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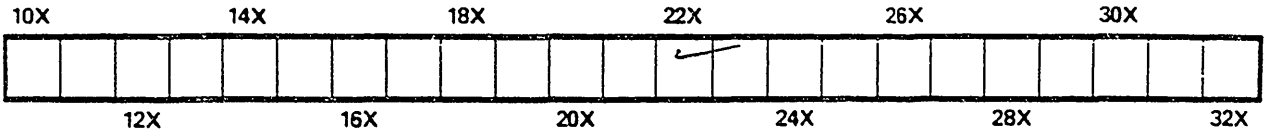

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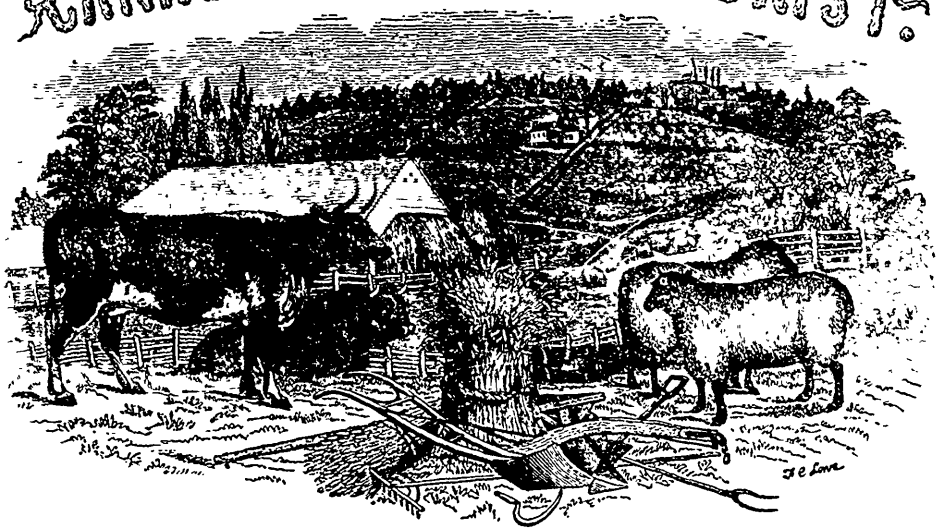

"The profit of the earth is for all; the King himself is served by the field."—Eccles. v. 9.

GEORGE BUCKLAND, WILLIAM McDOUGALL, } EDITOR, ASSISTANT EDITOR.

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SEASONAL OPERATIONS AND SUGGESTIONS.

Before this sheet gets into the hands of our subscribers the most important operations of spring sowing will have been brought to a close. So far the season must be considered as backward—the temperature,—with an exception or two, for a few days,—has continued low, and vegetation accordingly has made but little progress. Fall wheat in some localities is looking well, and promises, at present, a fair crop; while in others, particularly along the frontier townships, much of it is absolutely killed, by the exposure to which it was subjected during the severe weather of winter. So great is this evil in some places, that from 30 to 40 per cent. of the wheat is estimated to have perished. The slightest covering of rough manure, straw, or any kind of light vegetable matter, applied before the severe weather commences, would tend to mitigate this mischief;—but unfortunately, few farmers can command a sufficiency of such materials, to the extent required.

We hope that our readers have already made the necessary preparations towards securing a sufficiency of food, for carrying their stock through the next winter, in a healthy and thriving condition. It is a great, sometimes even a fatal mistake, to depend upon hay and straw

alone; turnips, carrots, mangel wurtzel, and other roots, have now been found most valuable auxiliaries to the stock farmer; and both the soil and climate of Canada are generally well adapted to these useful productions. All that now remains to be done is to keep the ground free from weeds by frequent cultivation, both by the hand and horse-hoe; the latter implement should be regarded as absolutely indispensable to every good farmer. The frequent stirring of the soil during the period of growth produces an astounding effect on the progress of all kinds of plants cultivated in rows. Air and moisture are thereby allowed more fully to permeate the soil, and the roots of plants are enabled freely to extend themselves in search of food. The food itself too, is thus rendered more available for building up the structure of the plant, so far, at least, as inorganic substances are concerned, while the land is kept in a good preparatory condition for the next crop.

The breaking up of fallows should be proceeded with without delay. Whenever practicable autumn or early spring ploughing, for this purpose, is to be preferred. It is the heavy tenacious clays which most need this kind of preparation, and such soils when allowed to become dry and hard, before breaking up, are most difficult and expensive to manage; for this, as well as other reasons, we prefer a deep ploughing in the fall. Fallowing is no doubt practised to a much greater extent, than is either necessary or profitable; but we confess ourselves not among the number who think that it might be dispensed with altogether. Even in England, this is not found in practice to be the case, except on the lighter soils. Not only does a summer fallow, when thoroughly made, clear the land of weeds, which of itself is an object of primary importance; but it effects certain mechanical and chemical changes in the soil itself, that are favorable to the healthy growth of plants. Root crops, however, when properly cultivated in rows, preclude the necessity of naked fallows; but in this country, it is unfortunate that such crops do not generally come off in sufficient time, for sowing fall wheat. If we could cultivate the horse-bean as in the old country, winter wheat might immediately succeed, with great advantage. Taking into consideration, as we should do in all cases of this nature, our peculiarities of climate, market-value of produce, &c.; we are clearly of opinion that, in the long run, it is not the most profitable system of farming in Canada, to adopt a rapid succession of crops. Thoroughly fallowing once in six or seven years, taking off but two grain crops, and liberally seeding down for hay and pasture, the farmer will generally be able, with the ordinary manure made on the farm, if properly taken care of and applied, to keep his land "in heat" for an indefinite period. This he could most certainly do with the application, now and then, of a little lime in the form of a carbonate, sulphate or phosphate. The first should be thoroughly incorporated with the soil, when in a caustic state, by a deep cross ploughing, and the repeated use of the harrow or cultivator. It will frequently be found in some fields, that only patches of thistles of most luxuriant growth obtain; these portions should be ploughed as deeply as possible every fortnight, during the summer; and when this pest makes its appearance in pastures, it should be cut off, as much below the ground as practicable.

At this season *under-draining* such portions of the fallows as are wet, may be advantageously performed. This matter demands the special attention of the farmer, who should employ all practicable means to get rid of superfluous water; thus bringing those parts of his fields that are now swampy and unproductive, under profitable arable culture. A few well-made drains, judiciously disposed, will frequently effect an entire change in the productive capabilities of several acres. The expense will generally be repaid by the increase of the first or second crop, leaving for a bonus, the *permanent improvement of the soil.*

Every opportunity should now be seized for removing stones from fallow, and all other obstacles to clean and efficient cultivation. Too many farms, even in our oldest settled districts, are yet unnecessarily encumbered and disfigured by stumps and decaying logs, which the fire ought long ago to have converted into food for the crops. The neat and improving farmer will accomplish a certain portion of this kind of work every year, and will thus be constantly increasing the picturesque appearance and productiveness of his estate.

As the oppressive heat of summer approaches, those who set a proper value on comfort and health, will pay strict attention to the cleanliness of their premises. Cellars and root-houses should be thoroughly cleaned out, and the general application of white-wash is stongly to be recommended. All decomposing matter, whether of animal or vegetable origin, either in the solid or liquid state, should be removed to a distance from the dwelling-house, and carefully collected and preserved, for the purposes of manure. A frequent sprinkling of charcoal dust or gypsum, on the floor of stables or over manure heaps,—which latter ought to be protected by a covering of black muck or mould, from the action of the sun and rains,—would tend to fix those volatile or gaseous substances, which though injurious to animals are essential to the nutrition of plants. By systematic attention to these apparently little, but in reality, most important matters, the comfort and salubrity of the farm-house and premises may be increased, and the fertilizing power of the manure heap augmented many fold. Health and competence then are seen, in the case of the farmer, to be mutually dependent.

THE IMPROVED BREEDS OF CATTLE.

To the Editor of the Canadian Agriculturist.

May 20th, 1851.

SIR,

Having seen in your columns the other day a letter from Mr. Tye, of Wilmot, the well known breeder of North Devons, I cannot resist the temptation of adding a word or two on the same subject. The Durhams seem to be the fashionable breed of cattle, chiefly on account of their large and showy though rather course frame, and early maturity. In the point of early maturity they certainly bear away the palm, as they ripen for the butcher 6 months or a year before the Herefords and Devons, but the following extract from the last *Agricultural Gazette*, of the prices in Smithfield Market, shows the public opinion of the quality of their meat:—

"Best Scots, Herefords, &c., 3s. 6d. to 3s. 8d. per stone (8 lbs.); best short horns, 3s 4d. to 3s. 6d. per stone."

In addition to which the middle-horned red breeds, especially the North Devons, are proportionally heavier. For milking they do not seem equal either in quantity or quality, proportionally to the food they consume, and their size, to the North Devons, the Herefords seeming inferior to both as milkers. As working cattle, a subject of some importance, they are far surpassed by both the Herefords and Devons, the latter being the quickest, handiest, and most honest workers; and the Herefords, though slower, heavier and quite as true. Another great fault in the Durhams will be found in the report of the Agriculture of Yorkshire, by the *Times* commissioner, "One of the most experienced men in the district, himself an eminent breeder and first-rate judge, informed us that one season 34 of his high-priced and high-bred cows missed having calves, and so great are the risks attending this business, that it is every year narrowing itself into fewer hands." That well bred cattle are easier kept in proportion to their value, and give greater returns, I believe is a fact no one will be found to deny but; it is also a self-evident fact, that the same cattle will not suit all situations, and I am afraid that the universal use of short horns will in many places lead to great disappointment.

I remain, Sir,
Yours, &c.,
AGUSTIS.

P. S.—As regards mere beauty, which in my opinion, is a thing not to be slighted, nothing can equal the exquisite and graceful symmetry of the North Devon. By the way, I think, Mr. Marks' suggestion of a Canadian Herd-book, for all improved breeds, a most excellent one, as such a thing would give a great security to a purchaser of cattle.

GEOLOGICAL SURVEY OF CANADA.

Blackfriars Mills, London, C. W.
8th April, 1851.

To the Editor of the Canadian Agriculturist.

DEAR SIR,

Numbers of your subscribers in the London and Western Districts, have, up to this time, been anxiously expecting (through the medium of your useful columns, or some other source,) the report of our Canadian geologist, through this section of the Province, about two years ago. When at London, that gentleman visited one of our best farmers, Mr. Christopher Walker, in the 12th Concession, and also the flats of our beautiful river Thames, and took specimens of the soil, with a promise that we should be furnished with a statement of their several qualities and requisites in the spring following. That time has passed and another at hand, yet nothing has appeared to satisfy the curiosity excited. Do, if you please, in your next publication, as our agricultural instrument, find out something relative to the important question,— What this part of the country requires, especially the river flats, to realize better crops?

I am, Dear Sir,
Your very obedient servant,
ROGER SMITH.

P. S.—Our fall wheat looks admirable in this section of the country and around Goderich.
R. S.

[Anxious to meet the wishes of our subscribers in the London and Western Districts, as referred to by our correspondent, we subjoin from Mr. Logan's Geological Report for 1849 –'50, such portions as bear upon the objects of the enquiry. It is to be regretted that these valuable reports are not better known in the remoter districts of the country. Some of our readers may not be aware of the fact, that T. S. Hunt, Esq., is the chemist and mineralogist to the Geological Survey, and consequently the analysis of soils falls within his department. In the fall of 1849, Mr. Hunt collected forty specimens of soils from different parts of Upper and Lower Canada, the results of such as he had been enabled to analyze are appended to the

before mentioned report, and the remainder we should suppose will appear in the next. Few of our readers have any conception of the time and attention required in making a correct and thorough analysis of a soil; several of the operations are of the most delicate nature, requiring the best modern apparatus, with the minutest attention and most advanced knowledge of the manipulation. Many analysis of soils that have been made and published, are next to useless, for any practical purpose; indeed, not a few of them, from the imperfect manner in which they have been performed, will positively mislead. From Mr. Hunt's well known industry and attainments as an analytical chemist, the public may place the utmost confidence in the accuracy of his results. The following is that portion of his report which relates to Upper Canada.]—Ed.

SOILS FROM CANADA WEST.

When at Brantford, I had occasion to examine an interesting tract of land upon the Grand River. It consists in its original state of fine open plains, somewhat elevated, and may be defined as extending from Galt down the river for about eighteen miles. These plains support a fine growth of oak remarkably free from underwood, and are known by the name of "oak openings." The soil is a sandy loam very uniform in its character, which at a depth generally of from two to six feet, is underlaid by a coarse gravel, thus affording a natural drainage. The crops of wheat obtained upon these lands are excellent, but wheat is seldom sown for two successive years; the fall grain is generally followed by a spring crop, and the field then sown down with grass or clover, and pastured for one or two years.

Potatoes and root crops, as beets and turnips, succeed equally well upon these plains, which under a careful system of rotation are very productive; but it may be remarked that they would never endure the systems of tillage which are practised upon the heavy clay lands of the valleys of the Richelieu and the Thames. Besides the ordinary manure of the farm-yard, gypsum, which is found in great abundance in this vicinity, is very advantageously employed as a manure, especially for clover.

Along the banks of the river, at a lower level than the oak openings, are fine alluvial *flats* of a rich heavy mould, covered in their natural state with a thick heavy growth, principally of elm, beech and maple. The soil of these flats is scarcely adapted to wheat, which grows too luxuriantly, and is apt to suffer from rust, but it produces abundantly all the other crops of the upland.

Of the specimens illustrating the composition of these soils, the analysis of two are subjoined, which were collected at Strathmore, the residence of Major Burroughs, near Brantford. No. 13 is from the oak plains, and is the loam from an untilled and recently cleared field, taken from under a sod at the depth of eight inches. No. 14 is the black loam from the flats, taken under similar circumstances. A large proportion of No. 13 is very finely divided and readily washes away, but still is not of such a nature as to give to the soil the character of a clay.

The gravel is partly quartzose and partly argillo-ferruginous, as if derived from some decomposing sedimentary rock.

It consists of

Sand	47.4	
Finer material	49.2	
Organic matter	2.4	
Water	1.0	
		100.0

100 parts of it gave

Alumina	2.090
Oxyd of Iron	2.520
Lime	.310
Magnesia	.456
Potash	.105
Soda	.060
Phosphoric Acid	.380
Sulphuric Acid	.008
Soluble Silica	.060

The black loam, No. 14 is slightly calcareous; it consists of

Sand	72.0	
Finer material	20.0	
Vegetable matter	6.5	
Water	1.5	
		100.0

100 parts of it gave

Alumina	.915
Oxyd of Iron	2.415
Lime (as carbonate and sulphate)	5.200
Magnesia (as carbonate in part)	3.460
Potash	.162
Soda	.190
Phosphoric Acid	.303
Sulphuric Acid (=.158 of gypsum)	.093
Soluble Silica	.225

The examination of an interesting series of specimens which I collected while in the vicinity of Chatham, Western District, is as yet unfinished. The rich alluvial flats of the valley of the Thames extend from the north branch of Bear Creek, on the north, to near Lake Erie on the south, constituting a large portion of the western peninsula. The land is quite level, and requires draining to make it fit for successful culture. The soil may be described as a rich black mould, which along the Thames is from six to ten inches deep, but near Bear Creek is said to be very much thicker.

This at the places where I examined it upon the banks of the Thames, rests upon a yellowish or grayish clay, often containing abundance of small shells, which by exposure to the air darkens and crumbles down into a mellow granular

soil. In some sections seen near to the village of Chatham, this clay was about four feet in thickness, and was underlaid by a more or less sandy loam, regularly stratified, while beneath at about ten feet from the surface, appeared a tenacious blue clay. The ordinary tillage rarely brings up the lighter colored subsoil, but a plan of deep ploughing has been lately adopted by some of the farmers with excellent results. The wheat sown upon the black mould grows too luxuriantly, and is disposed to rust, tendencies which are arrested by an admixture of the clay. There are fields near the river in the Township of Raleigh, which I was well assured had been cropped with wheat for thirty or forty years, without manuring, and with very little attention to crops or fallowing, and yet these still yield very fair returns. Upon the best conditioned lands thirty-eight to forty, and even forty-two bushels of wheat to the acre, are obtained in good seasons. Hemp has recently been tried with much success.

The newly cleared lands are frequently first sown with Indian corn, which grows luxuriantly, and preferring as it does a light open soil, succeeds perfectly well in the richest moulds. The crops of oats and barley are also very fine, potatoes succeed well, and mangel-wurtzel and carrots are beginning to be cultivated for the feeding of stock. The evil of rust is often severely felt upon the wheat crop; the fall sown grain however, suffers less from it than the spring wheat. Sifting lime over the field while the grain is yet in the milk is said to have been found useful in preventing this disease, and I was informed by a gentleman interested in agriculture, that a plan which has been tried in very rich soils is to sow a much larger portion than usual of grain to the acre. The result of this is, that the plant becomes checked in its otherwise luxuriant growth, and ripening more rapidly, escapes the rust. The yield is not what would be obtained in proper soils with much less grain, but it yields crops of wheat where other means have proved unsuccessful in the Townships of Zone, Dover and elsewhere, and is recorded rather as a fact of interest than an example for general adoption. Draining and subsoil ploughing, where the clay can be brought to the surface, will be found the remedies most efficacious.

Such is the fertility of the soils in this region that but little need has hitherto been felt of a system of rotation in crops; some however have begun to adopt it, and have commenced the cultivation of clover, which grows finely, especially with a dressing of plaster, which is used to some extent.

The natural growth of these lands is oak, elm, with black walnut and whitewood trees of enormous size; the black walnut timber is already becoming a considerable article of export. Fine groves of sugar-maple are also met with, from which large quantities of sugar are annually made.

I give here an analysis of a specimen of the black mould from the seventh lot of the first range of Raleigh. The mould here is eight or ten inches in thickness, and had been cleared of its wood, and used six or eight years for pasture; the specimen from a depth of six inches contained but a trace of white silicious sand.

No. 15. It consisted of—

Clay	83.4	
Vegetable matter	12.0	
Water	4.6	
		100.0

100 parts of it gave—

Alumina	2.620
Oxyd of Iron and a little Oxyd Manganese	5.660
Lime	1.500
Magnesia	1.060
Potash and Soda	.825
Phosphoric Acid	.400
Sulphuric Acid	.108
Soluble Silica	.290

The examination of the clay subsoil is yet to be made, as well as the determination of some points of interest with regard to No. 15.

Near to the mouth of the Thames, and skirting the borders of Lake St. Clair, is an extensive prairie which is supposed to cover about 30,000 acres. Commencing nearly behind Chatham, it forms a belt three or four miles wide, which keeps the south side of the Thames for about six miles; here it comes upon the river, and occupying both banks, extends down to the lake; stretching as far as the eye can reach in one vast plain, broken only here and there by *oases* of forest, like small islands, dotting it surface. These consist of a growth of soft maple, walnut and elm, with occasional willows, which are seen springing up here and there in little copses, with thorns. The plains are covered in some places with a coarse sedge, and in others with a stout jointed grass, which sometimes attains the height of three feet, and makes good hay pasturage for the half-wild poneys which feed in great numbers upon these prairies.

In spring time the greater portion of this region is overflowed with water from a few inches to two or three feet in depth. The whole of the country to the south from the ridge near Lake Erie, discharges its water upon this tract, and it is said that in the spring time a current is perceptible across the whole surface. In 1836–'37 nearly the whole prairie was covered throughout the year, a circumstance connected with the yet unexplained change in the levels of the upper lakes.

The soil is a black unctious mould from six to eighteen inches or more in depth, with a subsoil composed of blueish or whitish clay, which by exposure to the air readily disintegrates. It often contains shells and fragments of wood, and an intelligent man employed in ditching assured me that he had met with the end of a canoe at the depth of eight feet in the heavy clay. About 2,000 acres of the prairie are under cultivation in the Township of Raleigh, and from 6,000 to 7,000 more rise to a height of about twelve feet above the lake, and might readily be drained. Some

parts of the eastern extremity are at present rarely submerged, and present gentle undulations of gravelly loam, black with vegetable remains.

The cultivation of wheat does not succeed well upon the mould of the prairie; the heaving of the soil injures the fall sown, while the spring sown grain rarely escapes the rust. Where however, the mould is so thin that deep plowing can be made to bring up the clay, a good wheat soil may be obtained. Indian corn, oats and barley succeed and grow luxuriantly, as also many root crops. The last season, although the tillage of these lands is not generally the best, the first prizes for these products, offered by the County Agricultural Society, were gained by crops raised upon the reclaimed prairie.

The cultivation of grass has hitherto been much neglected, as the natural growth of the country serves for both hay and pasturage, but clover has been a few times tried and great crops obtained. One fault of the soil is its exceeding richness in vegetable matter; it is probable that a judicious application of quicklime would be found very useful. Specimens of the soil were taken from a recently drained portion in the seventeenth lot of the first range of Raleigh. The mould was here twelve inches deep; a specimen of it at the depth of six inches, No. 16, and one of the clay at twenty inches, were taken. The analysis of the mould is subjoined; it contains no sand, and consists of—

Clay	80.9	
Vegetable matter	13.6	
Water	5.5	
		100.0

100 parts previously ignited, gave—

Alumina	4.340
Oxyd of Iron	7.090
Lime (in part as carbonate)	1.580
Magnesia	1.030
Potash	.855
Soda	.240
Phosphoric Acid	.320
Sulphuric Acid	.155
Soluble Silica	.380

An analysis of the soil before ignition, a determination of the condition of the organic portion, and an examination of the subsoil, are yet to be made.

I have not spoken of my examinations of the soils in the vicinity of Woodstock and Zorra, in the neighborhood of London and Lobo, of Hamilton, and of St. Catherines and Port Dalhousie, as the results are not yet completed, and must form part of a future Report.

I may however here introduce the analysis of two interesting calcareous clays from London and Niagara. That of London is met with at a depth of five to ten feet, and is seen cropping out upon the banks of the Thames, near the town; wells have been sunk in it thirty and forty feet. Mr. Hamilton of London, who had submitted it to a partial analysis, has found it extremely beneficial as a manure when applied to his garden. It has the texture of a fine clay and is mixed with limestone pebbles; during solution in hydrochloric acid it evolves a bituminous odor; it contains no sulphates.

No. 17. It consists of—

Clay insoluble acids	57.00
Carbonate of Lime	29.40
Carbonate of Magnesia	6.91
Phosphate of Lime*	.39
Oxyd of Iron and Alumina	4.40
Water, alkalies and loss	1.90
	100.00

A similar clay to that of London is found in like circumstances in Delaware and Mosa, and a specimen from Port Stanley was found to be similar in constitution. For those soils which are deficient in lime, it will be evidently extremely valuable, as it is in composition a rich marl.

The second is a clay taken at a depth of eight inches from an untilled field in the Township of Niagara, upon the ridge of land or escarpment here formed by the Niagara limestones. It contains three or four per cent. of silicious sand with mica, and some calcareous pebbles.

No. 18. Analysis gives for his composition—

Insoluble in icids	50.00
Carbonate of Lime	15.30
Carbonate of Magnesia	7.68
Oxyd of Iron, Alumina, Manganese, a trace	13.50
Alkalies	.51
Phosphoric Acid	.09
Moisture	4.70
	99.78

It contained besides a small amount of sulphuric acid, which was not determined.

I have refrained from speaking of the conclusions to be drawn from the preceding analysis, or the various theoretical deductions which might present themselves to the agricultural chemist, because sufficiently complete investigations have not yet been executed, to warrant me in generalizing. Some of the consequences are however so obvious, as to suggest themselves to every scientific agriculturist, and to the attention of such I commend these results, as the first fruits of my labors on the soils of Canada."

* The composition of the phosphate of lime here represented, is that of bone earth, of which thirteen parts correspond very exactly to six of anhydrous phosphoric acid.

(*Concluded in our next.*)

To the Editor of the Agriculturist.

SIR,—

As you seem anxious that farmers one and all should contribute to your valuable periodical, I hope you will excuse the liberty I have taken in addressing these few lines to you. I am led to make the following remarks by a conversation lately held with one of our most extensive city brewers; at the same time bearing in

mind the unpleasant recollection of a somewhat similar one with a wheat-buying miller, two years ago. The subject of conversation was the character of the Canadian farmer, as compared with the English farmer,—both gentlemen referred to being of the latter country.

The miller was complaining that a number of the bargains made with farmers for their grain by sample, proved to be tricky; they either cleaned up a portion for such purpose better than the crop, or selected the sample from the best portion of the grain, so that they were almost always taken in, when purchasing in that way. Now they say this would never do in England; nor should I think it would anywhere else. Another constant trick was, he said, to sell all their crop, say from one to five hundred bushels, at a stated price; which quantity they would augment, in case of reduction in price, from one to three hundred bushels, and diminish in the same proportion, if the market went up, selling the remainder to a fresh purchaser.

Now the other account was so much better that I at once felt we should earn a fairer character in the eyes of our fellow-creatures. The brewer said that he had contracted for some thousands of bushels of barley at, and under 2s. 3d. per bushel, and that although the price had been all the time a shilling above that agreed upon, in every instance the farmer had delivered his crop honorably.

I am quite sure it is not necessary for farmers in Canada to resort to such dishonorable actions, to obtain a comfortable living; honest, sober and industrious farmers can, and do make a good living. I am certain I could find 40 farmers in this country very comfortably off, that were old servants of my father or mine, and commenced their new-world life without five pounds.—Whenever they find that they are not getting on fast enough, or feel the least dissatisfied, let them look upon many of the companions of their youth, still in the old country, pining to leave the home of their birth, which cannot be accomplished from poverty, while they after a sojourn of ten or fifteen years in Canada, are the owners of a good farm, from 50 to 200 acres, with every comfort about them, and almost invariably looking back with satisfaction on the day when they left the land of their nativity. Then why resort to such dirty actions as the miller referred to? Why not try to build a *character* to be proud of, as well as a fortune? The former can be done without distressing toil and labour, and always yields a happy harvest; while the latter is sure to be mixed with many disappointments.

Your obedient servant, R. L. DENISON.

Toronto, May, 1850.

[Instances such as first stated by our correspondent are, we should hope, becoming less frequent as society advances, and men's intercourse with each other increases. The diffusion of sound knowledge among the people, and the elevation of their moral sentiments must be looked to as the only efficient antidote for the evils here complained of. Intelligence, guided by christian principles, is the sure basis of a nation's progress and happiness.]—EDITOR.

CABBAGES AS A FIELD CROP.

(For the Canadian Agriculturist.)

Last year I purchased a number of cabbage plants of the drumhead kind from a gardiner, and set them out in a field four feet apart each way; hoed them well through the season and in the fall, as soon as the grass began to fail, I fed them to my cows in the yard, at the rate of five cabbages per cow per day.

The largest cabbage weighed 34 lbs., and the average weight of each 20 lbs. The soil a rich damp vegetable one, with clay subsoil, originally a swamp.

Part of the cabbages were set out on the 10th June, and the remainder on the 20th June, and the latter were the finest. I prefer to buy my cabbages of some gardener, and pay a higher price to have my pick of the lot, as the largest are always the best, and a farmer, generally, has no time to attend to raising them in a garden or hot-bed, as they get choked with weeds and become small and sickly in consequence. Altho' planted 4 feet apart, they completely covered the ground at the time of heading. A few were sold at $1 per dozen heads.

There is, perhaps, no plant so useful to feed cows upon in the early part of winter as cabbage. Cows fed on them yield a large quantity of milk, and the butter made at that time will keep fresh and sweet a long time. Yet few attempt to grow cabbage, except in gardens for the table.

It is as easily cultivated in a field as corn or root crops, and any soil is suitable provided it be damp and rich. Five thousand cabbages can be grown upon one acre, which at 15 lbs. each will give 33 tons of solid food. They can be stored on the barn floor or in any out-building, as frost does not hurt them.

J. M.

Ancaster, May 22, 1851.

BIRDS' EGGS.

The composition of eggs affords much curious instruction. The body of the egg contains neither lime nor phosphoric acid, both of which substances are requisite for the bones of the young bird; these materials therefore are furnished by the shell, which becomes progressively thinner during the period of incubation, till the living embryo has appropriated a sufficient quantity for the formation of its bones. Part of the albumen combines with the shell for this purpose, and another portion forms feathers.

Fowls kept closely confined away from substances containing lime, will lay eggs without shells. Dr. Paris has shewn, that if the legs of hens be broken, they will lay their eggs without shells until the fracture is repaired; nature employing all the lime in circulation for the purpose of reuniting the bones;—a beautiful and beneficient contrivance. Eggs may be preserved by rubbing them over with butter or varnish, which by filling up the pores in the shell, cuts off the communication of the embryo with the external air. The embryo, however, is not killed. Reaumur covered eggs with spirit varnish, and found them capable of producing chickens after two years, when the varnish was carefully removed.

REPORT OF THE ROYAL AGRICULTURAL SOCIETY OF PRINCE EDWARD ISLAND: 1851.

We have been favored with a copy of the proceedings of this Society during the past year. The document commences with an allusion to the lamented death of His Excellency Sir Donald Campbell, whose knowledge of agriculture was both practical and extensive, and who had rendered essential aid to the Society. All kinds of crops,—with the exception of hay, had been abundant. The cultivation of Indian-corn was extending. The Committee had held 26 meetings during the year. A difficulty was felt in inducing the farmers to procure and read agricultural publications; and the propriety of issuing a monthly journal, under the auspices of the Society, was suggested; said journal to be distributed *gratis*, in all parts of the Island. The annual Fair and Cattle Show was held in Charlottetown;—the collection was small, but several fine animals were exhibited. Cattle-shows had likewise been commenced in King's and Prince's Counties, which with perseverance, hold out a fair promise of success. The Committee recommend that the sale of intoxicating drinks in booths erected on the premises, should be prohibited by the local authorities on these occasions.

The Society import annually a considerable quantity of seeds, comprising several kinds of grasses, turnips, carrots, parsnips, &c. Three or four depots, in different parts of the Island, have been established for the sale of the same; an arrangement that appears to have been very satisfactory and beneficial. Nine Ayrshire heifers, in calf, had been imported from Scotland during the year, at a cost of £258; they were sold, 3 in each county, realising a total of £136; thus leaving the Society £122 minus by this transaction. This, however, was considered the most expeditious mode of extending a fine breed of stock. A Galloway bull and a Durham heifer in calf had been ordered. There are some pure Galloway cows, and one or two pure Durham bulls in the vicinity of Charlettetown.

The culture of turnips is extending, and the yield increasing. From 20 to 30 tons per acre are commonly obtained after proper treatment.

"Judging from the appearance of the fields which produced the best crops, the undersigned are of opinion, that if the drills were nearer together than they are usually made, that is, not further apart than from 24 to 26 inches, and the plants thinned out to 12 or 14 inches apart in the drill, the crop would be much benefitted, as greater space would then be allowed for the extension of the leaves in every direction, giving thereby a more rapid growth as well as a better shape to the turnip; this applies more particularly to the variety of Swede called "Skirvings," which has a much heavier growth of top than any other in cultivation here. Considerable prejudice exists against this variety from their tendency to run up to *long necks*, which, however, would be materially checked if the plants were thinned out as above-mentioned. The largest crops, however, raised this year, *were of that kind*—the seed sown by Judge Peters imported by himself—that sown by Mr. Simpson and Mr. Wright imported by the Society. The greater quantity of top which this variety furnishes is

also of some moment, and the attention of farmers appears to have been given, in many instances, to a proper saving of them as an article of food for their stock. It may not be amiss to mention here, that they should always be carted from the field and fed either in the stable or barnyard, or laid in rows upon a grass field, which would be materially benefitted by the operation.

The variety called "*Lang's Purple Top*," partially sown this year by Mr. Peake, Mr. Pethick and others, from seed raised by Mr. Beer, has much better shaped roots, and is, perhaps, the best to cultivate when sale either for home market or exportation is intended.

The practice of applying the manure, intended for a turnip crop, at two different periods, appears to be advisable, and where the first dressing can be given in the fall, so much the better. This should be not less than from 30 to 40 loads ploughed in, and from 25 to 30 put in the drills immediately before sowing. The latter should consist of well fermented manure. The seed should be sown as soon after the drills are made as possible while the earth is fresh.

From 10th to 25th June appears to be the best time for sowing."

The following judicious observations have a wide application.

"Before concluding this Report, we would briefly allude to a few subjects to which the attention of our Farmers should be *particularly* directed:

Firstly: Fencing is becoming scarcer every year. This approaching difficulty should be met in time, by the planting of Hawthorn Hedges, which grow well here. The Spruce and Beech also, when transplanted young, make an excellent hedge. The Spruce hedges on the Farm of the Hon. G. R. Goodman, will turn any thing, and are well worthy of imitation.

Secondly: Endeavour to adopt a proper rotation of Crops, and at once abandon the practice of cutting repeated crops of Hay off the same land in succession, without top dressing.

Thirdly: Recollect that a Beast kept in a Warm Stable will thrive better, on less food, than one kept in a Cold one, on a larger allowance—therefore improve your stables and cattle houses in this respect.

Fourthly: Feed your cattle better—a cow well fed in winter, will give more milk next summer.

Fifthly: Feed all your Calves well the *first* winter, and give your Bull Calves a little grain, in addition, if you wish to improve your stock.

Sixthly: Arrange your Farm Yards so that the dung may fall into a pit, and cover it with a shed if you can, to protect it from the rain and snow; at all events, do not allow its juices to run away. Be diligent in making composts: lay every bog swamp, and road side under contribution for them. Save all bones, ashes, and soap suds, for your Turnips; and collect every thing that you can come at for Manure.

Seventhly: Sow Red and White Clover, and Timothy as liberally as you can afford, when you lay a field down; the more the better—and give up the foolish practice of leaving a field to seed itself."

ON THE RELATIONS OF SCIENCE TO PRACTICE IN AGRICULTURE.

[We take the following remarks from a paper in a recent number of the Scottish Journal of Agriculture, from the pen of Dr. Anderson, Chemist to the Highland Society, a gentleman of high scientific attainments, and successor to Professor Johnston. Seldom have we seen anything written on this subject, more truly in accordance with the cautious spirit of the inductive philosophy. Professor Johnston, himself, had experienced no little annoyance from the unreasonable conduct of some individuals who had fallen into the delusion, at one time very prevalent in England, among sanguine and half informed minds, that Chemistry was about to pour immediately forth a flood of light and prosperity on agriculture. When disappointment came a reaction, as was naturally to be expected, ensued; and there is now some ground for apprehension, that the services which Chemistry can render practical agriculture, when patiently and perseveringly performed, may be depreciated or neglected. We commend the observations of Professor Anderson, to the attention of the intelligent, practical farmer, as well as the man of science.]

The application of science to agriculture is a subject on which so much has been said and written, during the last few years, and which has occupied so much of the attention of the agricultural public, that it may seem almost superfluous to add to what has already been penned. It has always appeared to me, however, that there are still many points of great importance for the practical man to consider, which have either never been sufficiently prominently presented to his view, or which, from their being less striking, or perhaps less enticing, have been allowed to fall into the background, and have hence led to a cer-

tain amount of misapprehension in regard to the exact position of science and its relations to practice. Such misapprehensions it would be desirable under any circumstances to dispel; but now that the Highland and Agricultural Society has actively taken up the prosecution of agricultural chemistry, it is of primary importance that the farmer and the chemist should come to a distinct understanding with regard to the mutual bearings of scientific and practical agriculture—the manner in which they can be made to assist one another—and, what is of all others the most important point, how they can be made to co-operate, so as to establish on a firm basis the general principles of agricultural science, which must necessarily be the first step towards the developement of a scientific practice. Under these circumstances, I have thought that I might advantageously refer very shortly to some of these matters, and point out what we are in future to expect from the application of chemistry to agriculture, the more especially as it is not very difficult to perceive that the interest which attached to it has somewhat abated with the general public, though I believe it to be undiminished with our most active and intelligent practical men.

This very diminution in the interest attaching to chemical agriculture, I believe to be mainly founded on one of the most serious misapprehensions—serious alike to agriculture and to chemistry—with which we have to contend; and that is the erroneous and altogether extravagant expectations which some persons entertained, regarding the extent and rapidity of the influence which chemistry is likely to exert upon agriculture.—To hear them talk of it, one might almost imagine that chemistry, as by the wand of a magician, is at once to spread fertility over our barren moors, and raise abundant crops where nothing ever grew before; and that the chemist can, by a few simple experiments, determine with absolute precision the circumstances under which the farmer must go to work, so as to produce an abundant crop. It needs not to be mentioned that such views are the exception, not the rule; but, between this extreme case and those likely to be fulfilled, there are many expectations which, with less apparent extravagance, are equally beyond the powers of chemistry in its present imperfect state, and involve questions which, if they ever can be answered, must await the advance of pure science to a point much beyond that to which it has yet attained. Nor is it, perhaps, matter of much surprise that such expectations should have been entertained, as it must be admitted that the general public is not in a position to estimate correctly the extent of the benefits which it is likely to derive from the application of science to any art; and, unfortunately, in the present instance, it has been mislead by the far too laudatory terms in which the application of chemistry to agriculture were talked of some years ago. Hopes were then excited which, to those intimately acquainted with chemistry, it was very evident could not be sustained, but which the enthusiastic embraced at once; only, however, when they were disappointed, to abandon as worthless the whole science itself, along with the unobtrusive modicum of real progress, which was altogether lost sight of amidst the ruins of their lofty expectations. Even those who take a more cautious and sober view of the progress of agricultural chemistry are apt to be led into expectations greater than facts justify, by the extraordinary progress which the application of chemistry has effected in some other arts, such for instance, as the art of bleaching and the manufacture of soda, which chemistry, by one great stride, raised from a state of primitive rudeness in which they had existed almost from time immemorial to one at least of comparative perfection. Such facts may lead us at first sight to expect that the application of chemistry to agriculture should be followed by equally rapid results; but a little further consideration seems to point out a very material difference between such arts and the cultivation of the soil. In such a case as the manufacture of soda, for instance, and indeed in all those in which the application of science has produced the most marked results, the chemist has presented to him for solution a definite and circumscribed problem, involving the mutual relations of some three or four substances; and he is able to trace the changes which the coal, common salt, and lime employed, undergo, from the commencement of the process through each successive step, until the soda is obtained in the perfect state; but in the art of agriculture each question frequently involves, not one, but many problems, connected with the highest and most obstruse doctrines of the science, in which not merely chemical forces, but the far more recondite phenomena of life come into play, and in which the investigations of the chemist are carried on, and his conclusions tested under the influence of weather, climate, and many other perturbing causes.

The extreme complexity of the problems with which agricultural chemistry has to deal may be conceived from the fact, that most parts contain from twelve to fifteen substances, all essential to their existence, the relations of which must be investigated before definite views can be obtained regarding the changes which go on in the organism of the plant. These relations, moreover, are far more complicated than even the number of the elements alone would lead us to suppose: the single element of sulphur, for instance, which does not constitute more than two or three parts in the thousand of most plants, exists there in not less than three different forms of combination, in each of which it is as essential to the plant as those which form the great proportion of its bulk. Now, it must be sufficiently manifest, that questions involving elements of such complexity are not to be solved as rapidly or easily as the far simpler problems of mineral chemistry; and that not merely on account of their superior complexity alone, but because, in the one case, theoretical chemistry sets us far on our way towards the solution, while in the other there is still a great gap to be filled up, a whole mine of scientific facts to be worked out, before we are in the condition

to approach sufficiently near the comprehension of these more complicated phenomena. In fact, the latter are not questions of *pure* chemistry, but are intimately interwoven with vegetable physiology—so much so, indeed, that in many instances it is scarcely possible to decide to which of these two sciences they ought strictly to belong. And it is just herein that their great difficulty consists, for there is nothing more certain than that those questions which lie, so to speak, on the confines of two sciences, require for their successful investigation a high degree of developement of both the sciences on which they depend. Now, chemistry is still far from having attained all that developement of which it is capable, as the time during which it has been cultivated has not been sufficiently long to admit of much progress, except in special departments. Few of those who are not themselves chemists, are aware that the facts and doctrines of modern chemistry have been determined during little more than the last sixty years; and that, with few exceptions, all the laborious investigations of the older chemists, and, without exception, all their general doctrines were then swept away, to be replaced by the science as it now exists; while organic chemistry, with which agriculture is more intimately connected, has been successfully prosecuted for not more than half that period.

To expect any *rapid* advances, in the practical applications of agriculture, of chemistry in its present state, is manifestly unreasonable. The progress must necessarily be slow, in some instances almost imperceptible; and much must be done which at first sight the practical agriculturist may be inclined to consider altogether foreign to his object. Extended researches will frequently be requisite which do not directly lead to practical results—that is to say, which are not immediately convertible into an equivalent of current coin, but which are the foundation of such results, and form the starting point of perhaps a very different series of experiments, having an immediate bearing upon practice. It is of great importance that this should be distinctly understood and borne in mind, for it is by no means uncommon to suppose that nothing more is necessary than at once to convert scientific facts to practical purposes; while, so far from this being the case, the agricultural chemist has a two-fold duty to perform—he must both determine the scientific facts of agriculture, and eliminate from them the practical conclusions to which they lead. It may, perhaps, be said that the establishment of these facts falls within the province of the pure chemist, and that their practical application only ought to be the province of the agricultural chemist. But if this principle were to be acted upon, the progress of chemical agriculture would be slow indeed; for the investigations of the pure chemist lead him now, and are likely for a very long period to lead to him, in directions very remote from those most likely afford the materials which the agricultural chemist needs to work upon. The latter would, therefore, require to sit idly waiting till the former supplied him with facts, which his own exertions would have enabled him to ascertain. Nay, the agricultural chemist may even do a better service to agriculture, by persuing the investigation of those apparently theoretical subjects, than by directing himself to those which seem to have the most immediate practical bearings.

There is another point on which there has been a good deal of misunderstanding between the chemist and the agriculturist, which is intimately connected with the erroneous estimate of the extent and perfection of chemistry. It is not uncommonly supposed that the chemist is in the condition at once to solve, by the investigations of the laboratory, all such questions in practical agriculture as may happen to be submitted to him—that he can determine, when nothing else can, why certain methods of cultivation are successful, others unsuccessful. It is just possible that he may in some instances be able to do this, but far more frequently his researches enable him not to state positively what is or what is not the case, but rather to draw a probable conclusion—to form, in fact, a hypothesis, which is not in itself a truth, but which must be further tested by experiment in the field, whereby it may be either confirmed or entirely refuted. Now, very unfortunately, this hypothesis is often taken for a positive statement; and when it turns out to be erroneous, it is immediately held up as an instance of the fallacy of science by those who, not being themselves acquainted with the method of investigation by experiment, are unaware that all scientific facts are developed in such a manner. No one ever thinks of going fortuitously to work, when he proposes to determine a scientific fact. He first weighs all facts of a similar character, or having a bearing on the subject which he desires to elucidate, and then founds upon these a hypothesis, the truth or fallacy of which is to be tested by experiment. Now, without any explanation, it has frequently happened that such hypotheses have been handed over to the practical man, whose field experiments having refuted them, he has forthwith abandoned the science which seemed to him to give erroneous results, not knowing that these results were only in progress of being arrived at by those very experiments which he was engaged in performing. The very same processs has been employed in the applications of science to every other art; but the difference between them and agriculture is, that, with the former, the hypothesis is formed and the experiments executed by the same person, in agriculture the hypothesis must in many instances be handed over for experimental elucidation to the practical man. The many failures which are made in other arts remain unknown to all but those by whom they have been made, while in agriculture they become known to all and sundry; and by them it is not understood that, these results are negative, they still serve to bring us all the nearer to the truth.

And this leads me to observe, that the true manner in which chemical agriculture is to be advanced, is not merely by the exertions of the chemist, or the labours of the laboratory alone. It must be by the simultaneous efforts of science and of practice, each endeavouring to develope, with care, steadiness, and accuracy, the facts which fall within its province. Nor must each persue its own course irrespective of the other. They must go hand in hand, and, taking advantage of each other's experience, and avoiding all sort of antagonism, they must endeavour to co-operate for the elucidation of truth. The chemist and the practical man are, in fact, in the position to give each other most important assistance. The one may point out the conclusions to which his science, so far as it has gone, enables him to come; while the other may test these conclusions by experiment, or may be able, from his experience, at once to refute or conform them. But it will not do to imagine that there is here either a triumph or a defeat. It is rather to be looked upon as a fortunate state of matters, which admitting of the examination of our conclusions from two different points

of view, directs us with the greatest certainty in the path of truth.

* * * * * * * * *

It will be seen, for what I have mentioned, that we are now occupied with a large amount of work, the satisfactory completion of which will require a considerable time, but from which, I trust, we shall obtain results alike creditable to the Society and advantageous to agriculture. Of this I entertain little doubt; but I may be permitted to observe, that my chief fear for agricultural chemistry is, that the constant craving after immediate results on the part of the agricultural public, may lead to the publication of hurriedly and imperfectly performed investigations. The chemist knows well how desirable it is to weigh and repeatedly to examine all his results, and to proceed cautiously and slowly; while the agriculturist, though in his own operations he is content to cast his seed upon the ground and wait patiently for the harvest, is too apt to imagine that the tree of science bears fruit at all seasons, though in point of fact, the patient waiting for results is a most necessary element of scientific progress. If this error is avoided, I am convinced that good results will be obtained, and that all men will in time be convinced, that the slow and careful determination of scientific facts, is likely to be the most important assistants in the improvement of practical agriculture.

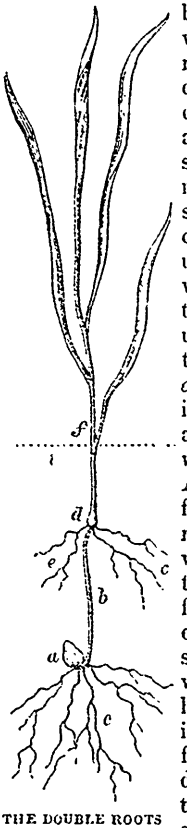
CULTIVATION OF WHEAT.

(From Stephens' Farmer's Guide.)

[Continued from page 109.]

Another circumstance which affects the relation between the seeds sown and the plants produced, is the depth to which the seed is buried in the ground. In ill-ploughed land, such as in fig. 4, seeds sown broad-cast falling between ill-assorted furrows, sink to the bottom of the furrow slice, where they are buried so deep as to become dormant or lose their vitality. Seeds are very differently affected by depth, some sorts germinating from a considerable depth, whilst others become dormant or die, if placed at a comparatively small distance below the surface of the ground. I have traced the stem of a plant of barley as far as 9 inches below the surface, from which depth it had penetrated the ground from the seed whence it sprung; while oats, buried 7 inches in the soil, will die. This accounts for the absence of oats, which have slipped down between the furrow slices of lea, where they perish. The risk of thus losing the seed sown on old lea, the furrow-slices of which are difficult to be laid close to each other in ploughing, induce me to recommend the partial harrowing of the surface of ploughed old lea before the seed is sown. The roots of barley strike downwards a considerable depth, which indicates that barley-seed should have a deep seed-furrow, as I recommended. But the roots of oats spread and keep near the surface, like those of the Scots fir and the beech, and hence oats thrive better upon shallow ground than barley.

Fig. 1.



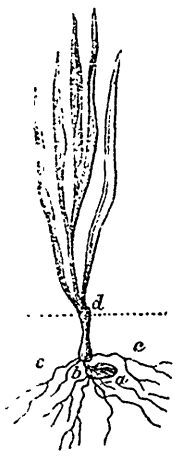
THE DOUBLE ROOTS OF DEEP SOWN WHEAT.

Wheat possesses a property in its roots common to both barley and oats. The seed will bear to be deep sown—not so deep as barley, but deeper than oats, and not deeper than 6 or 7 inches; and after the germ has become a stem, it puts out another set of roots about an inch below the surface. The deeper may be called the *seminal*, and the upper the *coronal* root of the wheat plant. Fig. 1 shows the arrangements of the roots under the surface, where *a* is the seed with its seminal roots *c*, and the germ *b* rising from it to the surface of the ground at *f*, above which the stem, with its leaves, are seen. About an inch below the surface at *d* are formed the coronal roots *e e*, the office of which is not only to maintain the plant, but to form the site from which the multiplication of the plants proceeds when it sends forth its tillers. At whatever depth the seed may have been sown, from 2 to 5 inches, the coronal roots are formed at one inch at *d*, the difference being the length of the connecting tube *a b*, according to the depth the seed had been deposited.

"As the increase and fructification of the plant depends upon the vigorous absorption of the coronal roots, it is no wonder that they should find themselves so near the surface where the soil is always the richest. I believe I do not err when I call this *vegetable instinct*. In the northern counties wheat is generally sown late. When the frost comes, the *coronal* roots, being young, are frequently chilled. This inconvenience may, however, be easily prevented, by sowing more early, and burying the seed deeper. The seminal roots being out of the reach of frost, will then be enabled to send up nourishment to the crown, by means of the pipe of communication."

Now the form which the plant assumes, when sown near the surface, is different from this, and is seen in fig. 2, where *a* is the seed with its se-

Fig 2.



SHALLOW SOWN WHEAT.

minal roots; *b* the pipe of communication between them and the coronal roots *c c*, which are a little beneath the surface *d*. The coronal root *c* being at a less distance from the surface than before, the pipe of communication is shortened to the smallest longitude. "Hence it is obvious," continues the same writer, "that wheat sown superficially must be exposed to the frost," while the life of the plant is placed in jeopardy "from the shortness of the pipe of communication," placing the seminal root within reach of the frost. The plant, in that situation, has no benefit from its double root. On the contrary, when the grain has been properly covered, the seminal and coronal roots are kept at a reasonable distance. The crown, being well-nourished during the winter, sends up numerous stalks in spring. On the tillering of the corn the goodness of the crop principally depends. A field of wheat dibbled, or sown in equidistant rows by the drill, always makes a better appearance than one sown with the harrow. In the one, the pipe of communication is regularly of the same length, but in the other it is irregular, being either too long or too short."

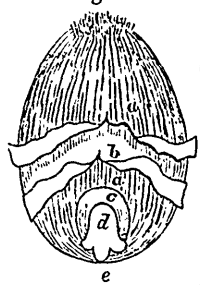
The conclusions which the foregoing statements warrant are evidently these:—That the wheat sown before winter should be as deeply covered with earth as to be beyond the reach of injurious frost, say 4 or 5 inches; that in spring the coronal roots will set out from the established plants abundance of tillers or stools; that wheat sown in spring should be lightly covered, little exceeding one inch; that the tillers or stools will be few; that therefore the autumn wheat ought always to be dibbled or drilled to make the pipes of communication long, and of uniform length; that spring wheat may be sown broadcast; and that autumnal sown wheat should have less seed than that sown in spring.

ON THE GERMINATION OF SEEDS.

(From Stephens' Farmer's Guide.)

Fig. 1 represents a grain of wheat magnified, and so dissected as to show its component parts.

Fig. 1.

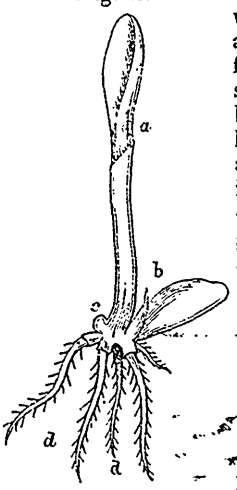


THE COMPONENT PARTS OF A GRAIN OF WHEAT.

It consists of two skins, an outer and an inner—*a a* the outer, and *b* the inner skin: *b* is also where the nutritive matters, called the starch and albumen, are situate, and these constitute the whole seed; *c* is the little scale or cotyledon through which the nutritive matter passes in the sweet state, when the grain is germinating, and by which it is rendered most fit for the nourishment of the little plant; *d* is the rudimentary plant, at the base of which 3 tubers may be seen, from which as many roots or stems, or both, will afterwards proceed; and *e* is the point where the nutritive matter, the little scale, and the rudimentary plant, are united. All these parts are essential to the growth of the seed, since, any one being absent by accident or design, the seed fails to spring.

The seeds of most species of plants possess such a structure as that only one stem can proceed from them; but in the grasses, and particularly in the cereal ones, which yield human food, a remarkable departure from this structure is observed. In them the embryo plant is usually thickened towards its base, and is so organised that, instead of one stem, 3 or 4 usually spring from one grain; and, in some cases, the number of stems is so great as almost to exceed belief. The peculiarity mentioned may be observed at *c*, fig. 2, which is the rudimentary plant, having 3 projections in the lower part, while in other kinds of seed there would have only been one; and from each of these three projections a rootlet or a stem, *d* or *b* or both, proceed when the grain is placed in the soil.

Fig. 2.



A PLANT OF WHEAT IN A STATE OF GERMINATION.

Fig. 2 represents such a grain in a state of germination, one shoot *a* having left the sheath, another *b* is just evolved, and a third *c* remains unevolved; and *d d* are the rootlets. It is this peculiarity of structure which compensates, in some degree, for the great loss sustained from

the destruction of seed, on sowing the cereal crops.

The force of the vegetation of a single seed is as great as to raise a weight of 200 lb., as has been proved by its splitting hollow balls, in the manner the Florentine academicians measured the expansive force of freezing water. In 1847 a small fungus upheaved from its bed a large flag-stone in a foot pavement in one of the squares of Edinburgh.

DORKING FOWLS.

This breed which is now extensively distributed, is distinguished by having five claws; one sort is perfectly white, and another of a partridge colour. These were long peculiar to Dorking, an ancient and beautiful little town in the South of England. Columella, a Roman writer on agriculture, in the first century, describes fowls of this kind, so that it may reasonably be supposed the breed was originally introduced to England, like many other useful things, by the Romans. Blumenbach classes fowls with five or six toes among monsters with superfluous parts.

The very small breed of fowls, called "*Bantams*," are said to have been first introduced into England from Bantum, in the Isle of Java, in the year 1683.

"KNOWLSON'S COMPLETE FARRIER."

THE CHOLIC, OR GRIPES.

This disorder is little understood by common Farriers, and has for a long time been a secret to many, so that many a horse has been lost in it that might have been saved. The same medicines have generally been given to horses in the Cholic as in the dry Gripes, when there is much difference in the disorders.

The Cholic proceeds from various causes, therefore the method of cure varies; for otherwise the medicine intended to cure it may increase it, and perhaps render it fatal. We shall therefore, divide this disorder into three different species, and endeavour to give such plain directions for managing each, as cannot fail to prove very beneficial. The three species are these:—

1. The Flatulent or Windy Cholic.
2. The Bilious or Inflammatory Cholic.
3. The Dry Gripes.

THE FLATULENT OR WINDY CHOLIC.

Sypmtoms.—The horse is very restless, lying down and starting up again. He strikes his belly with his hind feet, and refuses his meat. When the pain is violent, he has convulsive twitches; his eyes are turned up, and his limbs stretched out, as if dying; and his ears and feet alternately cold; he falls into profuse sweats, and then into cold damps; often tries to stale, and turns his head frequently to his flanks; he then falls down, rolls about, and often turns upon his back. The last symptom proceeds from a stoppage of urine, which generally attends this species of cholic, and may be increased by a load of dung pressing on the neck of the bladder.

Causes—This disease often proceeds from catching cold by drinking cold water when hot, and the perspirable matter is by that means thrown upon the bowels, which causes them to distend violently, and sometimes brings out an inflammation in the small intestines, when the body begins to swell, and the cure is despaired of.

Cure.—The first thing to be done is to empty the straight gut with a small hand, dipped in oil. This frequently gives room for the wind, before confined in the bowels, to discharge itself; and, by taking off the weight that pressed upon the neck of the bladder, the suppression of urine is removed, upon which the horse immediately stales and becomes much easier. If the horse be young and full of blood, it will be proper to take a sufficient quantity of blood from the neck.

When these purgative operations have been performed, the following may be given, as it seldom fails to give relief.

4 oz. of Tincture of Senna, or Daffy's Elixir.
6 drams of Tincture of Opium.
1 dram of Oil of Juniper.
8 oz. of Juniper Berries, bruised.

Put one quart of boiling water on the juniper berries, let them stand a few minutes, strain it off, put all together, and give them to the horse.

If he does not find relief soon after taking this dose, both by staling and breaking wind, it is doubtful whether he will receive any benefit from it; so you must prepare the following clyster for him as soon as you can. Take—

Camomile Flowers, 4 ounces; Aniseeds, Fennel, and Coriander, 2 ounces of each. Boil them in 1 quart of water, and add 2 oz. of Castile Soap, cut small, while the water is hot, that the soap may dissolve.—Give it blood-warm.

During the fit the horse may be walked about, or trotted a little, but should by no means be harrassed, or driven about till he is jaded. If no better, give the following:—

2 drams of Camphor.
1 dram of Pellitory of Spain.
2 oz. of Ginger Powder.
3 gills of Holland Gin.

If the horse sweat much at times, and then falls into cold sweats, give four ounces of mithridate, in three gills of Holland gin, and repeat the clyster. If the disorder continue three or four hours, give one ounce of tincture of opium, in three gills of Holland gin. When the horse begins to recover he will lie quiet, without starting and trembling; and if he continue in this quiet state an hour, you may conclude that the danger is over. Dress him down well, and give him a small quantity of warm water, if he will drink it; bed him down well, cover him to keep him warm and then leave him to get a little rest. You must

consider that the disorder has left a soreness on him, both within and without; therefore, make him a little gruel, with a pint of red wine in it; and if any skin be knocked oft about his eyes, or his huck-bones, rub it with the bottle recommended for bruises.

Sometimes the Cholic is received into the stomach, and does not act so violently, nor cause the horse's pains to be so strong. You may best judge of this by his motions:—he will draw his four feet together, lay him himself down, stretch out his feet and head, throw his head back, and often put his nose to his chest: after standing a little, he will lie down again as before. When the Cholic is easier, he will lie for an hour or more together, with his feet stretched out and his head thrown back, or with his nose upon his ribs. This is caused by bad meat, or bad water, or both: sometimes by drinking hard water when hot, or by a change from soft grit water to limestone or iron water, or by the break of a storm.—I have had five or six horses under my care in this disorder in one day, at the break of a frost, by drinking ice, or snow water. Give the following, which is almost a certain cure in two hours.

1 oz. of Spirits of Sweet Nitre.
1 do. of Spirits of Nitre.
1 do. of Tincture of Opium.
1 do. of Sweet Oil.

All to be given together in a gill of warm ale. Bed the horse well down, and leave him that he may get a little sleep, after which he will get up, and fall to his meat. This is one of the best medicines that has yet been found out. It has saved hundreds of horses, and will save hundreds more, if rightly applied.

THE BILIOUS OR INFLAMMATORY CHOLIC.

SYMPTOMS.—This kind of Cholic, besides most of the symptoms of the former, is attended with a fever, great heat, panting, and dryness of the mouth. The horse also generally parts with a little loose dung, and a little scalding hot water; which, when it appears blackish, or reddish, indicates an approaching mortification.

CURE.—Take three ounces of Senna, and one ounce of Salt of Tartar; infuse them in one quart of boiling water nearnly an hour; then strain it off, and add two ounces of Lenitive Electuary, and four ounces of Glauber's Salt. Mix them when hot, or they will not dissolve.

If the disorder be not removed by the above medicine, but, on the contrary, the fever and inflammation continue to increase, attended with a discharge of flesh colored matter, the event will probably be fatal; and the only medicine likely to prevent it, is a strong decoction of jesuit's bark, a pint of which may be given every three hours, mixed with a gill of red port wine. Or, if these cannot be got easily, give four ounces of tincture of rhubarb in three gills of red port wine. Also give a clyster every two hours, made of two new laid eggs, well broken, and two ounces of London or Venice treacle, in one quart of milk. Give it warm.

If the horse recover, it will be proper to give him a gentle purge or two in a week after.—Take

1 oz. Rubarb, in Powder.
½ do. Jalap, do.

Work them well up in a ball with syrup of buckthorn, and give it to the horse, with warm water to work it off.

THE DRY GRIPES.

SYMPTOMS.—This disorder mostly proceeds from costiveness, and is discovered by the horse's frequent and fruitless attempts to dung, the blackness and hardness of the dung, the frequent motion of his tail, the high color of his urine, and his great uneasiness.

CURE.—The first thing to be done is to draw the dung out of the fundament, with a small hand as far as you can reach, and then give the following:—

4 oz. of Castor Oil.
4 do. Tincture of Senna.
½ do. Oil of Juniper.

Give them all together, and then the following clyster.

Boil a handful of Marshmallows and Camomile flowers in a quart of water, then strain it off, and add two ounces of Linseed Oil, or Pale Oil.

If the horse do no mend, repeat both the drink and the clyster. During this disorder the horse must not have any dry food; but boiled linseed, and scalded bran, with warm water to drink.—Gentle walking exercise is a great means to cause the physic to work; but be careful of cold.

From the account I have given of the different species of the Cholic, the reader will be abundantly convinced how necessary it is to be acquainted with each, that he may be able to give proper medicines, and to relieve the creatures excruciating pains. He should carefully avoid all hot, violent medicines, which always prove hurtful in every species of this disorder, and frequently fatal. Nor is it any wonder that horses treated in that manner should die, for such medicines stimulate the neck of the bladder, augment the heat of the blood, (before much to great,) and inflame the bowels, by which a mortification is brought on, and the horse is lost by the very means used for his recovery.

Sharp fits of the Gravel are sometimes taken for the Cholic; but should this happen, the drink recommended for the Cholic will also be proper for the Gravel.

WORMS AND BOTS.

Much has been said concerning worms in horses, and but little understood. I have often been astonished at grooms, farmers, and farriers, not having a better knowledge of them, for there are more horses killed by these nauseous vermin than by any thing else; and many are kept weekly and low in flesh by them.

I have opened horses that have been destroyed by them: some have had their stomach eaten through, and others have had their bowels so full

of them, as to have the inner coat eaten entirely off.

A horse in high keep is not so subject to these vermin as a poor one that is worked hard and badly fed.

Horses are subject to five sorts of worms, and perhaps many more, but I shall only describe to you three, which are the most common. The worst sort to destroy are long, round worms, resembling earth worms, but smaller at the tail; they have a seam all the length of their bodies, and are very hard: these are called *Round Worms.* The next are small worms about the size of a sewing needle; they have reddish, flat heads, having nine feet on each side, and are called *Ascarides:*—these are also very troublesome to horses. The third sort are short, thick worms, called *Bots:* their seat is mostly at the stomach; but when horses get any food that they are fond of, they will fill themselves so full, that they lose their hold, and come along with the dung to the fundament, and there stick to the end gut, partly out of the horse;—this happens mostly in spring when they get the juice of fresh grass.

It is well known that horses which have many worms can never thrive, or carry much flesh. If the breeding of those vermin were prevented, it would add much to the strength of the horse; and it might be done by giving him a decoction of bitter herbs, such as wormwood, in spring. It may be boiled, or steeped in hot water, and given two or three times a week. Or a decoction of wormwood, buckbean, gentian root, and camomile flowers, (of each a large handful, boiled in a sufficient quantity of water, and given as above,) will answer the end.

Symptoms.—The symptoms which indicate worms are various, as the animals are different, and seated in different parts of the body. When the Bots are seated in the straight gut, they are never dangerous, but are often thurst out with the dung. They generally come in the months of May and June, and scarcely ever continue in a horse above a fortnight. But when they breed in the stomach, they often cause convulsions, and even death. The Bots that breed in the stomach are about the size of a large maggot, composed of circular rings, and have little, sharp, prickly feet along the sides of their bellies, by means of which they fasten themselves to the part from whence they derive their nourishment, to prevent their being loosed from such adhesion before they come to maturity; and as they drain the coats of the stomach like leeches, it is no wonder that they often throw the horse into convulsions, which terminate in death, unless the cause be removed.—The violent agonies of the creature are the only indications of their existence. The other kinds of worms are more troublesome than dangerous, and are discovered by the following signs: there is a white fur on the end of the straight gut; the horse is lean and jaded; his coat is rough and staring and if you rub your hand backward on the hair, a white scurf will rise, as if he had been surfeited; and though he eats with a remarkable appetite, he does not thrive. He often strikes his hind feet against his belly, and is sometimes griped, but without the violent pains that attend the cholic, or stranguary; for he never rolls or tumbles, but is uneasy, often laying himself down quietly on his belly for a little while, and then rising and beginning to feed. But the surest sympton is when the horse voids the worms with his dung.

Cure.—Many medicines have been given to destroy these vermin, without knowledge or judgment, and even contrary to common reason. Some give coarse sugar for that purpose, but, in my opinion it will rather increase than destroy them; although a few will fill themselves so full as to loose their hold, and to come away with the dung. I advise all who have horses nearly eaten up with worms, not to give every foolish nostrum that people prescribe, but something that is likely to destroy to them. Take—

1 oz. of Socotrine Aloes.
1 dram of Calomel, 8 drams to an oz.
1 dram of Oil of Aniseed.
2 drams of Powdered Ginger.
½ oz. of Syrup of Buckthorn.

Beat all up together in a mortar till the aloes are well broken, and the whole is brought into a paste; which give in the morning, fasting, and to fast one hour after; also give warm water, and walking exercise till wrought off. (It will not work the first day.) Be careful that the horse be open in the body before you give the ball. In grass time you will have nothing more to do than to give, and to put the horse where he can get water. This dose is for a pretty strong horse, so you must add or diminish according to size. This dose must be repeated as need requires, but not within seven days. It will destroy most kinds of worms; but the hard round worms require different treatment, as they are the worst of any to get rid of. To destroy them give the following.

1 dram of Calomel, 8 drams to an oz.
6 drams of Jalap.
6 drams of Rhubarb, in powder.

Wrought into a paste with conserve of hips, and two days after give the above ball. Or the following:

1 dram of Calomel, 8 drams to an oz.
1 oz of dried Foxglove leaves, powdered.
½ oz. of Worm Seed, powdered.
1 oz. of Jalap, in powder.

To be given in three gills of malt liquor from the mash-tub. If the above be given every week for three weeks together, you may be sure that the most of the vermin will be expelled. If the medicines be given in the house, let the food be light and opening, and warm water for two days, with walking exercise.

I advise all who have horses troubled with worms, to give savin, dried and powdered, before they give the worm physic. If one ounce a day be given for a week before, in a mash of bran, it will be much better. The above ball is good for many disorders besides worms.

ADVANTAGES OF HEATING BY STEAM.

1. Steam is generally far more economical; in some cases saving half the quantity, and three-fourths of the cost of coals or other fuel. 2. Steam can be made to create any degree of temperature required. 3. It diffuses heat equally throughout an apartment; and the people in a room are not (as with fires) frozen on one side, whilst they are scorched on the other. 4. Steam, as diffused in metal pipes, creates neither dust, dirt, nor noxious odour. 5. Steam warms not merely the room into which it is conveyed, but all the adjoining rooms. 6. By causing the heated air to ascend, it thereby promotes the ventilation of a room, and the renewal of the air, by means of an orifice and pipe in the upper part of the room. In a word, the introduction of steam for generating and diffusing heat, would not only change the entire economy of houses, but promote comfort, health, cleanliness, and security, beyond all former anticipations of art or genius. Steam besides possesses many important advantages in preparing food for domestic purposes, and also for those of the farmer in the feeding of stock.

CLOTHING.

The reason why white hats and dresses are worn in summer may be thus stated. Dark colors absorb most heat; white, therefore, repels most heat, and is cooler wear. A white dress in winter is good, because it radiates or receives little heat. Polar animals have generally light furs. White horses are both less heated in the sun, and less chilled in winter, than those of darker hues. A flannel covering will keep a man warm in winter, and also keep ice from melting in summer, because the flannel has the property of preventing the passage of heat from the man, and to the ice. Loose clothing is found warmer than such as fits tight, because of the increased quantity of imperfectly conducting air thus confined around the body, resists the escape of animal heat. Linen is found disadvantageous for wearing next the skin, on account of its tendency to retain the matter of perspiration in its texture, and speedily becomes inbued with it; it gives an unpleasant sensation of cold, is very rapidly saturated with moisture, and conducts heat too rapidly. Woollens on the contrary allow perspiratory matter to escape more freely through their texture; and they have a greater power of preserving warmth under all circumstances, being bad conductors of heat. Several of the most beautiful and important laws of nature are involved in the rationale of the covering of man and animals.

What Plank Roads do for the Farmer.—A writer, in speaking of the benefits of Plank Roads, observes that the farmer has what he never had before—a good road every day in the year—the same in all seasons, and can select for his travel, days when he cannot work on the farm, taking with greater ease, in half the time, three times what he formerly could carry. His woodlands acquire a value they never had before, from the ease with which his timber or wood can be taken to market. His farm increases in value from 10 to 50 per cent. The wear and tear to his horse, harness and vehicle, is reduced at least one-half, leaving a surplus in his pocket, after paying tolls, which would otherwise have been spent on repairs. His produce, of whatever kind, can be conveyed to market with one half the expense attended upon carrying it over the old road, from the increase in the quantity he is able to carry at a single load; and he can with the greater facility avail himself of all the advantages of churches, and neighborhood and friendly intercourse.

Farmers take one and a half solid cords of green wood to market, where formerly a half and three-quarters of a solid cord was considered a load; 80 bushels of rye and 100 bushels of oats, when formerly they carried but 40 and 50 bushels. This is done at the rate of four miles an hour, whereas three miles, with a team, was considered rapid traveling, when the road was in tolerable order.—A manufacturer of Utica formerly transported from the railroad to his establishment, a distance of seven miles, ten bales of cotton per day, with two teams, which made each but one daily trip; but on the recently constructed plank road, one team perform the journey twice, delivering 15 bales per day. The average weight of a bale of cotton is 5 cwt.; therefore one team is now equal to the work of 75 cwt. while on the old road it was equal to 25 cwt.—and these loads are considered fair average burdens, without the energies of the team unfairly taxed.—*American Paper.*

Beat this who can.—On Saturday week last a Sow belonging to Mr. John Stagg, of this town, produced at one litter eighteen young porkers.—The same Sow, in October last, littered 14, which, with the present number, make a total of 32 within the space of eight months.

Strange Freak of Nature.—Mr. Aaron Yeoman of Murray, had a Cow which gave birth to a calf about three weeks since, which had two heads, two distinct necks, one body, one heart, and two galls; it died shortly after its birth.—*Belleville Intelligencer.*

To Keep Eggs.—I have seen a variety of different methods recommended for keeping eggs so they may be fresh and good through the winter; but on trial we seldom have them come out "as good as new."

About two years ago I thought I would pack some in charcoal. I pounded the charcoal and packed them in the same manner as recommended in oats, ashes, salt, &c. The result was they kept perfectly good to all appearance as new laid eggs. We have tried the charcoal two years with the same result.—*Maine Farmer.*

Horticulture.

THE TOMATO.

This plant or vegetable, sometimes called Love Apple, or Jeru-salem Apple, which belongs to the same genus with the potato was first found in South America. The use of this food is said to have been derived from the Spaniards. It has been long used also by the French and Italians. The date of its introduction to this country is unknown. It is said that the tomato has been used in some parts of Illinois for more than fifty years. Its introduction to our tables, as a culinary vegetable, is of a recent date. Thirty years ago it was hardly known, but as an ornament to the flower garden, and for pickling. It is now cultivated in all parts of the country, and found either in a cooked or a raw state on most tables. In warm climates it is said they are more used than in northern, and have a more agreeable tast. It is now used in various parts of the country in soups and sauces, to which it imparts an agreeable and acid flavor; and is also stewed and dressed in various ways, very much admired, and many people consider it a great luxury. We often hear it said that a relish for this vegetable is an unacquired one scarcely any person liking it. It has, indeed, within a few years come into very general use, and is considered a particularly healthy article. A learned medical professor in the West pronounces the tomato a very wholesome food in various ways, and advises the daily use of it.—He says that it is very salutary in dyspepsia and indigestion, and is a good antidote to bilious disorders, to which persons are liable in going from a northern to a warmer climate. He recommends the use of it also in diarrhœa, and thinks it preferable to calomel. The tomato is a tender, herbaceous plant, of rank growth, but weak, fetid, and glutinous. The leaves resemble those of a potato, but the flowers are yellow, and arranged in large divided branches. The fruit is of a light yellow and a bright red color, pendulous and formed like the squash-shaped pepper. There are smaller varieties, one pear-shaped variety, and also red and yellow. These are eaten and relished by many from the hand. The red are best for cooking; the yellow for slicing like cucumbers, seasoned with pepper, salt and vinegar, and eaten raw. The seed should be sown in the early part of March, in a slight hot-bed, and the plants set out in the open ground in May. In private grounds it will be necessary to plant them near a fence, or to provide trelises for them to be trained to, in the same manner as for nastuntions; they will, however, do very well if planted out four feet distant from each other every way. But a nice way to keep the plant erect and the nice fruit from the ground, is to drive down four stakes, so as to make a square, sow to feet each way, around the stakes. These will keep the vines from falling, and expose the fruit nicely to the sun for ripening. They will bear till frost.

CURE FOR A CANCER—THE VIRTUES OF CRANBERRIES.

It has been ascertained that the application of raw cranberries, applied as a poultice, will cure this most inveterate disease. We know of one instance, a lady of our acquaintance, (says an exchange paper,) who had a cancer in her breast, which had become as large as a pullet's egg, and was an inch below the surface of the skin. In this present case it was an hereditary disease, and she regarded it as a death warrant. She was persuaded, however, to try the cranberries, and they effected a cure. It is now between two and three years since it disappeared, and she had no intimation of a return of the disease. The cranberries were mashed in a mortar, spread on a cloth and laid on, changing the poultice three times a day. In two or three days it became so sore it drew out pustules, that filled like the small-pox, and this process was renewed with the same effect until the whole was drawn away; the cancer becoming softened and decreasing in size at every application until it finally disappeared.

The virtues of cranberries are but imperfectly kndwn they are cooling and useful in removing inflamation, and have been known to cure an obstinate sore throat. We have never known it tried, but are persuaded it might be useful in bronchitis. Hearing of this, brings to mind an anecdote, related to us in the Eastern region.

Some few years since, a bed of cranberries was discovered, within about six miles of Fort Fairfield. It was before the Fort was built, and a party were exploring the country, under the conduct of some Indian guides. The Indians set up a shout, and evinced their delight by such frantic gesticulations, that I was persuaded, says our informant, those children of nature knew of some virtue they possessed, that we were ignorant of, and yet so much was my attention absorbed by the business I was upon, that I never thought to ask them.

Cultivation of the Cranberry.—We have recently received numerous inquiries respecting the cultivation of the cranberry, and where the plants in quantities could be obtained. Many years ago, and before we ever heard of an attempt to grow this fruit upon upland, we made the experiment upon a very sandy, dry piece of ground, and the result was, we harvested annually an abundant crop of the most beautiful, deeply-colored cranberries we ever saw. Some years since, we introduced some of the same vines (of the common variety from the marsh) into what we considered a remarkable soil, near this city, but the experiment proved a total failure, which we attributed then to the intense heat of the summer's sun. As an experiment may not have been conclusive, and our failure attributable to some local cause, we give the following extract upon the subject from the Albany (N.Y.) Cultivator for the benefit of those who may wish to make further trial.—*Lou. Jour.*

CULTIVATION OF THE CRANBERRY.—We have received a letter from Mr. F. B. Fancher, of Lansingburg, N. Y., enclosing some remarks from Mr. Sullivan Bates, of Bellington, Mass., in regard to the cultivation of the cranberry. Mr. B. says the variety which he calls "Bell Cranberry" can be cultivated on upland, and that he knows of no other kind that can be naturalized to dry soil. He states that it is necessary that the soil should be quite poor, and that it is generally best to remove the sod or vegetable matter to reduce it to a proper state of sterility; but, if the soil is so poor that grass and weeds do not grow on it, it may be plowed and harrowed and the plants set without any other preparation. The soil is marked in drills two or three feet apart, and the plant set six inches apart in the drill. They should be hoed the first season, and they will cover the ground in three years. He states the produce at 150 to 400 bushels to the acre.—Mr. Fancher can supply plants.

CRESS.—There are three kinds of this herb, plain, curled, and broad leaved,—the former of which is in much use as a salad herb, with mustard, rape, radish, &c.; the curled and broad leaved sorts should be thinned to half an inch asunder, but the plain is to be sown thickly; the curled makes a pretty garnish. In the cold months, this salad herb, as others, is sown on the gentle hot-beds, giving plenty of air, and, as the spring advances, in warm borders, or under hand glasses; the London market gardeners sow just within the glasses which cover the cauliflower plants, &c. In summer it should be sown in shady, cool ground, and daily watered, or it may be sown in the most sunny situation, if hooped over and shaded with a mat. Break the mould fine, and draw level shallow drills, and cover only a quarter of an inch; it may, however, be sown as broadcast, the ground being just raked very smoothly, and the seed just covered with finely sifted mould; let it be sown on an average, once-a-week, and cut young; if that which is sown in open ground at an early season be covered with a mat, it will forward the germination. The American cress is much like water-cress, only more bitter; it answers as a winter and early spring salad, being sown in August broadcast, or rather thin in drills; the plants being cut, or the outside leaves pulled off, shoot again.—*British Banner.*

HOW TO GROW MELONS.—A correspondent of the *Horticulturist* says:—I had the pleasure of eating some very fine musk melons at Cottage Lawn, the seat of Thomas W. Ludlow, Esq., and he kindly gave me the following account of his method of treating them, which is so much less expensive and more simple than the usual manner of protecting the young plants with hand-glasses, which require a small fortune devoted to them alone, that I think it may be useful to some of your readers:—"After the young plants have been 'started' in a frame, they are set out in the melon patch, and each one is enclosed by four common bricks, laid flat on the broad side, and the space at the top is covered over with a pane of ordinary window-glass. This enclosure remains until the plant reaches the glass, when the bricks are turned up on one side, and the glass replaced. By the time they have grown up to this 'root,' they are strong enough to do without protection, and the season so far advanced that frost is not feared. The fruit, resulting from this treatment, was uncommonly fine and large, and the vines very healthy and strong. The seeds may be sown at once in the melon-bed, if more convenient, and enclosed with the brick and glass."

THE SHANTUNG CABBAGE.—A correspondent at Shanghae, writes to a gentleman in England, that he is about to send him some seeds of the Shantung cabbage, which one of the French missionaries had produced in the north of China. He says that it somewhat resembles the Savoy in appearance, is of a delicious flavor, and weighs 60 lbs. It is supposed that July or Augus is the right month for sowing.

PLANT WHOLE POTATOES.—We always prefer to plant whole potatoes in preference to cuttings or parings, though pieces of potato often produce well. Some farmers cut out the eyes and plant them instead of the whole potato, but they run a greater risk by this practice than by planting whole ones. Sometimes not half a crop is obtained from eyes or parings.

GIRLS.

Have you a father, have you a mother? Do you love them? Girls, do you know the value of your mother, if you have not lost her? Nobody loves you nobody will love you as she does. Do not be ungrateful for that love; do not repay it with coldness or a curse of coldness will rest upon you, which you can never shake off. Unloved and unloving you will live and die, if you do not love and honour your father and mother.

One thing, never call either 'old man' or 'old woman.' It is quite a habit in this country for young people to name their parents thus. This is rude, impudent and undutiful. Any aged person is an old man or an old woman. There should be something sacred, something peculiar in the word that designates parents. The tone of voice in which they are addressed, should be affectionate and respectful. A short surly answer from a child to a parent falls very harshly on the ear of any person who has any idea of filial duty. Be sure, girls, that you each win for yourselves the name of a dutiful daughter. It is so easy to win, that no one should be without it. It is much easier to be a good daughter than a good wife and mother. A child's duties are much more easily performed than a parent's; so that she who is a good daughter may fail to be a good wife or mother; but she who fails in this first, most simple relation, need never hope to fill another well. Be sure, then, that you are a good daughter. It is the best preparation for every other station, and will be its own reward. The secret you dare not tell her is a dangerous secret, and one that will be likely to bring you sorrow. The hours you spend with her will not bring you regret; and you should never feel disappointed or out of humor, for not being permitted to go to some place to which you wish to go. You should love her so well that it would not be felt a punishment to give up the gayest party to remain with her.

Nothing is more beautiful than to see a girl take off her things, and sit smilingly down with her mother, because she wished it. Go and kiss mother, as you used to do when a child, and never grow too large or wise to be a child at her side.

TRUE charity consists in the performance of every duty of life, from the love of justice with judgment.

THE SOLITUDE OF THE HIMALAYA.

The mean height of the Himalaya is stupendous, certainly not less than from 16,000 to 20,000 feet, tho' the peaks exceeding that elevation are not to be numbered, especially at the sources of the Sutlej; indeed, from that river to Kalee, the chain exhibits an endless succession of the loftiest mountains on earth; forty of them surpass the height of the Chimborazo, the highest but one of the Andes, and many reach the height of 25,000 feet, at least. So rugged is this part of the magnificent chain, that the military parade at Sabatheo, half a mile long and a quarter of a mile broad, is said to be the only level ground between it and the Tartar frontier on the north, or the valley of Nepaul to the east. Towards the fruitful valleys of Nepaul and Boshan the Himalaya is equally lofty, some of the mountains being from 25,000 to 28,000 feet high, but it is narrower, and the descent to the plains exceedingly rapid, especially in the territory of Boshan, where the dip from the table-land is more than 10,000 feet in ten miles. The valleys are crevices, so deep and narrow, and the mountains that hang over them in menacing cliffs, are so lofty, that these abysses are shrowded in perpetual gloom, except when the rays of a vertical sun penetrate their depths.

From the steepness of the descent, the rivers shoot down with the swiftness of an arrow, filling the caverns with foam, and the air with mist. At the very base of this wild region lies the elevated and peaceful valley of Boshan, vividly green, and shaded by magnificent forests. Another rapid descent of 1000 feet leads to the plain of the Ganges. The loftiest peaks bare of snow give great variety of colour and beauty to the scenery, which in these passes, is at all times magnificent. During the day the stupendous size of the mountains, their interminable extent, the variety and sharpness of their forms, and, above all, the slender clearness of their distant outlines melting into the pale blue sky, contrasted with the deep azure above, is described as a scene of wild and wonderful beauty. At midnight, when myriads of stars sparkle in the blue sky, and the pure blue of the mountain looks deeper still below the pale white gleam of the earth and snowlight, the effect is of unparalleled solemnity, and no language can describe the splendour of the beams at daybreak streaming between the high peaks, and throwing their gigantic shadows on the mountains below. There, far above the habitation of man, no living thing exists, no sound is heard; the very echo of the traveller's footsteps startles him in the awful solitude and silence that reign in these dwellings of everlasting snow.

Physiological Fact.—A surgeon in the U. S. Army, recently desired to know the most common cause of enlistments. By permission of the captain of the company, containing fifty-five, on a pledge never to disclose the name of any officer or private except as a physical or metaphysical fact, the true history was obtained of every man. On investigation, it appeared that nine-tenths enlisted on account of some female difficulty; thirteen of them had changed their names, and forty-three were either drunk. or partially so at the time of their enlistment. Most of them were men of fine talents and learning, and about one third had once been in elevated stations in life. Four had been lawyers, three doctors, and three ministers. The experimenter believes, if it were not for his pledge of secrecy, that this would be as interesting a history, and would exhibit the frailty of human nature as fully as any experiments ever made on the subject of the passions.

Keeping Fowls—Value of their Manure.

At a late agricultural discussion in this city, Mr. Chester Moses, of Shaneateles, made some valuable remarks on poultry keeping. He stated that for several years past, he had kept 600 or 700 fowls, and the last winter 900. His chief object is eggs, of which his fowls average about 100 each, annually. They are not confined but are allowed to range at will. Their food is principally wheat screenings, with some corn, buckwheat and animal offal. He is also particular to allow them plenty of oyster shells, pounded, of which especially during spring, or at the season when they lay most, they eat large quantities. The lime of the oyster-shell doubtless contributes to the formation of the shell of the egg, and perhaps assists, also, in the digestion of the food.

He keeps the Polish or Top-knot fowls, and the common country stock—prefers the former on account of their laying more steadily the first year, or two years—thinks there is not much difference in the black and spangled varieties of Top-knots. His general practice is not to keep fowls after the second year; as they do not lay so well after that age, they are regularly sold off, and the stock is kept up chiefly by purchase, tho' some chickens are raised; and it is only for the latter object that cocks are kept, Mr. M. being satisfied that they are no benefit in the production of eggs for market.

Mr. Moses considers the manure of fowls of much importance, and takes care that it is all saved and applied to his crops. Under the building in which the fowls rest is a cellar, into which all the manure is put. In spring, just before planting time, the manure is worked over and mixed with plaster—sometimes with plaster and ashes in equal proportions—using enough of these articles to make the manure so dry as to pulverize thoroughly.

The domestic guano, of which Mr. M. sometimes has the quantity of 300 bushels in a season, produces a powerful effect on the growth of Indian corn. His mode of applying it is, to drop a handful in each hill, which is then covered half an inch or more with earth, in order to prevent the seed from coming in immediate contact with the manure, which, experience has shown would prevent its germination. Mr. M. stated that he had tried this compost in comparison with good hog manure by applying each to corn in the same field, and on similar soil. On one part, half a shovel full of hog manure was put in a hill, and on the other part, a handful of the hen manure compost. The crop was best where the latter was used, and the succeeding crop (which was oats) showed the same result in favor of the hen manure.

On another occasion he manured ten acres with the hen manure, which produced sixty bushels of corn to the acre. On a part of this piece he used the manure only on alternate rows, leaving the intermediate rows with no application. The ears were "mere nubbins" on the rows that had no manure. He planted pumpkins in a row that had no manure, and on another row that had the proportion given to the rest of the field.—The row which had no manure produced no pumpkins of any value; the other produced fifty-one fair sized, good pumpkins.

Mr. M. stated that his son was engaged with another person in the poultry trade, and that in the winter of 1849–'50 they sent between twenty and thirty tons to New York and Boston.—*Albany Cultivator.*

New Way of Producing Water Gas.

Explanation of the Phenomena of Thunder and Lightning.—Mr. Appleby, apothecary in Central square, East Boston, in a communication to the *East Boston Ledger*, thus describes a manner of involving gas from water, which he has discovered, and to which he invites the attention of scientific men. He says:—

"I produced the gas from cold water, without a battery, without a helices of copper, zinc, or brass, and without the use of mercury. I fill a proof bottle with water immediately from the Cochiuate pipe, carburet it in the same bottle, and then, by adding the necessary chemicals, separate hydrogen from the oxygen. I now attach a tube, made upon the principle of the safety lamp, to the mouth of the bottle. To prevent an explosion, a certainty quantity of the gas is allowed to pass over, thus removing what atmospheric air may remain in the bottle. A lighted match now applied to the tube produces a pure, bright and beautiful flame. I have exhibited this light in my shop for the last four months, to the entire satisfaction of a number of intelligent gentlemen who have seen it.

In the course of my experiments with the water gas, an idea struck my mind which seems to me to explain more fully than has ever been done before the phenomena of thunder and lightning. It was not till after several explosions that I succeeded in producing the light. When a number of these had occurred, the idea flashed across my mind, that the explosion of the cloud is caused in the same way through the ignition of the hydrogen it contains by the contact of electricity.—Electricity, the most powerful chemical agent known, and the only one which will decompose water, separates the hydrogen from the oxygen, and incombination with atmospheric air, explodes the former, and produces the sublime phenomena which we witness every summer in the clouds.'

Beet Root Sugar.

The following is from the *Cork Examiner*:—Some portion of the attention which is now generally turned towards the promotion of manufactures would be usefully directed to the production of sugar from beet root. Already it is carried on to a considerable extent in France and Belgium where vast numbers of people are employed in it, and large establishments erected for the purpose. We have seen a specimen of Sugar made from beet root in the latter country, which was exhibited at a large meeting of the Dublin Society, and which naturally excited much curiosity. It is of the purest appearance, of strong sweetening quality, and in colour resembling the species of sugar known as crushed lump. The most singular part of the matter is, that it was manufactured in a space of about forty-five minutes, the entire time occupied from taking of the root out of the ground and putting it into the machine to the production of the perfect article. Some reluctance was evinced to tell the price at which it could be made; and in reply to a question on that point, it was said that it could be produced at the market rate for sugar of a similar quality in this country, about 6d per pound. We have ascertained, however, that the article could really be made for 2½d per pound. An acre of ground is calculated to yield fifty tons of Silesian beet, which in France and Belgium give three tons of sugar, worth about £50; the refuse being useful for feeding cattle, and in those countries being actually used for that purpose. But from the superior fitness of the Irish soil, as shown by experience to be the case, it is confidently affirmed by persons competent to form an opinion, that eight per cent of sugar could be obtained here on the raw bulk."

Wonderful Structure of the Heart.—An anatomist (as Dr. Paley observes) who understood the structure of the heart, may say beforehand that it would play, but he would expect, I think, from the complexity of its mechanism, and delicacy of many of its parts, that it would soon work itself out. Yet shall this wonderful machine go night and day, for eighty years or more together, at the rate of a hundred thousand strokes every twenty-four hours, having at every stroke a great resistance to overcome; and shall continue this action for this length of time, without disorder and without weariness. Each ventricle will at least contain one ounce of blood. The heart contracts four thousand times in one hour; from which it follows, that there passes through the heart, every hour, four thousand ounces, or 350 pounds of blood. In the human body there is said to be about twenty-five pounds, so that a quantity of blood, equal to the whole mass of blood, passes through the heart 14 times in one hour; which is about once every four minutes.—*Buck's Practical Expositor.*

New Self-Centering and Self-Regulating Lathe.—Mr. Thomas R. Bailey, of Lockport, N. Y., has made a very valuable improvement in lathes for concentric turning, such as for broom handles, &c., for which measures have been taken to secure a patent.—The live spindle has a sliding cone mouth into which the rough material is placed, and the slide spindle has also a cone mouth in a line with the other. The rough material is placed within these cone mouths, and must be centred, as the spindles always bear a fixed relation to one another, and the cone mouths guide the rough material to lie in a true central line with both spindles. When the slide has run its length, it strikes a cam upon the frame, and the broom handle, or whatever it may be that is turned, is thrown out from the spindles, and drops down. The turning tool can be guided by a fixed side pattern to turn out many different irregular forms. This lathe is easily attended and is very simple. It is a good, new, and useful improvement.—*Sci. American.*

Leather Cloth.—A new article of boots and shoes has just come up in England. It is called the Panama Corium, the leather cloth, and was invented by a person named Hull. The material is cotton, but has the mass and general appearance of leather, and receives a polish from ordinary blacking, and in the same way. It is used only for the upper, the sole being leather. It is said to be as durable as leather, never cracks or splits, and possesses the advantage of no drawing the foot.—*Sci. American.*

Acknowledging the Corn.—The *Maine Farmer* acknowledges the receipt of a bag of 'popping corn' which was sent to their office accompanied by the following rhyme:—

"Corn for the richman—corn for the poor;
Corn for the chickens around the barn door;
Corn for the master—corn for the dog—
Corn for his cattle—corn for his hog;
Corn for the grist-mill—corn for the shop;
Corn for the "Maine Farmer" devils to pop!"

EXCESSIVE LABOR OF HOUSEKEEPERS—CLEANING HOUSE, &c.

BY FRANCES D. GAGE.

DEAR MRS. BATEHAM:—Permit me through the housewife's department of the *Cultivator* to renew my acquaintance with its numerous readers. After three months of sickness and suffering, I am joyful and thankful to be able to use my pen again, and feel very much like shaking them every one by the hand, and earnestly entreating them to give attention to your suggestions with regard to health. Fresh air and out-door exercise, will produce more rosy cheeks than all the doctors pills ever advertised in the newspapers. I have a word of advice to give to the farmers wives and daughters about exercise, they are apt to exercise too much—to work too hard, mothers especially, and to "break down," as they term it, too early in life. This sometimes is a matter of necessity, but more frequently a want of care and economy of time and labor. This is the season of house cleaning, and a word of caution may not be amiss. Let me tell you what Mrs. Jones thinks about it.

Now, girls, says the old lady, (she's not so very old, either,) I shall let you younger ones, clean the house this spring; I think it's time for me to stop and let you take the lead; if I don't you will never learn how. There's Mrs. Thomas' girls—they scarcely know how to get a meal of victuals—sprightly, willing girls too, they are, all three of them. But their mother never thinks they can do any thing right, and always complains that she is tired and "clean worked down," and never sees a bit of comfort, because she has to work so hard; while it 's all her own fault and she ought to know it. Of course she can't expect every thing done just as nice as she should do it, the first or the second time. But there must be a first and second time, and the daughters have got to learn—and if the mother had a thimble full of sober thought, she would see that the sooner they learnt the better. What's that you say, Kate? "If father will let Dick help shake the carpets you can get through all the house cleaning in two days?"

I shall not consent to any such arrangement—take it soberly and calmly and do it well. There is no need of half killing yourself one week—to gain time to be idle the next. All the time there is passing belongs to us, and if we use it right it will suffice. I know from experience just how you feel about it; can't bear to be in a "muss" and have things turned upside down, so you'll go to work and do three days work at house cleaning in one—take a hard cold, or something worse, when if you would use a little patient industry all might go right.

I remember how I used to do. When you was a baby, Kate, about four months old, I had to clean house; not such a house as we have now, nothing but a log cabin, with one room for kitchen, dining, parlor and best bed-room, besides; and a little room built on back, where father and the children slept. But it had to be cleaned and whitened as well as larger houses. So one fine spring morning I went at it, moved the beds and every thing else out of doors so I should have nothing in the way. Just as I had got every thing out of the house, Mr. Jones came along. "Why Mary," said he, "what on earth are you going to do—where are we all going to stay to-night?" "Stay," said I, quite in a pet, "stay at home to be sure." "You don't expect to get all this work done to-day yourself, do you?" said he. "Yes I do," said I. "Well," said he, "go ahead." I had forgotten to get things ready beforehand, and had to run a quarter of a mile up the creek in the warm sun to get white clay for white-wash—for in those days we could not get lime. Well, I worked away—white-washed the house pretty near all over, inside and out, took every thing back again, and had all put to rights, before sun-down, and when your father got home from mill, had his supper ready and tried to look cheery. But I was so tired I could'nt but just move one foot before the other. Well, I went to bed, and the baby cried and fretted, as it would of course, when its mother was in such a plight. At last I fell asleep, but not till I had taken a good cry—because I had to work so hard and had no body to help me, and all that. Before morning I awoke with a dreadful pain and in a high fever, and your father posted off after the doctor. He did'nt scold, but as he went out I heard him say, "no more than might be expected!" Well, girls, I had to lie four weeks, suffering intense pain most of the time, and your father had twenty dollars doctor bill to pay, and a hired girl's wages and board, besides losing a good deal of time himself, which put the farm behind, and all just because I did'nt like to be in a "muss." Now, take my advice, girls; work moderately, steadily, and you will be the gainers in the long run; and always keep in mind that your health is of more importance than a clean house."

So thought Mrs. Jones, and so think we. There is much sickness and ill health produced by want of exercise and much by injudicious labor and over exertion.

Mount Airy, April 2, 1851. [Ohio Cult.

NO MORE CORNS.—There is no doubt some quackery in the corn doctor's trade, but there is more ignorance. For the benefit of both him and his patients, we will now disclose a secret which will relieve humanity from a load of misery, not the less difficult to bear than it is unpitied or ridiculous. The cause of corns, and likewise the torture they occasion, is simple friction; and to lessen friction you have only to use your toe as you do in like circumstances a coach wheel—lubricate it with some oily substance. The best and cleanest thing to use is a little sweet oil rubbed upon the affected part (after the corn is carefully pared) with the finger, which should be done in getting up in the morning, and just before stepping into bed at night. In a few days the pain will diminish, and in a few days more it will cease, when the nightly application may be discontinued. The writer of this paragraph suffered from these horrible excrescences for years. He tried all sorts of infallible things, and submitted to the manipulations of the corn doctor, but all in vain, the more he tried to banish the more they wouldn't go; or if they did go, (which happened once or twice under the strong prevailment of caustic,) they were always sure to return with ten fold venom. Since he tried the oil, some months ago, he has had no pain, and is able to take as much exercise as he chooses. Through the influence of this mild persuasive. one of the most iniquitous of his corns has already taken itself off entirely: the others, he still pares at rare intervals; but suffering no inconveniencies whatever from them, he has not thought it necessary to have recourse to caustic—which sometimes. if not carefully used, and vinegar and water applied at once to the toe, causes almost as much smart as the actual cautery.—*Chambers' Journal.*

CHAIN OF BEING.—Bitumen and sulphur form the link between earth and metals—vitrols unite metals with salt—crystallization connects salts with stones,

the amainthus and lythopites form a kind of tie between stone and plants—the polypus unites plants to insects; the tube worm seems to lead to shells and reptiles; and the eel forms a passage from reptiles to fish; the anas nigra are a medium between fishes and birds; the bat and flying squirrel link birds to quadrupeds; and the monkey equally gives the hand to the quadruped and to man.—*Sci. Journal.*

Editor's Notices, &c.

CANADA: Past, Present, and Future. By W. H. Smith. Toronto: Thomas Maclear, 45 Yonge Street. —We have lying before us the fourth part of this useful publication which completes the first volume. The Map, containing the Counties of Lincoln, Haldimand, Welland, Wentworth and Halton, is as usual, neatly engraved, with the views of principal places distinctly laid down. The present part consists of an exceedingly well written introduction, setting forth the discovery of Canada, with an account of its subsequent condition and progress, both under the French and British, brought down to the present time. This forms a very appropriate and useful introduction to the work, and will be read with both pleasure and profit by the majority of subscribers. The present is a good opportunity for new subscribers to commence taking the work, as we learn from an advertisement that all surplus copies after the publication is completed, will be sent to England, where its circulation cannot fail to produce a favourable impression respecting Canada, as a field for emigration. It is, in short, a publication highly deserving an extensive patronage; and we would say to such of our readers as have not subscribed already, do so at once.

STEPHENS' FARMERS' GUIDE.—We have received through Mr. Rowsell, Bookseller of this city, the latest number of this valuable publication. The steel and wood engravings continue numerous and fully maintain their former high order of excellence, and Professor Norton's useful appendix to the same is completed in the 17th Number, which contains, also a very interesting preface from the able pen of Mr. Stephens. The enterprizing Publishers, Messrs. Scott & Co., New York, have announced their intention of not exceeding the original charge for the work, viz: $5; although it will contain 200 pages more than was originally contemplated. This act of good faith and liberality will be appreciated by a discerning public; and we trust that no farmer who is desirous of improving alike his head and fields, will not be without this systematic publication, the cheapest and most complete in the English or any other language.

NOTICE.

G. L. Morris's Great Sale of Improved Domestic Animals, takes place on the 24th inst., for further information see his advertisement in this paper. Catalagues can be obtained at this office or from Mr. Morris, if required to be sent by mail, the postage will be prepaid.

THE PRIZE LIST of the Provincial Agricultural Association for 1851, will appear in our next number. *Canada occupies an honourable position in the Great Industrial Exhibition of all Nations!* This fact should incite us to greater zeal and increased efforts in the great cause of industrial and social progress, that will be tested at Brockville, in September next. There must be no looking back, *Onwards*, should ever continue our motto.

"HINTS TO THE FARMERS of Prince Edward Island," by Judge Peters, has been received, and shall be noticed in our next.

AGRICUTURAL SEEDS.

JUST received and for sale by the Subscribers.

Blood Red Mangle Wurtzel,
Yellow Turnip,
Spring Vetches,
Superior Sugar Beet, equal to Mangle Wurtzel for feeding cattle,
Turnip Beet,
White Belgium Field Carrot,
Purple Top Sweed Carrot,
Skirving do do
Yellow Aberdeen do
White Globe do
do Flat do
Early Stone do

—ALSO—

A general assortment of Fresh English Garden and Flower Seeds.

ONION SEED.

A few Barrels of FINE RED ONION SEED for sale by

LYMAN BROTHERS, & Co.

Toronto, Bpril 1st 1851.

FLAX SEED.

100 BUSHELS FLAX SEED of a superior quality and cleaned expressly for agricultural purposes.

LYMAN BROTHERS, & Co.

CANARY SEEDS.

25 BARRELS superior English Canary Seed.

LYMAN BROTHERS, & Co.
St. Lawrence Buildings,
Toronto, 1st May, 1851. Toronto.

IMPORTANT TO

FARMERS AND GARDENERS!

THE Subscriber is prepared to supply in any quantities to suit purchasers,

GROUND BONE FOR

MANURE.

It is quite unnecessary to state here the superior qualities of Ground Bone over any other kind of Manure, especially for turnips, as it is well known to all practical agriculturists.

PETER R. LAMB,

Near the Toronto Necropolis, East of Parliament Street

N.B. All Orders or Communications left at Mr. T. Lailey's Clothing Store, King Street, or through the Post Office, will be punctually attended to.

April, 1851. 33-3m

DOMESTIC ANIMALS AT AUCTION.

THE postponed yearly sale of FULL BRED SHORT-HORNS and IMPROVED DIARY STOCK, consisting of about fifty head, will come off at my farm on Tuesday, June 24, 1851 at 12 o'clock, M. I shall sell all the improved Diary Stock which is composed of the finest Short-Horn, with a slight cross of Amsterdam Dutch, which some writers say was part of the original ingredient which composed the improved Short Horns.

I am now breeding the Short-Horns, Devons, and Ayrshires, each seperately and pure, which owing to the limits of my farm, make it necessary to confine myself to those three breeds. By the awards of the State Agricultural Society, the American Institute, and my own county Society, [with the exception of last year, when I was not a competitor at either,] it will fully appear that I have been a very successful exhibitor. The cow which won the FIRST PRIZE as a milker, at the American Institute last year, was bred by me, and composed of the above alluded to Diary Stock. Several of the Bulls will be of the most appropriate age for efficient service for the coming season. All cows and Heifers old enough, will be warranted in calf at the day of sale, by my imported Bull "The Lord Erylechne," or my celebrated Bull "Lamartine."

I own two through bred Devon Bulls, one the celebrated old Major, the other, one and a half years old imported by me from Devonshire. One of the above animals will be sold—which one, I have not as yet determined.

A full catalogue, with the pedigree of each annual, will be published in due time, with minute description of sale, &c.

I also have a number of Suffolk Sows, in pig to my imported Boar, most of the progeny of which will be old enough to dispose of on that day,

I also have about 20 South Down Ewes, most of which I imported from the flock of Jonas Webb, and now in lamb to imported Buck "Babraham." Some of their Buck Lambs will be offered at auction on that day.

This sale will not only offer an opportunity to obtain Stock from my previous Herd, but will also enable persons to procure calves from my imported Bull, lambs from my imported Ram, and pigs from my imported Boar—all of which animals were recently selected by me in person, when in England.

The mode of warranting the Cows and Heifers in calf, is this. in case they prove not to be so, it shall be optional with the purchaser, on his *certificate of the fact*, either to receive from me $25 (say twenty-five dollars,) or to send the cow to my farm, and I will keep her the proper time (free of expense) to have her got in calf to either of my Bulls, which he shall choose. I will give $25 for any heifer calf from either of the Cows or Heifers sold at the sale, delivered on my farm at two weeks old.

Stock purchased to be sent a distance, will be delivered on ship-board or railroad in the city of New York, free of risk or expense to the purchaser.

Persons living at the south, in a climate to which it would not be well that stock should not be transported, at that hot season of the year, may let such animals as they may purchase, remain with me until the proper season, and I will have them well taken care of, and charge only a reasonable price for their keep. One of my objects in breeding improved domestic animals, is to assist in distributing throughout the Union, deeming it one, if not the most important feature to promote profit to the cultivating of the soil, and to benefit the consuming country at large.

All communications through the Post please prepay, and I will prepay their answers, and also a Catalogue if required. Catalogues will be to be had at all the principal Agricultural Warehouses and offices of the principal Agricultural Journals, on and after the 1st day of June next.

Persons wishing to view the stock at any time will find my superintendant, Mr. Wilkinson, to give them the desired information when I am not at home.

Dated this 4th day of March, 1851 at Mount Fordham, Westchester County, eight miles from the City of New York, by Harlem Railroad.

April 2.—3t L. G. MORRIS.

POSTSCRIPT.—I decline selling any Stock by private sale, so as to offer the public all the animals I have to part with without having any previously selected from the herd and all animals offered will be positively sold.

GREAT SALE OF SUPERIOR THOROUGH BRED SHORT HORN CATTLE.

The subscriber having more stock, than he can well sustain on his farm, will offer at public Auction about 30 head of his improved short horn cattle, consisting of Bulls, Cows, Heifers and Heifer and Bull Calves, on the 26th day of June next, at his his farm 2½ miles from the City of Troy.

It is known to breeders of improved Stock, in this country, and in Canada, that the proprietor of this herd, during the past 12 years, has through the medium of importations, from England, and selections from the best herds in this country, spared no expense to rear a herd of Cattle from which superior animals could be safely drawn, for improvement and crosses upon other herds. His importations have been derived from that eminent breeder, the late Thomas Bates, Esq. of Kirklearington Yorkshire, England, which herd it is well known has recently been disposed of at public sale by his administrators, and dispersed in many hands, and can no longer be resorted to as a whole for improvement. The announcement of that sale created great interest, and all short horn breeders in England seemed emulous to secure one or more of these animals, to mingle with the blood of their own herds, and at the day of sale, there was found assembled the largest audience ever before witnessed upon a similar occasion, numbering as was said from 4000 to 5000 persons, and among them the best breeders in England, and several from other countries, some of the animals bringing prices that seemed incredible to many.

In the herd now offered for sale will be included, the Imported Bull Duke of Wellington, and the premium Bull Meteor, these are Bates's Bulls, and their reputation as stock getters are two well known, to need any comment. I am however authorized by Lewis F. Allen of Black Rock, one of the most prominent breeders in this country, and who has had ample means of forming a judgment, that in no instance to his knowledge had these two Bulls been bred to short horn Cows of other herds, previously imported into the United States but what the produce were superior in general qualities to such herds.

The most of the stock which is now offered for sale, has been bred from these two Bulls and the proprietor, having a young Bull more remotely connected with that portion of the herd, he retains (being about 14 in number) can spare these two valuable Bulls. There will be in the stock offered for sale, 6 young Bulls from 6 months to about 2 years old, in addition to the two named above, and the remainder of the stock will be composed of Cows, (most of them possessed of extraordinary milking qualities) Heifer and Heifer Calves. It is believed that no herd of short horns has ever been offered for sale in this country, exhibiting more of the valuable combinations of qualities which contribute to make up perfect animals. A catalogue containing the pedigrees of these animals, will be ready for delivery at an early period in which the terms of the sale will be particularly stated. A credit will be given from 6 to 8 months. Gentlemen are invited to examine the herd at their convenience.

GEORGE VAIL.

Troy near Albany, New York.