had to do with the germinating of seeds, and therefore no soil could be fruitful which had entered into its composition any matter calculated to absorb the oxygen. The lecture was much applauded throughout by a highly respectable audience. Independent of this useful lecture, the other interesting experiments for which this place of intellectual amusement is celebrated, were exhibited. The electric telegraph was constantly worked and explained—the chromatrope, diving bell, dissolving views, &c., are alone worth a visit.

PLANTS AND ANIMALS.

From a discourse by John Davey, Esq., M.D., F. R. S., Inspector General of Army Hospitals, Hon. Member of the General Agricultural Society of Barbadoes, &c. read at their third half-yearly meeting, and published at the request of the Society.

Plants and animals have in common the distinctive property of reproduction, a power exercised by means either of a bud, slip, seed, or ovum;—the seed of one being analagous to the ovum of the other; whilst the bud or slip-manner of generation are common to both, and constitute one of their most remarkable links. Having a common mode of origin, so have they of growth; as the animal grows, not like the mineral from accretion from without, but by disposition from within, so likewise does the plant. Both plants and animals are nourished and owe their growth to foreign matter introduced from without; and both cease to grow—both waste and ultimately perish, if the foreign matter constituting their food be withdrawn. To both warmth, light, air, moisture, are in certain degrees essential to their well being: and, to both, in other degrees, these are injurious. Whilst there are thus certain resemblances between plants and animals, there are also marked and characteristic differences. The two most remarkable are intimately connected with the subject under consideration—the kind of food required by each—and the kind of organs belonging to each for its reception. A mouth and stomach appear to be essential to the animal, in which the food taken is prepared, more or less, for distribution, and nourishment. In the plant the preparation appears to be external—in the soil; from whence the nutritive fluid is absorbed by the delicate roots, and by them conveyed for distribution where required. As to food, animals are dependent for their support on one another, or on vegetables. Plants on the contrary are not so dependent; they derive their support from the soil and from the atmosphere:—and, whilst animals, in the act of supporting themselves, convert organic into inorganic matter,—vegetables in their growth have the opposite effect,—they create or form organic from inorganic materials,—are in brief organizers, for the sustenance of animal life. Let us take an example;—A single seed of Guineau Corn, weighing about a quarter of a grain, planted in an artificial soil, composed of several earths, and contained a little phosphate of lime, and salts of the vegetable and volatile alkali, under favourable circumstances, with sufficiency of moisture from rain, will rapidly vegetate,—give rise to a plant many feet in height, and in less than six months yield a ripe head of corn, weighing in its dry state, 1,685 grains, and containing 3,537 grains of seed; for such I have found to be the weight of a head of average size,—and such the number of seed it contained; the weight of the seed alone was 1,460 grs. What a vast increase is here! And if we examine the parts of the plant, its roots, its stem, its leaves its seed, we shall find them composed of substances differing altogether from the materials which had constituted the food of the plant,—a difference depending on a new combination of elements,—from, in brief, inorganic to organic compounds.

There is another point of difference, and a very interesting one, between plants an animals,—the effect they have on the atmosphere—comparing the leaves of the one with the lungs of the other. Animals inhale common air, consisting of azote and oxygen; a portion of the latter disappears, and its place is supplied by carbonic acid,—which is a compound of carbon and oxygen,—and which is expired; and, consequently, in respiration, animals are consumers of carbon;—and, its consumption is attended with the production of animal heat. Vegetables, on the contrary, absorb or take in carbonic acid, and exhale oxygen by their leaves, and consequently are accumulators of carbon; and it may be, have the effect in evolving oxygen, of occasioning a reduction of temperature, or of creating a cooling process, the opposite of

that of the animal-heating process. Should this be proved to be the case, it will be another example of wise and most happy adaptation.

I have spoken of vegetables, as organizers, or the producers of organic compounds, for the support of animal life:—taking another view, animals may be considered as performing a part as essential to vegetable life, that of disorganizers; what is excrementuous from them being so reduced, as to have the character rather of inorganic than of organic compounds,—whether it be carbonic acid, with which they contaminate the air in respiration—their gaseous excrement:—or their liquid and consistent, derived from the other excreted organs and passages of the body. These matters which are destructive to animals, and not only to the animals that void them, but to animals generally, may be held to be the highest kind and most appropriate food of plants. And the more we reflect on this, the more we are convinced of its truth, the more we must admire the connection and mutual dependence. The animal enriching the air for the use of the plant;—the plant purifying the air for the use of the animal; and the same in regard to the soil,—afford a lesson to man of a very instructive kind,—most beneficial when carried practically into effect,—most injurious when neglected,—in one instance insuring fertility, and I may add salubrity,—in the other the production of sterility and disease. (*To be continued*).

The Journal of Agriculture, and the Transaction of the Highland and Agricultural Society of Scotland. William Blackwood and Sons, Edinburgh and London.

We give the following as it is extracted from the works of Prof. Baussingault:—

Experimental researches on the feeding properties of green fodder.—It is generally admitted that fodders consumed when green are much more nourishing than when they are dried; in other words, it is believed that a hundred pounds of clover, lucern or meadow grass, have a far greater nutritive value than the hay obtained from a hundred pounds of each of these elements. However, in carefully perusing what has been written on this subject, I have found nothing to justify that opinion. Indeed, two good observers, Messrs. Perrault and Jotempts, have ascertained that, to feed sheep, it will require 3lbs. 3oz. of hay, clover, or lucern to replace, 8lbs. 13oz. of the same fodder green; under the influence of either of these rations, there is a sufficiently satisfactory growth of wool and flesh. On the other hand, those agriculturists have practically ascertained that, in the winnowing, including the fermentation in the hay loft, and all the accidental losses, 100lbs, of clover or lucern are reduced to 23lbs of hay. From these results we draw this conclusion, that in giving to a sheep, 3lbs. 3oz of dry lucern, we administer to him exactly, in point of value, the equivalent of 14lbs. 6¾oz. of green; therefore, 5lbs. 8½oz. of green food more than is required when the ration is composed of the undried plant; and if a hundred pounds of clover or lucern, newly mowed, are requisite to feed an animal, it will require, to feed it in the same degree, the hay obtained from 163 pounds of the same fodder.

It may be easily understood that this mode of proceeding is too indirect properly to resolve the question we have in view. The discussion presented by MM. Perrault and Jotempts merely proves what no one thinks of denying, viz:—that the most advantageous way of using the produce of artificial meadows, is to have it consumed as much as possible while green, so as to avoid the expense, the loss, and all the casualties of haymaking. But this discussion does not in the least establish that the nutritive power of green fodder, is diminished by the simple fact of its being dried; the physiological question is thus left untouched. For many years I have made various experiments to resolve it. For that purpose I paid the greatest attention to the changes in the weight of thirty-two horses, on which my researches were made, from the alternate substitutions of dry and green fodder. The results have been at one time in favour of, at another against, the green diet; and, after very numerous weighings, I found that I was a little advanced as when I first began my experiments.

These contradictory results can be explained by the imperfection of the method I had adopted. It is quite evident that the hay with which the horses were fed, having been obtained, in the previous year, did not answer, as regards the quality, to that which would have been furnished by the green clover with which it was compared; and as for this last fodder, there was constantly a great uncertainty in the real weight of the ration given, in consequence of the greater or smaller proportion of water it contained. Some experiments which I have made on the drying of clover, show, indeed, how much that proportion varies according to the age of the plant, the nature of the soil, and especially, according to the meteorological conditions during which the cutting had taken place. This may be illustrated by examples taken on second year clover:—

May 19th, First cutting before flowering, 1000lbs of hay gave 212lbs. of water
June 3d, First cutting in flower, 1000 lbs. of hay gave..... 288lbs. of water
June 5th. (another district) first cutting in flower 1000lbs. of hay gave..... 305lbs. of water
July 28th, Second cutting in flower 1000lbs of hay gave..... 290lbs. of water
August, Second cutting—very much in flower—very woody; 1000lbs. of hay gave..... 360lbs. of water

We may add, that, during the drying, the clover experienced a considerable loss from the leaves

and flowers falling, and not being picked up, during the making The loss affects exactly the most substantial parts.

In order to guard against the causes of error I have just mentioned, and to obtain comparable results, I have conducted the experiment in such a manner, that the dry fodder consumed represents precisely the hay we should obtain from the same quantity of green; but as it is then necessary continually to make hay—an operation which becomes very tedious when performed on a considerable quantity of clover—I experimented on a single animal, a heifer about ten months old.

The heifer was weighed when fasting. She was given a ration of green fodder, a little smaller than she ordinary consumed, in order that the fodder should be entirely eaten during the twenty-four hours; then, at the very moment that the green ration was put into the manger, another, exactly the same in weight and quality, was selected, and immediately dried, taking every precaution to prevent the loss of the parts loosened during the drying. This dried ration was put aside, marked No. 1. On the second day the same operation was repeated, keeping still for drying a quantity of fodder exactly equal to that to be eaten green; and that dry ration was put aside as No. 2, and so on.

The heifer was thus fed on green food during ten days; on the eleventh day, in the morning, she was weighed, and then was put on dry fodder. She received successively the hay kept in bags No. 1, No. 2, No. 3, &c., so that during the ten following days the heifer took exactly the same allowance and the same quantity of food she had received during the ten preceding days; the only difference between the two diets being that arising from the presence or absence of water in the plants. At the end of the dry feeding the animal was weighed. It may be, therefore, seen that the whole experiment lasted twenty days:—

RESULTS OF THE OBSERVATIONS.

FIRST SERIES.

	cwt.	lbs	oz.
Original weight of the heifer.....	5	36	4
After the grass diet.....	5	29	10
Loss occasioned by the green diet....	0	6	10
After the diet of the same fodder, dry	5	40	8
Gain occasioned by the dry diet.....	0	10	14

SECOND SERIES.

Original weight of the heifer.....	6	3	12
After the green diet.....	5	104	11
Loss occasioned by the green diet...	0	11	1
After the diet of the same fodder, dry	6	8	3
Gain occasioned by the dry diet.....	0	15	8

THIRD SERIES.

Original weight of the heifer.....	6	54	9
After the green diet.....	6	63	6
Gain occasioned by the green diet....	0	8	13
After the diet of the same fodder, dry	6	86	9
Gain occasioned by the dry diet.....	0	23	3

Before coming to a conclusion, it will be necessary to know what was the extent of the accidental variations in the weight of the animal experimented upon. Numerous successive weighings made each day, at the same hour, have shown that the greatest difference amounted to 13 lbs. 3 oz. Therefore, a difference of that amount could not with certainty be attributed to the influence of feeding, since it is within the limit of the accidental variations of weight.

It may be remarked, that the ascertained gains, in consequence of the substitution of the dry for the green rations, have been 10lbs. 14oz., 15lbs. 8oz., 23lbs. 3oz.—results that might allow us to presume that the same quantity of fodder when dry is more nutritive, but from so few experiments it would be premature to draw such a conclusion. What these experiments seem to establish with some certainty is, that a given weight of dry fodder, is not less profitable for feeding than the quantity of green fodder which it is derived from.

White Carrots *v.* Swede Turnips.—A gentleman at Great Maylestead has this year grown, upon three acres of very poor land, the enormous quantity of four thousand bushels of white carrots; the land, as before observed, was very poor, so much so that it was not thought worth cultivating; it was allowed to seed itself with grass and other seeds, so as to form a meadow, but the stock rejected it; it was two or three years ago broken up, and last year sown with white carrots, and the produce was as above stated. Five beasts were selected from the yard and tied up, two of the fattest and the best were fed with Swedes, the other three were fed with the carrots. It soon became very evident that those fed with carrots were going on the fastest, and, from their present appearance, are quite a month forwarder than those fed with turnips, notwithstanding the turnip-fed ones were the best when tied up.—*Essex Standard.*

Metropolitan Sewage Manure Company.—The consent of the Commissioners of Sewers, as required by the Act of Parliament, has been formally given to the proposed works of this company, which will be commenced forthwith, with every prospect of their being so far completed in the course of next summer as to permit of the application of the sewage to the immediate neighbourhood of the station at Stanley Bridge.—*Sun.*

NEW DE-ODORIZING PROCESS.—Mr. Young, a chemist of Manchester, has discovered that a waste product from the manufacture of chlorine, consisting chiefly of a solution of chloride of manganese, destroys the odour of night-soil and other decomposing matters without impairing their fertility. The liquid is produced in very large quantities, and has hitherto been thrown away.—*Liverpool Albion.*

Agricultural Journal

AND

TRANSACTIONS

OF THE

LOWER CANADA AGRICULTURAL SOCIETY.

MONTREAL, MARCH, 1848.

It should not be any longer a matter of doubt that there is a moral obligation upon the inhabitants of every country to provide for the judicious cultivation of the land where the climate and soil are favourable for it. The Creator has placed the means of comfortable existence at the disposal of his creatures, and in proportion, as man improves these means, will be the amount of his comforts, and enjoyments. It is scarcely necessary to offer any arguments to prove that nearly the whole amount of the necessaries and comforts that can be possessed by the human family, are derived, directly and indirectly, from the land, and that they cannot exceed what the products of the land will furnish. The forests and mines of Canada may augment her products, but only in a very small proportion to what she *might* derive from her Agriculture under an improved system. Our manufactures, however extensive they may become, will depend for support upon Canadian customers, and this custom will be in proportion to the prosperous state of Agriculture. One depends upon the other, but Agriculture is the first and principal means that must set the whole machinery in active and prosperous motion, and hence how manifestly it becomes the duty and interest of *all* to give every possible support and encouragement to Agricultural improvement, as the only means that can give permanent support to commerce, manufactures, and all other business and professions, and for the payment of revenue. However unwilling to come to this conclusion, we may make up our minds that no interest in Canada can be permanently prosperous, if our Agriculture is not in an improving and healthy condition. If these facts were to receive the consideration they deserve, this country would soon exhibit a decided change for the better, as all would find themselves interested in producing the change. It is in vain to expect any general union for advancing the improvement and prosperity of Agriculture, unless it can be made to appear beyond all doubt, that such improvement would be advantageous to the whole community. If to any country on earth Agriculture is all important, it must be so to Canada, and to all her inhabitants, in town and country, because its products must give the chief support to trade, commerce, manufactures, and the means for paying revenue and taxes. Some may dispute our propositions, but we do not imagine they can be disproved. Gold and silver would have no real value if the productions of land and Agriculture could not be had in exchange for them; neither could manufactured goods have any value, or indeed have existence. Those who desire to see this beautiful country furnishing ample means of comfortable living to all its inhabitants, should "begin at the beginning," remove every impediment that would check, or, in any way, obstruct the proper cultivation of the land, provide instruction and encouragement where necessary, and adopt, promptly, all such measures as would be best calculated to insure the improvement of our Agriculture, and the augmentation of its products, in quantity and value. We have already stated that the annual income and expenditure of the inhabitants of Canada (except those who have incomes from other countries) must be derived from the produce annually created, and cannot exceed this amount; and if this be admitted, it will certainly be of some importance, that our products should be as abundant and valuable as we can possibly make them. This is a matter that cannot be safely left in the hands of agriculturists, in their present circumstances, to improve their system of Agriculture, or let it alone, as they may feel disposed. The period

has arrived that these matters may require the most serious consideration. We have constructed canals of great magnitude; rail-roads are being made, revenue must be provided; trade, commerce, and manufactures should be in a prosperous and healthy state; and to insure prosperity to all those, as well as food for the whole population, Agriculture must produce the chief means. A country has no other true riches but her own productions, and anything more she may obtain, she must pay for in some shape. Our object in writing this article is to bring the subject fairly before the public. If we have failed to prove its paramount importance to the whole population of the country, it is from our inability to do it justice, and we must leave it to abler hands to follow up the subject we have introduced. We have confident expectations that in this, as in other countries, men of wealth and education are now becoming perfectly sensible how important it is that the science of Agriculture should be taught, its practice well understood, and an improved system of husbandry generally introduced. If these feelings prevail extensively, and are acted upon promptly, we may anticipate the most favourable results. We have inland navigation that is not equalled on earth, extending into a rich and highly fertile country; we also have rail roads in progress of construction, that are likely to be as extensive as those of any other country; and we have lands requiring only to be cultivated properly to afford ample and profitable employment to all these, and the thousand or fifteen hundred ships that come to our ports annually from the other side of the Atlantic, to carry away our overplus produce, in exchange for what they bring for our use; and to insure us all the advantages that may be realized from these favourable circumstances, it is only requisite that due attention should be given to our Agriculture, and its improvement secured to the uttermost it may be capable of.

According to Mr. Alison, in his excellent work, "Principles of Population," all the capital in the world is nothing more than the accumulation of the surplus produce of the earth, above what was requisite for the support of those engaged in producing. His words on the subject are as follows:—"The accumulation of the surplus produce of the labours of the cultivators of the earth, in different ages, above what was requisite for their own support. In whatever form this accumulated wealth exists, whether in that of bullion or money—of articles of luxury—costly edifices—sumptuous furniture or apparel—or productive investments—such as Agricultural improvements, commercial or manufacturing establishments, roads, rail-roads, canals, or shipping. It is equally clear that it has been amassed by the labour of human beings, and that these human beings, during the time consumed in that labour, must have been maintained. The existence of capital, therefore, especially in large quantities, presupposes that there existed a surplus produce raised by the cultivators in former ages; its continued increase pre-supposes the existence of a similar surplus at the time that increase is going on." Capital is thus derived in the first instance from the land, *generally* from new products created, that were not previously in existence. But notwithstanding that capital was first derived from the products of the earth, it does not always follow that a sufficient amount of this capital will be again employed in Agricultural improvement and production. This is an evil of great magnitude, and has a most injurious operation upon Agriculture, and checks, if it does not prevent, necessary improvements in husbandry. It only requires to make a tour through this country to be fully convinced of the necessity which exists for employing more capital on almost every farm, in order to render them as productive and profitable to their owners as they are capable to be. Improved tillage and better crops cannot be expected without better draining, better ploughing, manuring, weeding, and keeping a

more numerous and better selected stock, not of horses, but of neat cattle and sheep; and to do all this, would require additional labour and capital. It is true that in this country farmers are not often subject to the payment of rents, and scarcely any direct taxes; but they have their lands to purchase, or clear of forest; they have buildings and fences to erect, and all this generally employs what capital they have, and leaves them very insufficient means for all other purposes, to enable them to farm to the best advantage. Hence it is that farmers paying a moderate rent upon a farm in England, and having only to provide capital for stock, seed, implements, and labour, may often realize more profit than a Canadian farmer can do upon his own property, in consequence of insufficient capital. There is a certain amount required to enable a farmer to carry on his business advantageously, and even a small deficiency of this amount may derange all his plans, and defeat all his exertions and skilful industry, and prevent him realizing any profit. No doubt, capital might be more securely employed in these improvements if skilfull expended, than in most other speculations; but, notwithstanding this fact, we fear capital will not flow in this direction immediately, unless wealthy proprietors show the example, and prove that it would be a safe and profitable investment. It is certain that in no other way could capital be employed so much for the general advantage, as in creating new and useful productions. It is by this employment that capital is augmented, when it creates what was not previously in existence, besides, or over and above re-producing the seed and expenses of labour. The sale or transfer of other commodities, from hand to hand, does not increase capital, however it may enrich those engaged in trade and commerce. Money may be lost as well as gained in farming, but the loss or gain is generally moderate, compared to that in other speculations. It is owing to the circumstance that the loss or gain is never great in Agriculture, that so few capitalists are disposed to employ money in Agriculture; they prefer to risk it where there is a chance of large profits, though it should be also liable to total loss. It is a remarkable circumstance, that although Agriculture is admitted to be the source of all wealth, that notwithstanding, the capital employed in Agriculture, is deficient. There must be some cause for this, and the sooner we understand it the better, in order that we may be able to remedy this great check to Agricultural prosperity. The only way we can attempt to account for such a state of things, is, that hitherto farmers have not been fairly remunerated for the produce they sold, and hence their labour and capital has been wasted, in consequence of production costing more than the price obtained for the produce. We know also, that the ravages committed by the wheat fly, for the last twelve or thirteen years, caused a great loss of capital —we suppose not less than six or seven million pounds currency to farmers. This greatly diminished capital with farmers, and was a general loss to Lower Canada, which it will take some time to recover, and we have no doubt that this diminished production has had a most injurious operation on trade and commerce, as well as upon the farmer. We repeat again, that, to employ a sufficient amount of capital in Agriculture, would not only be advantageous to the farmer, but to every interest in the Province. Capital is much more likely to be wasted and lost in farming managed under a defective and slovenly system, than by a judicious and perfect system, where sufficient capital is employed. Land frequently does not produce one-third of a good crop, owing to defective draining, bad ploughing, deficient fertility, and no weeding. To remedy all these defects would require an outlay of money and labour, but the improvement in the crop might more than compensate for it. The improvement in Agriculture is desirable; additional capital is necessary to carry these

improvements into effect, and this employment of capital would be the most beneficial mode of investment for Canada.

SPARE THE TREES.

One of the greatest objections to the mode of clearing the forests of Canada, for Agricultural purposes, is the indiscriminate destruction of every tree that grows upon the land to be cleared. We have heard it objected that when single trees are left, they generally decay, or may fall and do some injury. These objections may be well founded, but certainly not in every case, as we have abundant proof to the contrary; but if trees will not always live alone, after the forest is cut down around them, might not small clumps be spared in different situations, that would give them shelter and be ornamental. There cannot be anything more ornamental than beautiful trees, and their shade to cattle in summer appears to add greatly to their comfort and healthfulness. A country deprived of all its beautiful trees, and disfigured by long lines of dead fences, cannot be pleasing to the eye. There could not be a more beautiful landscape than we might have here only for this circumstance. If we had no trees, we should plant them, but to destroy them all when we have them in full growth and perfection, is doing great injustice to the natural beauties of our country. Every man who will destroy all the trees he finds upon his land, should be obliged by law to plant others, and to repeat this planting until they would grow to perfection. It may be objected that this would be an interference with private rights, but this objection, we conceive, is not a sound one. The lands of Canada are naturally covered with the finest forests in the world, and of every variety of trees, and we cannot perceive the right that any settler would have to clear the whole of the trees away, and burn and destroy them all. The natural beauty of a country should be preserved, if possible, and from our own experience, we believe, the settler who would spare some of the trees, would gain much more by doing so than by destroying them. There does not exist a doubt that a country is injured by depriving it of all its trees, and this has been proved in many countries in Europe, and it will prove so in Canada if some measures are not adopted to prevent it. Where the trees are already destroyed, others might be planted by the fences, and in waste corners of the farm. We hope this article will save many a noble tree of the Canadian forest, and we shall not have written it in vain.

AGRICULTURAL REPORT FOR FEBRUARY.

The general character of the month of February was different to that of January, though the temperature was mild for the season, very little snow on the ground, and the roads bare in many places for sleighing at this date.

We have heard many reports of the damage done this winter to meat and fowls of every description, by thawing after they had been frozen, before the winter roads were good enough to take them to market; and from what we have seen, we suppose the report must be correct to a certain extent. There has also been a general complaint of the scarcity and unprecedentedly high price of salt, particularly in country places, preventing the farmers from salting and preserving the slaughtered meat. We cannot conceive what could have produced such a scarcity of an article so cheap and plentiful in the British Isles. The trade surely should have known the usual consumption of Canada, and not allowed the country to suffer for the want of an article that was indispensable, and that if there happened to be any surplus, would keep without deterioration. Large quantities of meat have to be cured in Canada, and for this purpose there should be at all times an abundant supply of salt. Salt at present is about five hundred per cent. higher here than in England, and this excessively high price debars farmers altogether from making use of it

in Agriculture. It is certain that the deficiency of salt, this year, has been a very great injury to Agriculturists, particularly in consequence of the mildness of the winter. The inconvenience and loss sustained, this year, from the absence of the usual cold and snow of a Canadian winter, should effectually cure any dissatisfaction we have ever felt at the severity of the winter season in Canada. The general climate of this country is the most suitable for it; cold and rather long winters are amply compensated to the farmer, by the warm and beautiful summer and harvest; and with the same careful system of Agriculture, introduced to practice here as that practiced in many parts of the British Isles, there is not a doubt we might have excellent and profitable crops and stock, though perhaps not equal to those obtained from high farming in the Mother Country. The price of Agricultural produce is much lower than in January, with the exception of wheat, which is still worth from 5s. to 5s. 6d. the minot. Barley and oats have fallen considerably in price; the first is now at 3s. 4d. to 3s. 6d.; the last at 1s. 9d. to 2s. Indian corn, 4s. 2d. Rye, 4s. 2d. Buck-wheat, 3s. 9d. and potatoes 2s. to 2s. 6d. the minot. Hay has fallen more than fifty per cent., and straw nearly as much. Hay is 25s. to 30s. the hundred bundles of 1600 lbs.; straw 15s. to 20s. for 1206 lbs. Butcher's meat of good quality sells high, but there is much of inferior quality in the market that must be sold at a low price, in consequence of having been frequently frozen and thawed, without salting. Beef, we believe, sells from 2d. to 6d., or more, the lb.; mutton of good quality, 4d. to 5d., but the bad sells very low. Veal at about the same price as mutton. Pork, fresh, per 100 lbs., 25s. to 30s., and by retail, 4d. to 5d. per lb. The price of fowls varies exceedingly, but those that are good sell high. Butter, fresh, sells at 1s. to 1s. 2d. the lb.; salt, at 7½d. to 10d. per lb. Cheese, of good quality, sells, by retail, from 6d. to 1s. per lb.; the inferior, we cannot say at what price. This price for good cheese would pay the farmer well, but we regret that the quantity made in Canada is very small. In the year 1846, we have seen cheese of very superior quality from Canadian dairies; but in 1847, the quality was much inferior. We mention this circumstance to show if cheese can be made good in one season, so it may be in another, in a dairy of proper temperature.

It is not probable that farmers will have much butter to put up in casks until the winter is past, but they should make preparation now, by procuring good dairy utensils, and proper casks, to pack butter in when summer commences. A clean dairy, sufficiently cool, and well ventilated, and suitable utensils, are indispensable for making good butter. Casks of proper materials and construction are also necessary, and in every case they should be so constructed, that, when filled, they can be made air-tight when closed. The most convenient size would be those that contain 56 lbs. of butter. All farmers who would not have a sufficient stock of cows to fill this sized cask with one churning, might hold over the butter from one churning to another, until they would have sufficient to fill the cask. The butter so held over might be thoroughly mixed together by churning all in the fresh butter-milk, until it would be of uniform colour, and then it might be made up, salted, and the cask filled at once. We know that this method would succeed if carefully managed, and all the butter is of good quality. Bad butter cannot be made good by churning and mixing, but if the butter is good, this management will make the colour uniform, which is most essential. The butter kept over from one churning to another, should be carefully separated from the butter-milk, and have some salt and saltpetre mixed with it. The salt will partly come out when it is churned for packing, but it will not injure the butter-milk for hogs. A small quantity of salt put into the cream or milk, previous to churning, has a very good effect. Butter might be very profitable produce for the Canadian farmers, if made properly as it might be, and

we are certain there is nothing to prevent our having as good butter here as in any part of the world, with suitable dairies and judicious management. We shall advert to this subject in our next.—*February*, 29.

In the leading article of this number we have endeavoured to submit the claims of Agriculture for encouragement, and attention to its interests and prosperous condition. We have advocated these claims upon the principle, that, by encouraging Agriculture, and promoting its improvement and prosperity, we would best provide for the prosperity of commerce, manufactures, revenue, and all other Canadian interests. If we have failed to convince our readers of the correctness of our proposition, we shall regret it; we would not advance such a proposition if we were not persuaded of its truth. The Lower Canada Agricultural Society was organized last year, and incorporated by Act of Provincial Legislature. They have published an address in September last, fully setting forth the object of the Society; they have commenced in January to publish an Agricultural Journal, both in the English and French language, and have circulated them extensively throughout the Province; they have done this in furtherance of the object stated in their address to the public; they have another object yet to accomplish, that is, the establishment of Agricultural schools, model farms, a library and museum. To enable the Society to do this, funds are requisite, and are not attainable under the present circumstances of the country, unless by public aid. The Society do not apply for such an aid upon any other grounds but those set forth in the address; they are convinced that the establishment of Agricultural schools and model farms, conducted on judicious principles, would be the best means that could be adopted to advance Agricultural improvement. In the Journal for January, a long article on this subject has been published, which renders it unnecessary now to explain the plan proposed. The Society hope for an aid to carry out their views, upon the broad principle of public utility, and as calculated to produce general benefit to the Canadian community. It will be in the power of the Legislature to fix the terms upon which any assistance will be granted, and the mode of expenditure to be adopted. The Society only desire to have it in their power to adopt effectual measures to insure the instruction of young farmers, in the science and practice of Agriculture, and to promote the general improvement of husbandry. The Society advocate measures that may claim the unanimous support of men of all parties, and of all ranks and professions. The products of Agriculture are necessary to all men, of whatever party, rank, or profession, and it is of the greatest consequence to the inhabitants of every country, that these products should be abundant in quantity and excellent in quality. The fearful evils brought upon a country by the want of sufficient food, we are bound to guard against as much as possible. This country will probably, very soon, lose all preference in the British markets, and the only means we shall then have to make up the loss of this protection and preference, will be the increase and improvement of our products. In all other countries, the most active measures are being adopted to advance the improvement of Agriculture, and there never was a more favourable opportunity than the present to commence the same good work in Canada, as the people have become interested, and will almost unanimously support whatever action the Legislature may be pleased to take for the encouragement of Agriculture. A library for reading, and reference, is as necessary for the agriculturist as for any other class; also, a museum that would contain seeds, implements and models. It is the want of all these means of instruction that has been the true cause of the backward state of Agriculture in Canada. There is not any reasonable excuse that such a state of things should remain any longer without remedy. It is a matter of vital importance, and interesting to every inhabitant of the country, that Agriculture should

now receive every encouragement to secure its future prosperous condition.

In Ireland, the Government have established a museum of Irish Industry, where all investigations in Agricultural chemistry and geology, which may have public importance, may be therein executed, under the sanction of the Chief Commissioner of Woods, at the public expense. In this number we give an extract of a notice of the museum of the Dublin Society, and suppose this may be the one provided for by the Government. This is a good example for us to follow, and we should profit by it. The Canadian inhabitants have been charged with apathy and indifference to the improvement of Agriculture, but we conceive very unjustly. Since the organization of the Lower Canada Agricultural Society, they have found the Roman Catholic Clergy, and the rural population, most promptly respond to the address published by the Society, and there are already between two and three thousand subscribers to the Agricultural Journal, and Transactions of the Society, published in the French language, with every prospect of the number being vastly increased during this year. This would not indicate indifference to improvement, when they respond to the first general invitation addressed to them. A publication purely Agricultural would not offer any inducement to subscribers if they were indifferent to the improvement of husbandry. An interest is now thoroughly awakened that, if kept up and encouraged, will be sure to produce most favourable results to the whole country. The Society are proud to number amongst their life members the highest dignitaries of the Roman Catholic Church, and the Superiors of Seminaries and Colleges; and the general support they have received from the Roman Catholic Clergy, gives the Society great confidence in the ultimate success of their endeavours. The Agricultural Journal and Transactions, published in English, is also circulated to a great extent, with every prospect of an augmented circulation. All these circumstances are very encouraging to the Society, and they confidently anticipate the hearty support of every friend to Canadian prosperity.

In "The Agriculturist and Canadian Journal" of the 15th February, we have seen a letter from Mr. Buckland to the Editor of this Journal, recommending Model Farms, &c., but as we had in the first number of this Journal published a long article on that subject, containing the substance of Mr. Buckland's communication, it is not necessary to publish his letter.

We have put off publishing a list of the Members of "the Lower Canada Agricultural Society"—until our next, in order to give an opportunity of making it more full and correct. Several other articles prepared for this number, is unavoidably reserved for the next.

ROYAL DUBLIN SOCIETY.

The following is the Report of the Royal Dublin Society, which we leave for the present to speak for itself:—

REPORT.

The Committee of the Agricultural Museum beg leave to report to the Society, that the expectations formed upon the establishment of this branch of the institution have been fully realized.

They have lately made a large addition, and many important improvements to the museum, and without these it would have been impossible to have afforded adequate room to the collection now opened to the public.

The committee are happy to find that the efforts of the society in this department have been successful, and that their success has been amply appreciated by the public: but they felicitate themselves more particularly upon the probability that they are likely, ere long, to be of solid advantage to every part of Ireland.

In an agricultural country, it is obvious that the skilful and profitable cultivation of the soil is of paramount importance. Waste land may be a great evil, but short crops are equivalent to great waste, and, if improved culture would lead to double produce, the result would be almost as profitable to the country as if a four-fold quantity of reclaimed and inferior land were placed under indifferent cultivation. The committee will have occasion, however, to show presently, that they by no means undervalue the capabilities of the bogs and mountains of Ireland.

The Committee think it not too much to assume that the practical instruction afforded by the Agricultural Museum, upon almost every point of rural economy, fairly entitles it to this distinction.

It clearly elucidates how the desired improvements may be effected; and exhibits the result in actual specimens of produce, accompanied by well-attested statements as to acreable amounts, &c.; models of drain, specimens of draining tiles, the best implements of every description, furnished by the most eminent manufactures of the United Kingdom; seeds, grasses, and cereals, in great variety; a collection illustrative of the diseases affecting them; specimens of flax with models of implements applicable to its manufacture, models of cottages, farm-houses and offices; a large veterinary collection; specimens of various kinds, and preparations of the turf, coal, marble, building stones, clays, and metals found in different parts of Ireland, together with many miscellaneous articles of use and interest, are here daily presented throughout the year to the inspection of numerous visitors; but the committee felt all this would be incomplete without an occasional exhibition of green crops, believing that there is no country in the world better suited to their production than Ireland, and that farmers might be easily induced to apply themselves to an assiduous cultivation of them. They accordingly decided (under the sanction of the Society) upon holding an annual show of farm produce, and upon allotting premiums to the most successful exhibitors.

The first of these shows was held on the establishment of the Museum, in November, 1844; and the last is still open.

At the outset they would have found it difficult, if not impossible, to have procured from any one individual, in Ireland, a dozen varieties of the cereals, and were largely indebted to their kind friends in Scotland for fine collections of them, but those now in the Museum are of Irish growth, and one presented this year, by Mr. M'Cormick, consists of no less than 141 distinct varieties of wheat. Mr. Kelly also presented 60 varieties of wheat, 70 of oats, 26 of barley, and a very fine collection of the indigenous grasses of Ireland,

The present show opened on the 3rd ult. It was visited a few days afterwards by His Excellency the Lord Lieutenant, who was pleased to express himself in terms of high praise respecting it. Its merits were also warmly extolled by the judges, and many others whose pursuits equally qualified them to form a just opinion, and, indeed, it is not too much too assert, that a finer display of the sort was never presented to public inspection in this, or any other country.

Small Farms.—The following paragraph in a newspaper lately came under our notice:—"Improvement.—In the cornyard of the farm at Petty, Morayshire, there are 101 stacks of corn, each stack averaging 13 quarters of grain. Last year there were only 88 stacks in this yard, and of a much smaller size. About thirty years ago, the farm was tenanted by a number of small cotters, and their whole produce would scarcely average 10 small stacks. This piece of information should not be suffered to pass without comment. It furnishes, in a few words, a thorough explanation of the advantages of *large* over *small* farming. A piece of land which, thirty years ago, under the cottar system of farming, produced only 10 small stacks, now when in one farm, conducted on improved principles, produces 101 large stacks. It is evident that there is a gain of at least 91 stacks by the change. Who is it that makes this gain? First, the landowner, who receives a larger rent; second, the farmer, who has a larger proportion of the return for his trouble and outlay of capital; third, the public, who have ten times the quantity of food brought to market. But probably six families have been expelled in order to make room for one great capitalist farmer. Quite true; yet it is to be observed that all the grain which the six families could furnish was ten stacks. Suppose, then, we go back to the former state of things, what are we to do for lack of the additional ninety-one stacks? If the subsistence of cottar families were alone concerned, we might be contented to see no more than ten stacks sent to market. But this meagre condition of things will, unfortunately, not answer the demands now made for food. Twenty-eight millions of people require to have daily bread, and they must be thought of as well as the tillers of the soil. Mechanics, tradesmen, merchants, and all other dwellers in towns, though not owning a scrap of land, have a right to see that the territory of our island is not abused, and brought back to that condition which would defraud them of the material of subsistence. Thus small farming, with its want of capital to improve and make the very most of the land, is adverse to the general well-being; and from all that we have heard of old times, is not even advantageous to the parties who conduct it."—*Chambers' Edinburgh Journal.*

EXPERIMENTS WITH MANURES.

BY HERMSTEAD AND SCHUBLER.

Dried leaves and other vegetable matter.....	5	times the seed.
Stable manure.....	7	"
Pigeon dung.....	9	"
Horse dung.....	10	"
Human urine.....	12	"
Human excrements.....	14	"

Giradin.

Such experiments as the above are far more conclusive and satisfactory answers to inquiries respecting the comparative value of various manures than the theories of scientific men, at least in the present state of our knowledge. Considerable attention having recently been directed to

the change and waste which takes place in farm-yard manure under the common management, I enclose you an analysis by Richardson. One very curious and important point disclosed is, that it *actually contained no ammonia*, though it contained some azotized matter capable of yielding that substance by further decomposition; it was of a large heap, which had been carted home from a stable of highly fed horses, about three months before, and was forwarded for examination in the state usually applied to the soil.

The manure was composed of—

Water	64·96
Humus	8·29
Insoluble organic matter	16·42
Inorganic ditto	10·33
	100·00

The composition of the inorganic matter in 100 parts is as follows:—

A.—Portion soluble in water—		
Potash	3.22	
Soda	2·73	
Lime	·34	
Magnesia	·26	
Sulphuric acid	3·27	
Chlorine	3·15	
Silicic acid	0·4	
		13·01
B.—Residue Solube in acids—		
Silica	27·01	
Phosphate of lime	7·11	
Phosphate of magnesia	2 26	
Phosphate of iron	4·68	
Phosphate of manganese	trace	
Phosphate of alumina	trace	
Carbonate of lime	9·34	
Carbonate of magnesia	1·63	
Sand	30·99	
Charcoal	·93	
Alkali in basic, silicate and loss	3·14	
		86·89
		100.00

C.—Analysis of organic part of manure—

Carbon	37·40
Hydrogen	5·27
Oxygen	25·52
Azote	1·76
Ashes	30·05
	100·00

The above is, unquestionably, one of the most complete analyses of manure yet published. In comparing it with those published by Boussingault, as the mean of six analyses on his own farm in France:—

Carbon	35·8
Hydrogen	4·2
Oxygen	25·8
Azote	2·0
Salts	32·2
	100·00

The conclusion seems almost forced upon us, that even in manures there are some definite chemical compounds: the agreement between the two statements is both remarkable and satisfactory. C. E. D.

WEEDS AND WEEDING.

'How does your garden get on?' is the question often followed by the reply, 'Oh, I am sorry to say it is smothered with weeds!' a confession too often corroborated by actual inspection. A garden properly treated in reference to weeding is comparatively a rare sight, except in large establishments. We often see grounds well laid out, and not deficient in valuable plants, which are, indeed, 'smothered' with sow-thistles, groundsel, and chickenweed. This state of things often arises from the peculiar arrangements people make with their gardeners, who visit the place, perhaps, once or twice a week. The consequence is that weeding is often postponed to other matters which are more pressing, and the noxious productions are allowed to grow rampant and run to seed. A second crop of weeds may thus often be seen springing up before their parents are dead, until the long-deferred opportunity being presented, a desperate onslaught is made on the enemies, and for a few weeks a more decent aspect is secured. If, in all cases where the labour of a gardener is not sufficient, enough supernumerary help were secured to prevent weeds getting ahead, the benefits would soon be manifest.

We should like to see it acknowledged as indispensable, a *conditio sine qua non* in gardening, that no weed should be allowed to exhibit a flower; for although this would not be all that neatness demands, the end would at length be attained, since without flowers there will be no seeds, and extermination must be the natural result. Let the amateur consider, first, how impossible it is to secure a pleasing appearance in the garden if weeds are allowed to grow, however small they be. Compare the appearance of two beds, one quite clear and fresh raked, with another, sprinkled with weeds just displaying their cotyledons. However diminutive these may be, they mar the beauty of a parterre, and therefore should not be allowed to grow. Secondly, it should be borne in mind that rank weeds injure all growing crops, by taking from the soil that which is intended to secure their perfect development. It is vain to apply manure, if weeds are allowed to steal it. Thirdly, weeds which come to maturity and send their roots deeply, are not to be eradicated without considerable labour. Try to pull up thistles, for instance, and they will break off at the crown, only to furnish an abundant second crop in a few days; to be prevented doing further mischief, the root must be dug up, which, in a garden of any size, will be a work of time and labour. Fourthly, weeds are very prolific, and if allowed to bear seed, some years may

transpire before the effects are obliterated. These four considerations ought to be forcible enough to induce every gardener to resolve that he will henceforth give no quarter to weeds.—*Delenda est Carthago!*

As to the *expense*, which is often alleged as the grand impediment in the way of weed extermination; let the gardener compute the difference between a constant hoeing, &c., to prevent the growth of those thieves, and the hard tasked labour demanded to clear the ground of them when they are grown, and he will find that in a pecuniary point of view the advantage is on the side of cleanliness. There can be no doubt which is really the cheapest mode when the superiority of clean crops is considered. Ply the hoe then well—rake your beds often, and you will reap great benefits. If in any case great weeds have grown up, they had better be cleared away by hand, for if allowed to fall on the soil, they often take root again, or shed their seeds before they can be raked away.—*H. B., in Gardeners' Chronicle.*

Charred Weeds.—Everything in the nature of charcoal, whether wood, weeds, or stubble, which is susceptible of being charred, or converted into charcoal, will be found of the greatest benefit in its application to the soil. My gardener never potted a plant without putting charcoal to the bottom of the pot, and it was found that the root was invariably drawn down to the charcoal, and fed by it, that substance having the power of absorbing both moisture and ammonia from rain and the air, which is stored up for the use of the plant. Charcoal will be found to give an amazing vigour to the young plant, which will be enabled thus to grow up out of the way of the fly, in a manner which no other means could impart. I mention this fact, inasmuch as the experiment is in the reach of all. I have had lands which were absorbed by that horrible enemy to the farmer, which, like other bad characters, rejoiced in a number of names, and had a plurality of *aliases*, but was generally known as "scrutch or couch;" this I have caused to be charred and applied to the land with immense benefit, and thus have I converted an enemy into a friend. Whenever wood, weeds, stubble, or the clippings of hedges, could be procured, it should be charred with the view of drilling in. I have some mangold wurzel, the crop of which had at first been nearly eaten up by the black aphis, but which made the greatest efforts to recover itself, by throwing out fibres and rootlets to feed on the charred substances, and thus a good crop was ultimately secured.—*W. Whitmore, Gard. and Farm. Journal.*

Metropolitan Sewage and Drainage.—At a time when the importance of an efficient drainage of London is urged upon public attention and considered by government, the sentiments expressed by Mr. Heyworth, a Liverpool merchant, in a letter addressed by him to the Secretary of the Health of Towns Association, may be considered highly interesting. Mr. Heyworth says—"From practical observation, I believe that if the noxious matters which, now being left to waste, generate disease and spread desolation over our population, were scientifically collected and transferred to the soil, they would not only remunerate all cost by the abundant fertility they would induce, but would be a mine of wealth to the promoters of any scheme for this purpose, and, thus the promoting of self-interest would thenceforward be the security of public health. By means of earthen pipes, small covered cesspools, and stench-trays, I convey all the waste water, including that from the water-closets, chambers, scullery, wash-house, &c., and all other feculent matter in a diluted state, from my residence, stables, sheep-pens, &c., into one end of a large excavated dung-pit, which, being always covered with litter, never allows any escape of noxious effluvia; at the other end of the pit I have covered well outside, communicating by small openings with the bottom of this pit, from which the fluid manure is lifted by a pump into a covered water-tight cart, and carried upon the fields. The quantity of this liquid manure from my single establishment covers annually about 20 acres, and renders them profusely luxuriant. For the rain-water and springs, I have separate and distinct drains, which is an essential arrangement. What should prevent a scheme so encouragingly profitable from being applied in collecting and distributing the liquid manure of towns generally, if incorporated companies were authorized by acts of Parliament to enter upon such undertakings?"

DUTIES OF FARM SERVANTS IN 1653.

The following enumeration of the duties of farm servants about two centuries since, is extracted from 'Gervase Markham's Farewell to Husbandry,' published about that period:—

'About this time (Christmas) the ploughman shall rise before four o'clock in the morning, and after thanks given to Heaven for his rest, and the success of his labours, he shall go into his stable, and first he shall fodder his cattle; then he shall curry his horses, rub them with cloths and wisps, and make both them and the stable as clean as may be; then he shall water both his oxen and horses, and housing them again, give them more fodder, and to his horse by all means provender, as chaff and dry pease or beans, or oats. And whilst they are eating their meat, he shall prepare his plough-gear, and to these labours I will also allow full two hours—that is, from four o'clock till six; then shall he come in to breakfast, and to that I allow half an hour, and then another half hour to the gearing and yoking of his cattle,

so that at seven o'clock he may set forward to his labour; and then he shall plough from seven o'clock in the morning till between two and three in the afternoon; then he shall unyoke and bring home his cattle, and having rubbed and dressed them, he shall give them meat; then shall the servants go in to their dinner, for which is allowed half an hour, it will be then towards four o'clock, at which time he shall go to his cattle again, and give them more fodder; which done, he shall go into the barns, and provide and make ready fodder of all kinds for the next day. This being done, and carried into the stable, ox-house, or other convenient place, he shall then go water his cattle, and give them more meat, and to his horse provender, as before shewed; and by this time it shall draw past six o'clock; at that time he shall come in to supper, and after supper, he shall either by the fireside mend shoes, both for himself and the family, or beat or knock hemp or flax, or pick and stamp apples or crabs for cider or verjuice, or else grind malt on the querns, pick candle rushes, or do some husbandry office till it be full eight o'clock. Then shall he take his lantern and candle, and go see his cattle, and having cleaned and littered them down, look that they may be safely tied, and then give them food for all night; then give Heaven thanks for benefits received that day, let him and the whole household go to their rest till the next morning.'

Live Stock in the United Kingdom.—From that invaluable work, "M'Queen's Statistics of the British Empire," we learn the enormous value of the live stock in the kingdom. It appears that there are 2,250,000 horses of total value of £67,000,000, of which more than 1,500,000 are used in agriculture, and that their value is £45,000,000. The number of black cattle in the kingdom is about 14,000,000, to 15,000,000, of the value of £216,000,000; the number of sheep, 50,000,000, whose value is estimated at £67,000,000; and the extent of capital invested in swine is still more extraordinary, when we reflect how little it is thought upon or taken into account. The number of pigs of all ages, breading and rearing, is calculated to be upwards of 18,000,000, which, taking one-third at £2 each, and the remainder at 10s. each, gives a value of £11,870,000 as the capital invested in pigs alone, making the total amount of capital invested in the above species of agricultural stock £346,270,000.

Pleuro-Pneumonia amongst Cows.—This epidemic amongst cows is raging with unabated violence round this neighbourhood (Ipswich). Mr. Gooding, farmer, of Akenham, has lately lost eleven out of twelve of these animals; several of them, when in health, were worth from £18 to £20, but when dead, their carcases were sold for 2s. 6d. each, for the dogs.—*Suffolk Chronicle.*

The Farmer's Daughter.—There's a world of buxom beauty flourishing in the shades of the country. Farm houses are dangerous places. As you are thinking only of sheep or of curds, you may be suddenly shot through by a pair of bright eyes, and melted away in a bewitching smile that you never dreamt of till the mischief is done. In towns and theatres, and thronged assemblies of the rich and titled fair, you are on your guard; you know what you are exposed to, and put on your breast-plates, and pass through the most deadly onslaught of beauty safe and sound. But in those sylvan retreats, dreaming of nightingales, and hearing only the lowing of oxen, you are taken by surprise. Out steps a fair creature—crosses a glade—leaps a stile. You start, you stand lost in wonder and astonished admiration! You take out your tablets to write a sonnet on the return of the Nymphs and Dryades to earth, when up comes John Tompkins, and says, "It's only the farmer's daughter." What! have farmers such daughters now-a-days? Yes, I tell you they have such daughters. Those farm houses are dangerous places. Let no man with a poetical imagination, which is only another name for a very tender heart, flatter himself with fancies of the calm delights of the country—with the serene idea of sitting with the farmer in his old-fashioned chimney-corner, and hearing him talk of corn and mutton—of joining him in the pensive pleasure of a pipe and jug of brown October—of listening to the gossip of the comfortable farmer's wife, of the parson and his family, of his sermons and his tythe pig—over a fragrant cup of young hyson, or lapt in the delicious luxuries of custards or whipt creams—in walks a fairy vision of wondrous witchery, and, with a curtsey and a smile of most winning and mysterious magic, takes her seat just opposite. It is the farmer's daughter, a lively creature of eighteen; fair as the lily, fresh as May dew, rosy as the rose itself, graceful as the peacock perched on the pales there by the window; sweet as a posy of violets and clove gillivers, modest as early morn, and amiable as your own imagination of Desdemona or Gertrude of Wyoming. You are lost. It's all over with you. I wouldn't give an empty filbert or a frog-bitten strawberry for your peace of mind, if that glittering creature be not as pitiful as she is fair. And that comes of going into the country, out of the way of vanity and temptation, and fancying farm houses nice old-fashioned places of old-fashioned contentment.—"*The Hall and the Hamlet,*" *by William Howitt.*

On the 1st of January the opening of the gallery containing agricultural instruments at the Conservatoire des Arts et Métiers will take place. The gallery is about 50 metres in length, and contains upwards of 2000 instruments, from the simplest up to the most complicated.—*Galignani.*

HOT-AIR FURNACES AND AIR-TIGHT STOVES.

EDITORS CULTIVATOR—I have noticed the remarks in the Cultivator during the past year, by Geo. Geddes and others, on the advantages of Hot-Air Furnaces. Having used one in my own house for the past seven or eight years, constructed in a manner precisely similar to those described, I can endorse with confidence, all, or nearly all, that has been said in their favor. There are, however, some defects which should be known. These defects are not merely attached to poorly constructed ones, for mine was a good one, with a large stove and eight drums, well put together so as not to smoke.

The advantages, as before stated, are chiefly, the facility with which large wood, four feet long, may be used without cutting or splitting; keeping up only one fire for several rooms; freedom from dirt and ashes, from stoves and fire-places: saving in room: freedom from cold currents through door-cracks, &c.; and uniform temperature day and night.

The disadvantages are, the furnace, unless in a very large cellar, so as to be entirely separated by partitions from the rest of the cellar, heats it too much, usually causing the speedy decay of apples, &c.; it occupies as much room below as it saves above stairs; the wood being heavy, but few women can lift it, and hence a man must be at hand; the fire being away, out of sight, is apt to be forgotten and neglected till too low; after standing and absorbing moisture during summer, the plaster and brick-work throw off an unpleasant and damp smell into the rooms for some days after the fire is first commenced in autumn; the cost, in no case, of a good furnace, can be much less than a hundred dollars Not one of the least objections is the difficulty of regulating the heat properly in rapidly changing weather, as from cold to warm, from warm to cold, or from calm to windy. Large sticks six inches to a foot in diameter will be an hour or two in getting thoroughly on fire; and when once on fire, continue burning half a day or more. In the meantime there may be a considerable change in the weather, in which case the rooms may be greatly over-heated, or become too cold to be comfortable. It often happens that a fire is built up for the night, while the weather is calm; a fresh wind springing up in the night will rapidly diminish the heat of the rooms; or, if the weather is windy when the fire is made, and the wind then subsides, the heat soon becomes oppressive. It is found to require twice as much wood in a high wind, at 25 degrees, as in a calm at zero. Wind also changes the course of the ascending hot air in the pipes, warming those rooms chiefly which lie in a direction *from* the wind, often sweeping the air from the windward rooms down the hot-air pipes, and out of the air-chamber, through the feeding pipe. This is a serious inconvenience. It may indeed be obviated by properly adjusting the registers, and by two or three cold-air feeding pipes on opposite sides of the furnace, to be closed or opened as the case requires; or a new fire may be built of small wood, if the weather suddenly becomes windy; or, on the other hand, if it suddenly becomes calm or warmer, the fire may be smothered with ashes, or lessened by shutting the fire draft. But all these require much attention; more than farmers generally are willing to give; and would be a grievous tax on a housekeeper where no man is at hand.

Every establishment, therefore, which cannot keep an attentive hired man, always at hand, should not be encumbered with a furnace But in a large house, where such care can constantly be given, and where there are as many as five or six rooms to be constantly heated, a good furnace will be found altogether the most convenient mode. It is also just the thing for large schools, where many apartments are in daily use, obviating the care and interruption of replenishing fires in the separate rooms; or for hotels, and large public buildings generally

For small houses, nearly all the advantages of the hot-air furnace are secured by the use of the best air-tight, self-regulating sheet iron stoves. The cost of two or three of these is much less than of a furnace; they are always at hand and easily fed; they consume less wood by nearly one-half, as I have amply proved by long experience with both; and they will maintain a fire as long during the night as a furnace. The very common objection to the furnace, that every part of the room is heated alike, and that every person, whether thinly or warmly dressed, must endure the same heat; or those who have been all day riding in the cold can have no warmer fire than others, is wholly obviated by the air-tight stove. So rapidly may a room be heated with one of these, that five minutes are scarcely needed in any case; while the self-regulator, properly adjusted, will preserve an equable temperature for a long time. With an additional improvement —that of inserting a transparent plate of mica in the regulating valve, the light from the fire would be thrown into the room, and the advantage, so much prized by many, of seeing the "cheerful blaze," would be at least partially attained.

With one of the larger sized air-tight stoves, (Race's $14 ones,) I am enabled to heat a family room and three adjacent sleeping apartments, more comfortably than I could formerly with a furnace; for which one cord of good wood will last about one month of average winter weather; and my fruit and vegetables now keep well in the cellar.

But air-tight stoves have their difficulties. These are two in number, namely—the sudden puffs of smoke or explosions; and the inconvenience of pipes choked with soot, or dripping with pyroligneous acid. The first never takes place except when the stove is closely shut. Im-

pure carburretted hydrogen from the burning wood mixes with the air in the stove, and then taking fire causes the explosion. This is usually only a puff of smoke, but sometimes it has been sufficiently strong to lift the small cast iron plate which covers the hole in the top of the stove. The explosions may be obviated by adjusting the regulator so that it shall not entirely close, till the wood is half consumed. The carburetted hydrogen will not collect while a slight current of air is sweeping through the stove, and rarely except when the wood is in its early stages of combustion. The dripping of pyroligneous acid is prevented by reversing the joints of the pipe, those above being inserted into the next ones below, rendering it impossible for the liquid to escape. To prevent this pipe becoming soon choked with soot, nearly all should be perpendicular, or nearly so, so that by knocking on its sides, the adhering soot may fall. One of my stoves was at first fitted with seven feet of horizontal pipe; but in five weeks it was perfectly choked with soot. The stove was then moved, and the pipe made vertical. By knocking down the soot once a fortnight, no difficulty from this source is now experienced. Where the draft is considerable the soot does not so rapidly accumulate; hence in using another stove, less perfectly made, no inconvenience was found either from dripping or soot, for some months.

A self-regulating stove, made of Russia sheet-iron, will last, it is believed, under ordinary circumstances, not less than fifteen years.—*Albany Cultivator—Feb.* 1848.

ORIGIN OF THE NARRAGANSETT HORSES.

Eds. Cultivator—The following extract from Updike's "History of the Church in Narragansett;" a work which incidentally speaks of other things not relating to the church, furnishes, probably, the best account of the origin, decline and extinction of the famous Narragansett saddle-horses, that can anywhere be found.

James A. Charlton.

East Windsor Hill, Ct, Dec. 27, 1847.

"Mr. J. P. Hazard, in a communication to the author, says:

"'My grandfather, Gov. Robinson, introduced the famous saddle-horse, the Narragansett pacer, known in the last century over all the civilized part of North America and the West Indies, from whence they have lately been introduced into England as a saddle-horse for ladies, under the name of the Spanish Jennette.

"'Gov. Robinson imported the original from Andalusia, in Spain, and the raising them for the West India markets was one of the objects of the early planters of this country.

"'My grandfather, Robert Hazard, raised one hundred annually, and often loaded two vessels a year with them and other products of his farm; which vessels sailed directly from the South Ferry to the West Indies, where the horses were in great demand.

"'One cause of the loss of that famous breed here, was the great demand for them in Cuba, when that Island began to cultivate sugar extensively. The planters became rich, and wanted the pacing horses for themselves, and their wives or daughters to ride. They wanted them in greater numbers than we supplied them; and sent an agent to this country to purchase them on such terms as he could, but to purchase at all events. This agent never let a good one, that could be purchased, escape him.

"'This, and the fact that they were not so well adapted to draught as other horses, was the cause of their being neglected, and I believe the breed is now extinct in this section.

"'My father described the motion of this [kind] of horse as differing from others, in that its backbone moved through the air in a straight line, without inclining the rider from side to side, like the common racker or pacer of the present day. Hence the gait was very easy, and the horses being of great power and endurance, would perform a journey of one hundred miles a day, without injury to themselves or riders.'"

We are much obliged to Mr. Charlton for the trouble he has taken in procuring and forwarding the above facts in relation to the once celebrated Narragansett horses. We have never before been able to obtain a clue to their history. —*Ib.*

DOMESTIC ECONOMY, RECIPES, &c.

Keeping Beef Fresh.—Combe says the *ribs* will keep longest, or five or six days in summer, the middle of the *loin* next, the *rump* next, the *round* next, and the brisket the worst, which will not keep longer than three days in summer.—*Ib.*

Frost proof Cement.—Mix tar with sand; it gradually hardens, and as moisture cannot in the least degree penetrate it, it will never crack by frost. This was proved by the accidental upsetting of a tar barrel on a spot of sand—the cement thus accidentally formed, remaining impenetrably hard for years, although under the rain-water spout, and exposed to all weathers.—*Ib.*

Large Corn Crop.—In our notice of the farm of Mr. John Johnston, near Geneva, in the September number of the Cultivator for last year, we spoke of a field of corn which had been planted with Emery's Seed-Planter. It was the latter part of June that we saw the corn, and though it was then very promising, it was impossible to calculate the yield which might be obtained. Mr. J. informs us, in a late letter, that it turned out to be a heavy crop. There was nineteen acres in the field, but from what was taken up by an open ditch, and what was occupied by trees, he thinks there could not have been more than eighteen acres in the field. Mr. J.

says:—"I had 56 tons, 25 pounds of ears of corn. I regretted I could not spare time to weigh the stalks, when dry. On the whole it was the best crop I ever saw." A part of the field had been under-drained with tile. Mr. J. states that this produced far the best corn, though before it was drained it would neither bear grain nor good grass.—*Ib.*

Remarkable Pig.—At the time of the Pittsfield (Mass.) cattle show and fair last fall, we saw a very fine pig, belonging to Mr. F. A. Willis, of that town; and learning from him that he was keeping an account of the food it consumed, we solicited the result for publication. It appears from his statement, that the pig was slaughtered the 20th December last, and that her dressed weight was 460½ lbs. Deducting from this amount four pounds, which it was supposed the pig would weigh when she was dropped, leaves a gain of about one pound seven ounces per day, during her life. Her food was the skimmed milk from one cow, with oat and rye meal mixed. Mr. Willis owned her 217 days; and when he bought her she weighed 20 lbs.—her gain in that time was therefore 435 lbs. The grain or meal was all purchased, and the actual cost of everything consumed, excepting the waste slops of the family, was a fraction less than $20, or about four and a quarter cents per pound.—*Ib.*

Large Yield of Butter.—Mr. John Lossing, of this city has furnished us with the following account of the butter produced in seven days by a short horned cow owned by him. She calved the fore part of December; her calf was taken off at about a week old, and in the seven days succeeding, her milk afforded fourteen pounds of butter, besides the milk and cream used in a family of five persons. The food consumed by the cow in the seven days was as follows: fourteen small bundles of top-stalks, three bushels brewer s grains, half a bushel ruta-baga turnips, four quarts shorts." The milk used in the family is considered equivalent to one pound of butter. —*Ib.*

Ice Houses.—Since ice has been regarded an article of necessity, almost as much as a luxury, during the enervating and oppressive heats of our long summers, so much has been written on the construction of ice houses, it may be presumed that but little can be said on the subject which is new. We still remain unaltered in our opinion (see p. 280, of our fourth volume), that the success of keeping ice depends entirely on a dry atmosphere, through drainage, and free, uninterrupted ventilation. We condemn the practice of constructing any part of the main chamber, or receptacle for the ice, below the surface of the ground, or of attempting to screen the roof of the house from the sun by the planting of trees. It will be remembered that we have already remarked that shade trees attract moisture, and that moisture melts ice ten times as fast as a hot wind or its exposure to the sun. Neither do we approve of the sides and back of the ice house being of earth, as that is moist too; and, instead of preserving the ice, as is often believed, it has a tendency to cause it to melt. An ice house, then, may be placed in an open, airy situation, on the bank of a lake or stream, or any other convenient spot, above the level of the ground, with good drainage and perfect ventilation. If well filled with solid blocks of ice, cut out of as large dimensions as convenient—for the larger they are the better they keep—these are all the essentials requisite to ensure complete success. As a proof of this, we have only to refer our readers to the buildings on Rockland Lake, near the west bank of the Hudson, and the old Congregational meeting house, at Wenham Lake, between Ipswich and Salem, in Massachusetts. These buildings are all of wood, lined with sawdust or tan bark, and standing high and entirely above the ground. It is the same with the large public ice houses in this city.

The best, cheapest, and safest mode of constructing an ice house for this country, is, to make a wooden frame, with posts about a foot thick and six or eight feet high, and then to plank up inside and out, filling the space between with sawdust, tan bark, or pulverized charcoal, over which a roof should be built with a pitch of at least 45°, made of rough slabs, small saplings, or other materials, and finally well thatched with straw of a thickness of twelve inches to a foot and a half. Whether the soil be porus or not, we would construct a plank or slab floor, about a foot above the ground, sufficiently open to admit a free passage of all the melted ice. Beneath the floor, a ditch may be dug, running the entire length of the house, and leading to a lower level, perhaps of the adjoining stream; or, instead of this ditch, a deep cellar may be formed with proper drains, and one of Kephart's fruit preservers substituted for the floor of the house. The entrance doors, one at each end of the building, should be double, with a foot space between each, and trap doors to be opened when the weather is dry, and always to be closed when the air is damp or moist. The dimensions of the house should not be less than 13 by 20 feet with 6 foot posts.

Preparatory to filling the ice house, the floor should be covered with a bed of straw about a foot thick for the ice to rest upon. The operation of storing may commence as early in the season as the thickness of the ice will admit. The blocks may be sawed out about two feet square, and laid up like masonry, in a solid mass, impenetrable to the sun and air; and when the house is filled, the ice should be carefully covered up with a thick coating as they throw in, and thus make the whole into a compact mass.—*American Agriculturist, Feb.* 1848.

PRESERVED POTATOES.—An importation of considerable novelty and interest has recently taken place by a vessel arrived from Gottenburgh, consisting of some casks of potatoes in a state of preservation. It is known that this description of vegetable is free of duty, when imported into this country in a raw state, the privilege extending to all foreign countries, and for a definite period, without reference to the mode of introduction and the existing navigation laws; and the parcel was entered by the importers as being free of duty. On examination, however, by the officers of the Revenue, the contents were found to have undergone a process of preserving, by which they were considered to become liable to an *ad valorem* duty of 10 per cent. as manufactured goods, the process which they had undergone being the division of the potato into small pieces and drying them. We believe that this is a perfect novelty with respect to the importation of the vegetable from foreign countries. A patent is in existence for a preserved preparation of the potato in this country, which is supplied to the East India Company, and emigrants, and of which an analysis is given by Dr. Ure, the eminent professor of analytical chemistry, to the effect that it is found by chemical analysis to contain the whole nutritious principles (properties) of that root in a pure concentrated state, also 60 parts in the hundred at least of starch, nearly 30 of a soluble fibrine of demulcent antiscorbutic quality, five of a vegetable albumen of the nature somewhat of the white of egg, and five of a lubricating gum,—that the fibrine and albumen render it more light of digestion, and the gum more demulcent to the stomach than wheat flour, with which also it may be regarded as nearly equally nutritious, and more so than peas, beans, sago, or arrow root. It was a matter of some doubt whether this importation was in any way affected by the existing patent alluded to, but we believe it has been decided in the negative, and is of entirely different character, although similarly designated. Notwithstanding that the importation is a novel one, it is understood to be a common preparation of the vegetable in Sweden (from which country this supply took place), and to have been so for a long period, and that the only process in manufacture to which the potatoes have been subjected is that of being dried and forced through a sieve or cullender, which, however, is considered to render them liable to the *ad volorem* duty before mentioned.

NEVER GIVE UP.—What if you fail in business? You still have life and health. Don't sit down and cry about mishaps, for that will never get you out of debt, nor buy your children frocks. Go to work at something, eat sparingly, dress moderately, drink nothing exciting, and, above all, keep a merry heart, and you'll be up in the world.—*Franklin.*

REMARKABLE EXPERIMENT.—A recent work of science gives the following novel experiment, which settles questions of some importance in philosophy —"Two hundred pounds weight of earth were dried in an oven, and afterwards put into an earthen vessel. The earth was then moistened with rain water, and a willow tree, weighing five pounds, was planted therein. During the space of five years the earth was carefully watered with rain water, or pure water; the willow grew and flourished; and, to prevent the earth being mixed with fresh earth or dust blown in it by the winds, it was covered with a metal plate perforated with a great number of small holes, suitable for the free admission of air only. After growing in the air for five years, the tree was removed, and found to weigh 169 pounds and about 3 ounces: the leaves which fell from the tree every autumn were not included in this weight. The earth was then removed from the vessel, again dried in the oven, and afterwards weighed; it was discovered to have lost only about two ounces of its original weight; thus 160 pounds of woody fibre, bark, or roots were certainly produced; but from what source? The air has been discovered to be the source of the solid element at least. This statement may at first appear incredible, but, on slight reflection its truth is proved, because the atmosphere contains carbonic acid, which is a compound, or 714 parts weight of oxygen, and 330 parts by weight of carbon."

DANGER ATTENDING THE TOO EARLY DEVELOPMENT OF THE MENTAL FACULTIES IN CHILDREN.—There can be no doubt that many a child has been sacrificed in early youth to the pride of parents, who, delighted with the intellectual activity of their children, have striven to make them prodigies of learning. But in these cases of early and undue employment of the brain, inflammation of the hemispherical ganglion, or of the lining membrane of the ventricles, with serous effusion, has usually been the cause of either a fatal issue or of subsequent mental imbecility. The late Mr. Deville related to me an interesting case of this kind. An extremely intelligent boy, of about twelve years of age, was brought to him for phrenological examination by a parent who was very proud of the intellectual endowments of his child. Mr. Deville gave his opinion of the boy's character, at the same time cautioning the father of the dangerous course he was pursuing. But the father's reply was, "all that other boys considered labour and hard study are mere child's play to him; that his studies could not be hurting him, he enjoyed them so much." Again Mr. Deville endeavoured to save the child, but the father would not attend to the warning. Two years from that time the father again called on Mr. Deville, and in reply to his enquiries after his child, the father burst into tears—his child was an idiot.—*Solly on the brain.*

Good for a Goose.—The Rev. Cæsar Otway, in his paper on "The Intellectuality of Domestic Animals," gives the following anecdote, which is by far too good not to receive the benefit of a wider circulation:—At the flour mills of Tubberakeena, near Clonmel, while in the possession of the late Mr. Newbold, there was a goose which, by some accident, was left solitary, without mate or offspring, gander or goslings. Now it happened, as is common, that the miller's wife had set a number of duck-eggs under a hen, which in due time were incubated, and of course the ducklings, as soon as they came forth, ran with natural instinct to the water, and the hen was in a sad pucker- her maternity urging her to follow the brood, and her selfishness disposing her to keep on dry land. In the meantime up sailed the goose, and with a noisy gabble, which certainly (being interpreted) meant, Leave them to my care; she swam up and down with the ducklings, and when they were tired with their aquatic excursion, she consigned them to the care of the hen. The next morning down came again the ducklings to the pond, and there was the goose waiting for them, and there stood the hen in her great flustration. On this occasion we are not at all sure that the goose invited the hen—observing the maternal trouble—but it is a fact that she being near the shore, the hen jumped on her back, and there sat, the ducklings swimming, and the goose and hen after them, up and down the pond. And this was not a solitary event; day after day the hen was seen on board the goose, attending the ducklings up and down, in perfect contentedness and good humour, numbers of people coming to witness the circumstance; which continued until the ducklings, coming to days of discretion, required no longer the joint of guardianship of the goose and hen.

Northumberland "Ploughing Day."—At Roseden, near Wooler, on the 29th ult., Messrs. Atkinson, of Embleton, to whom that farm has been just let, received a hearty welcome from their neighbours and friends in the shape of a "ploughing day." The day was favourable, and there turned out no fewer than 176 pairs of horses, all of which were a credit to the district. Similar welcomes have lately been given, at Horton and Silburn Grange, to the new tenants, Mr. Brown, of Sandy House, and Mr. Ramsay of Tweedmouth. On the former occasion, 176, and at the latter, upwards of 100 ploughs were in the field.—*Gateshead Observer.*

Every Man's home.—To make it healthful and joyful; to insure, economically, impunity from fire; such a supply of fresh air, light (God's first great gift), and warmth, when needed, as the constitution of man demands, and to lead Art—capable of producing "an endless fountain of immortal drink"—delightfully to adorn it, is matter of world-wide interest. When it is remembered that homes are the manufactories of men, and influence a growing nation, the importance of improving these homes is at once seen. Perfect men come not forth from ill-arranged, ill-ordered dwellings: and how few homes are there which might not be improved!—*The Builder.*

PROTECTION OF MANURE.

The importance of protecting manure from the sun, wind and rain, may be estimated by the following calculation, for which I am indebted to the works of the French writer—*Giradin (desfumier's considérés comme Engrais, Puais)*, who, in chapter 5, quotes some experiments made by Koerte, which shew that in this exposure a hundred cart loads of fresh dung are reduced, at the end of

	Loads		Loads.
81 days to...	73.3	that is there is a loss of.....	26,7
254.....to ..	64,4	.....	35,7
384.....to...	62.5	.....	37,5
493.....to...	47.2	.....	62.8

Tobacco.—The greater part of the species of Nicotiana (the systematic name of the Tobacco plant) 'are natives of South America, and possess more or less of the narcotic qualities of that article of commerce which is so well known amongst us. Different countries adopt the cultivation of different species, which, in some degree, accounts for the various qualities known in commerce. The Americans cultivate the Nicotiana tabacum; the Persians, Nicotiana Persica; the Syrians, Nicotiana rustica; and the species rapanda is said to be that from which the finest Havannah cigars are manufactured. Several others are known to be grown for use amongst various tribes of Indians, some of whom, by the bye, have arrived at a refinement in the use of this luxury, which must put to the blush the admirers of mere leaf-smoke. These Indians—inhabitants of the banks of the Missouri,—as related by Pursh, prepare, 'for their own smoking,' a delicate species of Tobacco, not from leaves, but from the flowers of the species they cultivate. Thus we see that the time has to arrive, when smoking Englishmen shall possess the refined taste of their 'Tall Indian' brethren.'—*Mound's Botanic Garden and Fruitist, for July.*

Smokers.—It has been surmised, from the following extract, that the author of the Botanic Garden is no smoker; be this as it may, we give it for the benefit of our readers. 'From the smoker of Tobacco it should not be concealed, that the essential oil of Tobacco, like that from its kindred plants, Henbane and Deadly Nightshade, is a virulent poison; and which, in smoking, is inhaled and swallowed, and is frequently productive of paralysis. Its frequent use, like that of Opium, renders the system less susceptible of its active qualities; this, however, is but the evidence of disordered functions,—of natural sensitiveness destroyed; an effect which, like the effects of other poisons, can only be advantageous where rendered necessary by disease.'

"PLOUGH DEEP TO FIND THE GOLD."

BY JOHN PALMER.

Plough deep to find the gold, my boys!
Plough deep to find the gold!
The earth has treasures in her breast,
Unmeasured and untold.

Mark yon field of stately stooks
Rise on an Autumn day!
Lusty Labour jocund looks
Amidst their thick array;

Mark the barn-yard's ample space,
How grateful to behold!
Towers of riches fill the place—
Plough deep, and find the gold!

Earth is grateful to her sons
For all their care and toil;
Nothing yields such large returns
As drained and deepened soil.

Science lend its kindly aid,
Her riches to unfold;
Moved by plough or moved by spade,
Stir deep to find the gold!

Dig deep to find the gold, my boys!
Dig deep to find the gold!
The earth has treasures in her breast,
Unmeasured and untold.

JOHN PALMER.

Annan, 1847.

COAL ASHES—COMPOST FOR CORN.

I have been experimenting in the use of *coal ashes* for potatoes. On half an acre I put nothing but such ashes; on an acre adjoining was spread a good coating of well rotted horse manure; and on another half acre adjoining both the preceding, nothing. Soil, a sandy loam. I found the coal ashes fully equal to the horse may nure, the potatoes being very fine for the season. Where there was nothing, the yield was about *one half* what it was on the other portions,—both in quantity and size. I planted half a row with *diseased* potatoes, not a single sound one among them; but in the product I have not yet found the first diseased tuber.

The following was my compost for corn, during the past season:—forty bushels of pigeon dung; forty bushels of hog dung, well-rooted, from beneath an old pen; ten bushels of plaster; and five of unleached ashes. A common handful was put in each hill. The corn was earlier by two weeks, larger ears, better filled, and more of them, but less fodder, than where I put fifteen large two-horse loads of barn-yard manure to the acre. The whole crop was in the same field, and the soil and tillage were alike in both parcels.

Brunswick, Col. Co. Pa. J. H. YOUNG.

—*Albany Cultivator, Feb.* 1848.

INFLUENCE OF THE PRESS ON AGRICULTURAL IMPROVEMENT.

Mr. PAYSON, in his address before the Essex county (Mass.) Agricultural Society, says—"To enumerate *all* the improvements which have been made in Agriculture for the last half century, would take too much time. *One*, not only an improvement in itself, but the *basis* of all other improvements, must not be omitted, and that is the diffusion of agricultural knowledge by the newspaper press. Slowly, silently, almost by stealth, without the knowledge of the man himself, this mighty engine undermines old prejudices, and teaches the farmer that however independent he may be, he is not so wise that the experience of others will not profit him. Most of us have become willing to seek *directions* even though they may be contained in a book. We are becoming more like liberal, free-born, and aspiring men."

In relation to the same subject, Mr. I. S. HITCHCOCK, in his address before the Oneida county, (N. Y.) society, observes—"A medium of communication between farmers was found to be indispensable to the advancement of their interests, and the periodical agricultural press was established. That agricultural journals are among the most decided, and least expensive means of promoting agriculture, no one who has been favoured with their perusal for any length of time, will pretend to deny. While their influence has been highly beneficial, they have injured no one, and since their utility has been fairly tested by experience, that farmer is guilty of an unpardonable inattention to his true interests, who neglects to provide himself with a well conducted Journal of this kind. I am aware there is a prejudice against what some are pleased to call book-farming. And what is this book farming in relation to which such unfounded and untenable prejudices prevail? Farmers communicate to each other the results of their experience in raising horses, cattle, sheep and swine, the best and most economical modes of manuring their lands, the most profitable crops, and the best manner of raising them, the best breed of animals, and the best modes by which they may be fattened—in short, everything relating to the occupation of the farmer. The results are committed to paper, go through the press and become a book, and those who choose to be aided by the experience of others, as there detailed are guilty of book-farming."

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