

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

Coloured covers/
Couverture de couleur

Coloured pages/
Pages de couleur

Covers damaged/
Couverture endommagée

Pages damaged/
Pages endommagées

Covers restored and/or laminated/
Couverture restaurée et/ou pelliculée

Pages restored and/or laminated/
Pages restaurées et/ou pelliculées

Cover title missing/
Le titre de couverture manque

Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées

Coloured maps/
Cartes géographiques en couleur

Pages detached/
Pages détachées

Coloured ink (i.e. other than blue or black)/
Encre de couleur (i.e. autre que bleue ou noire)

Showthrough/
Transparence

Coloured plates and/or illustrations/
Planches et/ou illustrations en couleur

Quality of print varies/
Qualité inégale de l'impression

Bound with other material/
Relié avec d'autres documents

Continuous pagination/
Pagination continue

Tight binding may cause shadows or distortion along interior margin/
La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure

Includes index(es)/
Comprend un (des) index

Title on header taken from:/
Le titre de l'en-tête provient:

Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/
Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.

Title page of issue/
Page de titre de la livraison

Caption of issue/
Titre de départ de la livraison

Masthead/
Générique (périodiques) de la livraison

Additional comments:/
Commentaires supplémentaires:

Wrinkled pages may film slightly out of focus.

This item is filmed at the reduction ratio checked below/
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	12X	14X	16X	18X	20X	22X	24X	26X	28X	30X	32X
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

THE CANADA FARMER:

A FORTNIGHTLY JOURNAL OF

AGRICULTURE, HORTICULTURE, AND RURAL AFFAIRS.

VOLUME IV.

JANUARY TO DECEMBER, 1867.

W. F. CLARKE, EDITOR.

TORONTO;

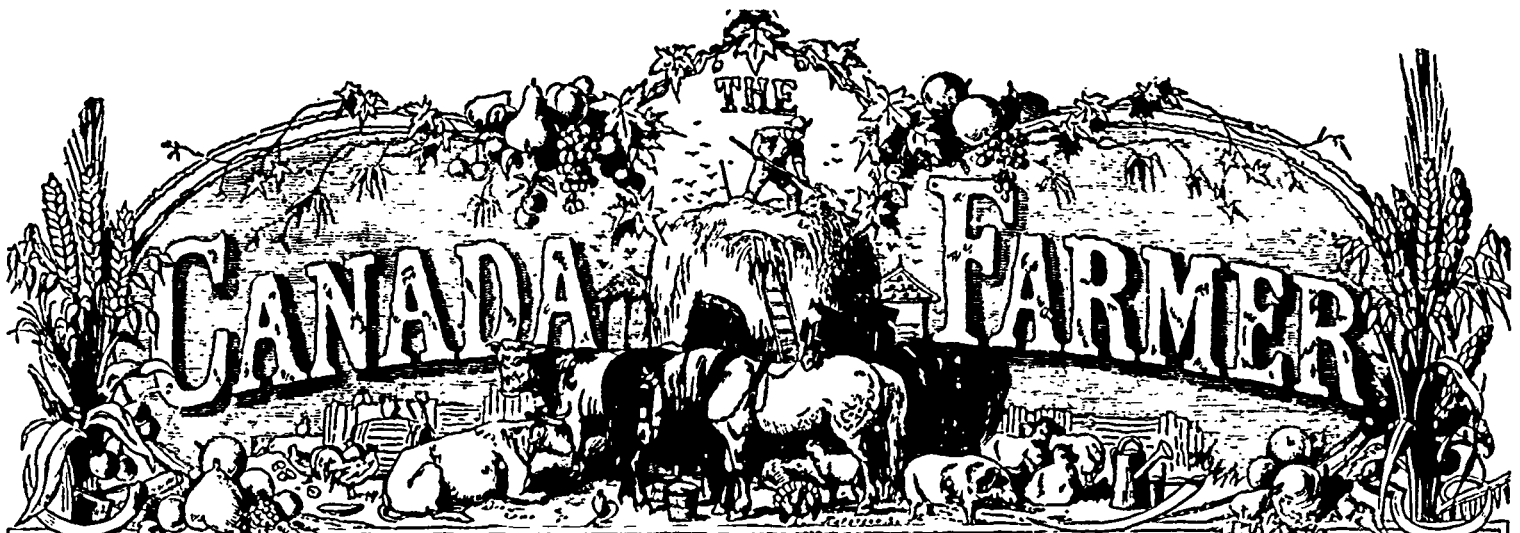
GLOBE PRINTING COMPANY, PUBLISHERS, 26 AND 28 KING STREET EAST.

1867.

INDEX.

A	B	C
Abell's Thrasher and Separator..... 1	Beans, Culture of..... 105	Cabbage, Remarkable Growth of..... 46
Abias Douglas..... 172	Beauty of Ice..... 6	
Abolition of Turnpikes in England..... 105	Of Water Scenes..... 191	
Abominable Negligence..... 221	Beavers..... 372	
Accident in Amaranth..... 139	Bed Bugs..... 265	
At Glen Williams..... 139	Your Stables..... 69	
At Maryborough..... 139	Bee, Breeding Functions of the Queen..... 200	
Fatal..... 155	Comb-Bees..... 235	
With steam Plough..... 62	Culture, A Great Invention in..... 87	
Acid Stains..... 319	Dress..... 235	
Address of Judge Logie..... 63	Egyptian..... 71, 87	
The President's, Provincial Association..... 299	Exhibition..... 170	
Advances, The..... 256	Gloves, India Rubber..... 200	
Advantages of Pulverizing the Soil..... 275	Hive Dimensions..... 40, 87	
Advertising, Benefits of..... 231	" Double Wall People..... 107, 122, 153	
Advice to Immigrants..... 297, 344	Excelsior..... 184	
To Tree Planters..... 203	The Thomas..... 138	
Agriculture, American, Howard on..... 9	Hives, size and shape of..... 103	
At the Paris Exhibition of 1867..... 9	" Straw as a material for..... 123	
Board of..... 123, 170	Honey..... 7, 43	
Retiring Members..... 362	Keepers' Guide..... 122	
Exhaustive System of..... 163	Caution to..... 335	
In Franco..... 139	Notes for..... 200	
" Nova Scotia..... 186	Keeping, Profits of..... 71	
Report of the U. S. Commission of..... 27	Prospects..... 150	
Agricultural Bill, New..... 361	The Queen..... 103, 133, 173, 359	
Agricultural Club, Glenfale..... 155	Questions..... 152	
College Massachusetts..... 377	Worker..... 40	
Convention..... 362	Bees and Buckwheat..... 87	
Fertilizer..... 90	A "Peep" at the Editor's..... 355	
Hill, Fickering, Opening of..... 268	A Swarm of on a Man's Face..... 254	
Implement of the Paris Exhibition..... 204	and Humble Bees..... 259	
Trial of..... 204	Fun among the..... 359	
Increase and Improvement in..... 8	Dead..... 229	
Interest, Gaining Information About..... 376	Destruction among..... 138	
Items..... 183	Drone-laying Queens and Drone-laying..... 359	
Meetings, Hints in regard to..... 231	Workers..... 215	
Note of Lennox and..... 165	Inoffensiveness of..... 359	
Products and markets during 1866..... 59	Italian and Egyptian Queen..... 174	
Quires..... 27	" Natio..... 200	
Royal Prize Essay..... 305	Profits of..... 7	
and Officers 1867..... 235	Replacing..... 40	
Results of..... 62, 71, 92, 123..... 24	should not travel far..... 311	
regard to vote..... 24	Wax, how to prepare..... 153	
" British..... 377	Wintering..... 23, 50	
" Irish..... 377	Benefits of light and ventilation..... 53	
" Franco and Gray..... 246	Beet, Immense..... 219	
" Eigen..... 10	Root Sugar, 60, 73, 88, 92, 99, 100, 209, 219, 374..... 5	
At Passages, Curious diseases of, in the Horse..... 191	Berkshire Hogs, Improved..... 232	
Ischol, Effects of..... 210	Bettle, Two striped Cucumber..... 239	
Alako Clover..... 131, 152, 243	Beverage, A Refreshing..... 496, 236	
A crop of..... 243	Bird Gospel..... 236	
Amateur Grape Culture..... 231	Birds, Native..... 237	
Amateur Taxidermist..... 231	In Cherry Trees..... 236	
American Bee Gazette..... 41, 67, 105, 307	Bitting and Checking Colts..... 237	
" Plant..... 215, 307	Black Swallow-tail Butterfly..... 233	
" "Checkers"..... 353	Biohelm Agricultural Societies..... 107	
Dairyman's Convention..... 35	Bloody Murrain and Heaves..... 25	
Factory System in England..... 254	Blue Bird..... 4	
Farmer's Horse Book..... 161	Board of Agriculture..... 123, 170	
Journal of Horticulture..... 167	Bones, Value of..... 258	
Milk Establishment in Switzerland..... 107	Bones, Calcined..... 369	
Naturalist..... 154	Borer, The..... 372	
Biological Society, Meeting of..... 318	Whole or Broken in Vine Beds..... 104	
Poultry Club..... 281	Boots, Waterproof..... 318	
View of the Dairy Interest in Canada..... 264	Borax, Virtues of..... 31	
Ancient and Modern Husbandry..... 255	Borer, Oak Tree..... 22	
Annual Fair of the N. Y. Wool Growers' Association..... 139	Botts in Horses..... 231	
Meeting of the Toronto Horticultural Society..... 139	Bound Volumes..... 9	
Meeting of the Provincial Association..... 290	Bradley's Patent Cultivator..... 273	
Anti-Book Farmer..... 31	Drahma Pootia Fowls..... 44	
Antipathy of Rats to Castor Oil..... 78	Breeding Horses versus Breeding Pigs..... 68	
Ants and their Cows..... 47	" Poultry..... 163	
Aphis, Rose, Remedy for..... 156	Breeding of Twins..... 371	
" Aphis, "Ailca" or Honey Bee..... 7	Brewers' Grains for Milk Cows..... 29	
Apples, Canadian in the English Market..... 46	Brief Items..... 219, 235	
Keeping in Winter..... 63	Brighton and Crumback Farmers' Club..... 41	
Shipping to England..... 247	Farmers' Club..... 328	
Tree Blossoming twice in one Season..... 237	Britain's Prosperity..... 345	
Caterpillars..... 287	Britanny, Diminutive cattle of..... 21	
Applications for Seed..... 256	Brockville and Elizabethtown Agricultural Society..... 54	
Arab Horse..... 256	Bronchocle..... 277	
Arabian Counsellor..... 210	Brood Mare, A Valuable..... 101	
Architecture, Designs..... 60, 189, 245	Brock Agricultural Society..... 87	
Arnold's Mr. C. Hybrid Grapes and Raspberries..... 334	Brydon, Mr., Testimonial to..... 204	
Bald..... 100	Bull Cochins..... 12	
Ivory..... 61	Bulbs, Seed from..... 79	
Propagation of Salmon..... 76	Bulls, Working..... 374	
Award of Prizes at the Provincial Exhibition, 1867..... 37	Bushes, Time to Cut..... 182	
Awards to Canada at the Paris Exhibition..... 234	Butter and Cheese Trade..... 192	
Barb Pigeon..... 365	Canadian..... 167	
Barberry as a Hedge Plant..... 185	Factories..... 229	
Barley Culture..... 194	for the Maritime Provinces..... 192	
Joint Worm..... 239, 267	from Whey..... 182	
Questions..... 179	Making, the Old Trouble..... 102	
Green..... 85	Packing in Summer..... 193	
Barn Yards, A visit to..... 19	Quantity of shipped from Chatham, U.S..... 67	
" "Forking over..... 243, 258	Rancid..... 323	
Barren Grape Vines and Orchard Planting..... 72		

Table listing various topics such as Paris Exhibition, Agriculture, Poultry, and Horticulture, with corresponding page numbers. Includes sections for Poetry, Safety, and various agricultural practices.



VOL. IV. No. 1.

TORONTO, UPPER CANADA, JANUARY 1, 1867.

POSTAGE FREE.

The Field.

Abell's Thresher and Separator.

THE accompanying engraving represents the Thresher and Separator which took the first prize at the recent Provincial Exhibition. This machine is chiefly distinguished by the following features:

First,—The gearing by which the cylinder is driven, and for which a patent was obtained in 1859. The wheels are placed in a cast iron frame, which is

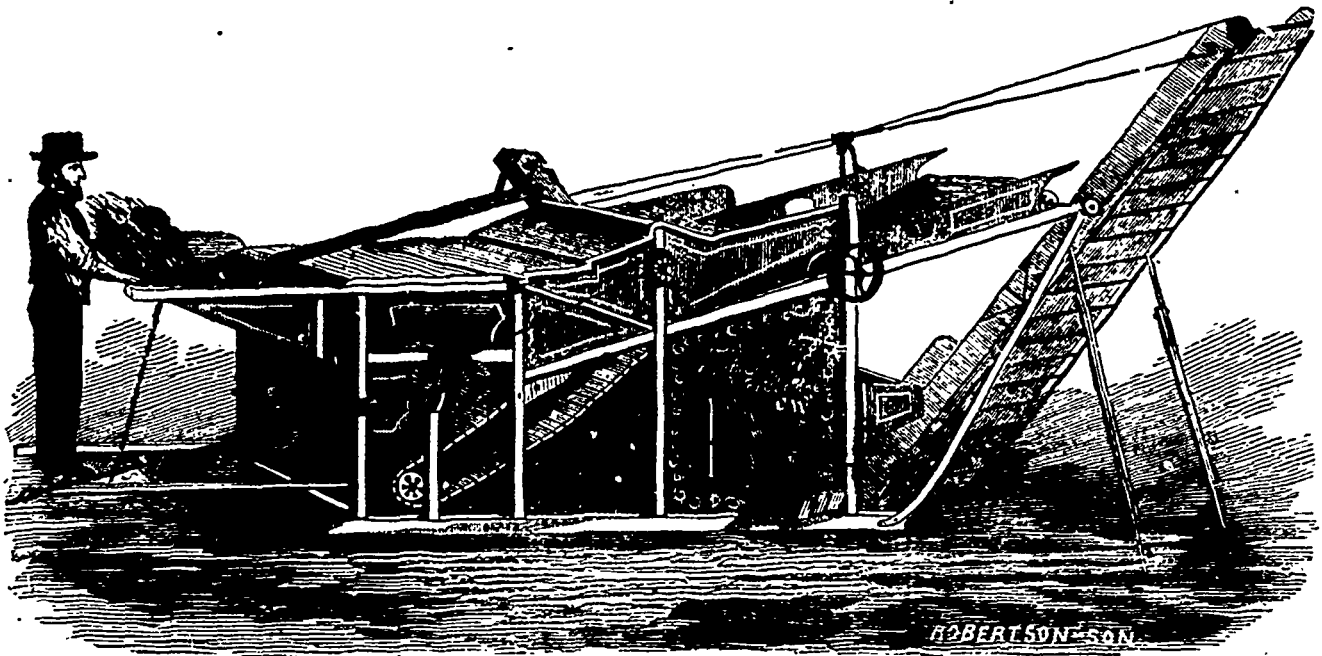
Thirdly,—The grain boxes are filled in a simple manner by moving the iron rods on the sides from one end of the rack to the other. Every time you take a box out, the other box is filling while you are emptying the box you take out. You put the empty box back in the same place it was taken from, and change the iron rod and that box will fill. By this process one man can attend to the boxes, and the grain is kept clean and free from dust. It can be used on either side of the machine. The screw is only put in when ordered.

Fourthly,—The use of perforated sheet zinc instead

Steam in Agriculture.

THE continent of North America displays this singular anomaly. We have throughout the United States and Canada, in all the agricultural districts, every means and appliance for using steam in agriculture, and yet it is the only department of industry in which steam is not used. We have fuel at hand which is wasting and being destroyed throughout the country. Our agriculturists as a body are possessed of sufficient intelligence to manage machinery, and yet we are content to jog on from year to year, burning up

FIRST-PRIZE HORSE-POWER THRESHER AND SEPARATOR AT THE PROVINCIAL SHOW OF 1866.



MANUFACTURED AND EXHIBITED BY JOHN ABELL, WOODBRIDGE, VAUGHAN.

securely bolted to the side of the machine, and is so constructed as to give the greatest amount of strength. The cylinder is driven by spur wheels, which are placed where the speed is highest. The bevel wheels are placed where the motion is slowest, thereby giving greater durability to the wheels, and doing away with the end play of the cylinder, which has been such a source of trouble where bevel wheels are used on the cylinder. There are now upwards of nine hundred machines in use in this province, geared as described.

Secondly,—The beater shaft is connected with gearing by a side shaft, which is so constructed that it can be taken off by any farmer, and then driven with a belt in case of an accident.

of wire for the riddles and screws. It is especially adapted for cleaning barley.

Fifthly,—The simple method recently invented by which the straw carrier is driven at any angle required to carry the straw into the mow. This arrangement consists of a cast iron bracket placed at the back part of the machine which carries a short shaft running vertically with two pulleys or with grooves in. It works admirably.

PASTURES.—A writer for the *Prairie Farmer* protests against breaking up land meant for pasture. He would have tight floors and mangers for saving hay seed, and sow it on the land, or would feed on the unploughed pasture. Judiciously managed in this way, pasture will soon be found to be mostly in tame grass.

thousands of acres of the best steam fuel, wasting time and labour in ordinary horse and ox cultivation, but no one uses steam. Yet no country wants it more; our work seasons are short; we are necessitated to waste in comparative idleness four months of each year, during which the frost locks up the soil;—when the spring opens we have only about two months, and generally only six weeks, in which to do our spring ploughing and seeding. Summer ploughing for fall wheat also has to be hurried through to make room for other work, and finally our fall ploughing is seldom all done before the frost puts a stop to the work. Few farms can be seen where the work of one season of the year is not unnecessarily pushed over into another season, and in which great

does not occur for want of sufficient strength to do the proper amount of cultivation in the proper time.

Then again we are troubled with certain weeds, which can only be kept down by constant and unremitting cultivation. The so-called Canada thistle, for instance, has now in many parts of the country the absolute possession of one-fourth of the land. Ordinary horse cultivation will not kill this pest, nothing but constant and perfect moving the soil during the hottest months of the year is a cure for it. It may be cut by the scythe 4 or 5 times a year, but still the roots remain ready the first opportunity to burst forth into fresh life, and if ploughed as is usual with summer fallows with horse power only, daily and hourly experience shows that the thistle will still continue to flourish. But the case is different with steam ploughing. So much can be done by steam ploughing in a short time, that one or two extra cultivations of a piece of land is nothing, and this one or two extra workings makes just the difference between killing the thistle roots, and merely dividing one into many, and so spreading instead of exterminating that pest. The same observations apply to couch or twitch grass, though in a less degree. The couch grass roots are more easily killed than the thistle, but both require more cultivation and disturbance during the hot weather than they get by ordinary means of ploughing and cultivation.

Then again with the seeds of weeds. Seeds grow only in favourable positions, they require a certain amount of moisture and air. Many of our most mischievous weeds, such as red root, thistles, wild mustard, poppies and wild oats, will remain any length of time in the ground, provided that only moisture is there. If they are buried so deeply as to be out of the reach of the air they remain torpid, but once expose them to the influence of the air within a favourable distance from the surface, and if they have the ordinary moisture of the earth about them they are sure to grow. If you take a large clod of earth and keep it watered and exposed to the air, every seed within about half an inch of the surface (whether that surface be top, bottom, or sides) will germinate; those further within the substance remain as they were, inactive and waiting for future development. Now when a seed once germinates its keeping power is lost—it must grow into a plant, or it must die. If after germination it is again disturbed, and buried deeper, or put into such a position as to be too dry, it is destroyed, and this occurs as often as the different portions of the soil are first exposed and then buried.

Nothing proves this so well as the common garden rake. You dig the ground and myriads of weeds grow from the seeds which are naturally preserved in the soil. If as soon as the seeds have germinated, but before they are too much developed, you rake the surface, all those affected by the rake die, a new crop follows which is killed by a second raking, (always supposing that you rake soon enough). After two or three or more dressings of this nature, either the surface gets too dry to eliminate the growth of the seeds, or all that are within reach of the air on that surface have grown, and have been destroyed. So in fallowing, you expose the surface of fresh portions of the soil to the air, and every weed seed within the proper distance germinates. As soon as they have grown, cultivate or plough again, and the whole of the seeds that have germinated are destroyed, and a fresh batch comes to be successively killed as the others were by again moving the soil.

Now steam ploughing and cultivating not only does this oftener because it can be oftener used, but it does it infinitely more effectually, because it exposes more surface. Steam ploughing will as an ordinary furrow move a piece of ground one foot deep, by 14 inches wide; it does not lay smooth even furrows like the prize plowing, but heaves up the surface into a very rough and uneven state, and leaves the ground full of deep cracks and chasms; through and into each of

these chasms the air enters, and as the ground at these depths is always moist enough for the germination of seeds, every seed at the proper distance from the surface of all the upheaved clods at once starts into life. The natural mouldering of the soil which takes place from the joint action of the sun and rain fills up many of these cracks, and so stifles the germinated seed, whilst the crashing through the soil of the subsequent steam cultivator, drag or harrow, finishes the destruction of the incipient crop. If the ground requires it, the steam dragged roller, immensely more ponderous than that which can be moved by horses follows, and fresh surfaces are exposed to be again broken up as required.

Then again the aeration of the soil can be more perfectly effected by the steam plough and cultivator than in any other manner. All know the usefulness of exposing the soil to the atmosphere; at all events all readers of THE CANADA FARMER are aware of the fact, or much that we have written has been in vain. The thorough breaking up and exposure of the soil withdraws from the atmosphere large quantities of those prolific and manurial gases with which the air is constantly burdened. Everything that decays and dissolves on exposure to the air eliminates these gases; they fly from the decaying and putrefactive heap of animal or vegetable matter, to be absorbed by the soil wherever it is in a fit state to receive it. Throughout nature destruction and decay in one department is revivification and new formation in another. It is one of the wise laws of nature that such should be the fact, and one of the greatest blessings which are vouchsafed to us by an allwise and overruling Providence. The great magazine of growth is the soil; plants take from the soil the greater portion of their tissues, but the soil would be in time be exhausted were there no return to it; the plant decays, the solid and material parts remain on the ground where it falls, and enriches it in those particulars, but the lighter portions, (that is all these parts which can be reduced to gases,) escape into the air and thus form the elements of future fertility in other respects and other places. Clay or earth of any kind, when broken up and exposed in large surfaces has the greatest affinity for these aerial manures. It continues to absorb them as often as fresh surfaces are exposed to their action. Thus a grand circulation is going on throughout nature;—the production of the earth decays; the decay lies off into gases, which being again attracted by the soil form future plant food for the nourishment of new vegetation. But this absorption of aerial elements only takes place to any extent in soil newly broken up and removed. In this condition the surface of every clod absorbs these beneficent gases. Heave the ground up as roughly as possible, and leave it so for a time, then each projection is so much surface, and the entire surface is drinking in the best possible manure from the air. Wherever the air can penetrate this effect goes on, and therefore the ground, when worked, should be as hollow as possible. New movement brings new surface to be acted on. New surfaces absorb rapidly, and continue to do so as often as they are made. Nothing acts in this way on the soil like steam cultivation. You have power enough to break up the surface to a foot deep, and deeper if required. You take from three to four of these furrows at a time, the steam cultivators and grubbers rip up the soil still further, bring all fibrous roots to the surface, and leave them there. One of these sets of "Tackle" as they are called in England will cultivate from 8 to 10 acres a day. You have, therefore, by them the power of doing in one day as much work as could be done by 6 or 8 two-horse teams, and which work is done infinitely better. Time is gained in the season of hurry, and large crops are secured.

We now come to the effect produced on the soil by steam ploughing acting as a drainer. Deep ploughing is next to deep draining. Land ploughed to one foot deep will be sufficiently drained for all common purposes for the time. The water can, and does, get off through the soil rendered porous by deep and thorough ploughing. Depressions of more than this depth are always drained by water furrows made with the ordinary plough, so that land ploughed to a foot deep and well water furrowed would always be safe against lodgments of water in the winter, which is the thing we have most to dread for our winter wheat; whilst on the other hand our summers are so hot and dry that our crops require deep cultivation to ensure the roots of the plants penetrating to a sufficient depth to find the required moisture.

It seems an anomaly to say that deep ploughing will dry the land in winter, and keep it moist in summer, but such is nevertheless the fact. In Canada most of the rain falls in the autumn; deep ploughed land being loosened and porous, naturally passes

the water off from among the roots of the plants. In winter the surface freezes sufficiently to prevent the rain which may occasionally fall, and the snow which melts in partial thaws, from penetrating the soil, whilst the under part being loose and porous, is continually draining by gravitation, until the frost penetrates to the full depth of the land ploughed, and which it only does during the absence of snow. With a good coating of early fallen snow the ground never freezes to a foot in depth, and when the snow lies all the winter the drainage still continues. In the spring the effect still goes on, for the land thaws from the underside, as well as the upper, and the drainage still continues although there will be a crust of frozen ground above it. In the summer, on the other hand, the rains fall and penetrate the soil to the full depth ploughed. All surplus water passes off, but from the depth of the moved land enough is retained for the healthy nourishment of the plant. Our climate consists of great heat during the day, with cold nights. In shallow ploughed lands, the sun heats the soil and drives off by evaporation all moisture. That which constantly arises from the subsoil passes readily off through the shallow heated surface, but in deeply pulverized land there is a considerable portion which acts as a refrigerator or condenser for this evaporating moisture. The effect of the sun cannot penetrate and heat the soil to the depth of a foot. Supposing the sun heats the soil to the depth of four inches to such an extent that the rising moisture will not condense amongst it, the moisture passes off, and is only returned to the growing plants by the nights' dews,—but in deeply tilled soil the middle of the tith being colder than the surface, retards the evaporation, and creates local moisture sufficient for the use of the plants. This is shown in any covering crop such as potatoes, peas, vetches, &c. The stems of these plants shade the soil and prevent the direct action of the sun; whilst at the same time they form a medium which entangles and condenses the moisture rising from the soil, and they return it to the soil at every change of temperature. For this reason the soil under such crops is always far moister than where a stand-up crop such as wheat or barley is grown, the upright stems of which allow the moisture to pass off without condensation. There is no doubt that we may over cultivate for some crops, but we cannot over cultivate in the killing and destruction of weeds and thistles, and to attain the various objects above mentioned, we must have the power of cultivating without stint. In a future paper we may have something to say as to the comparative expense of maintaining steam power, and an equal amount of horse and animal power.

Familiar Talks on Agricultural Principles.

BARLEY.

Of all the cultivated grains, there is perhaps none which comes to perfection in such a variety of climates as barley. It is found in most parts of the habitable globe, and maintains itself in spite alike of tropical heat and drought and the cold of regions bordering on the frigid zone. Linnæus found it growing in Lulean Lapland, in latitude 67° 20'. In genial climates, such as Egypt, Barbary, and the south of Spain, two crops of barley may be reaped the same year, one in spring from seed sown the previous autumn, and one in autumn from a spring sowing. This explains a passage in the Bible (Exod. 9:31) where the effect of the hail which desolated Egypt in consequence of Pharaoh's refusal to let the children of Israel depart is thus described: "The flax and the barley were smitten, for the barley was in the ear, and the flax was balled; but the wheat and the rye were not smitten, for they were not come up." It is agreed among commentators that the event thus narrated took place in the month of March: the first crop of barley was therefore nearly ripe, and the flax ready to pull; but the wheat and rye sown in spring were not yet sufficiently advanced in growth to be hurt by the hail.

Barley grows best on a light fertile soil, well cultivated and free from weeds, which are more injurious to it than any other grain. It should therefore follow a hoed crop if possible. Root crops require a well pulverized soil, and so does barley. In England it is almost always sown after turnips which have been either fed off by sheep or drawn to winter quarters for cattle food. This grain does well on heavy soils provided they are worked and stirred

until a proper tilth is secured, but this of course increases labour just at the busiest season of the year. But it should always be borne in mind that it is very poor policy to sow barley on land not properly pulverized. Barley grows and ripens with astonishing rapidity, nevertheless it should be got in as early as the state of the ground will admit, and should be harvested before it is quite ripe, as it quickly injures if allowed to stand too long. When harvested early the grain is of superior quality and less liable to shell out and be wasted.

The grain of barley very much resembles that of wheat in its composition, but it contains less gluten and more starch and sugar, as the result of which it is less nutritious, though equally wholesome. It takes from the soil a larger percentage of mineral substances such as potash, lime, silica, magnesia, phosphoric acid, &c., than wheat or rye, and such manures as contain these substances should be liberally supplied to the soil that is repeatedly cropped with barley. M. de Saussure carefully analyzed the ashes produced by burning barley and its straw, with the following results.

The grain reduced to ashes with its skin gave, out of 100 parts 18 of ashes, which contained :

Potass.....	18
Phosphate of Potass.....	9.2
Sulphate of Potass.....	1.5
Muriate of Potass.....	0.25
Earthy Phosphates.....	32.5
Earthy Carbonates.....	0
Silica.....	35.5
Metallic Oxides.....	0.25
Loss.....	2.8
	100

1000 parts of the straw produced 42 of ashes containing :

Potass.....	16
Sulphate of Potass.....	3.5
Muriate of Potass.....	0.5
Earthy Phosphates.....	7.75
Earthy Carbonates.....	12.5
Silica.....	57
Metallic Oxides.....	0.5
Loss.....	2.25
	100

The barley analyzed grew in a chalky soil. In one of a different character, the products would vary somewhat, but the proportion of silica in the skin and straw as shown by the above tables is remarkable.

Barley is quite as exhaustive a crop as wheat if not indeed more so, and it is therefore a mistake to suppose that soil need not be in as good a condition for it as for wheat. Barley will do well in a shallower soil than wheat, because it sends its roots very much along the surface, and not to a great depth. It is an excellent crop for growing with grass seeds.

This grain is chiefly raised for manufacturing into pot-barley and alcoholic beverages. The demand for it in this country is chiefly for the last named purpose. Its use for brewing and distilling dates back to a remote period, and is said to have originated with the monks. Barley is much used in European countries as food for horses, but for some reason or other is not consumed thus to any great extent on the American continent. It is a less heating feed than the oat, but more nutritious. According to the careful experiments of Thær, the comparative value of wheat, barley, and oats, for feeding stock, may be represented by 47, 32, and 24, taking the same quantity of each. The quality of soil on which these grains are sown would however modify their intrinsic and comparative value. The culture of this grain for bread purposes is largely carried on in some countries, and might be more widely extended on this continent with advantage. It makes a most wholesome and digestible quality of flour, and is therefore well adapted for human food.

Surface Application of Manure.

To the Editor of THE CANADA FARMER :

SIR,—In the Judges' Remarks relative to the North Riding of Wellington turnip match, contained in your issue of Nov. 15, I find the following sentence: "The practice of exposing manure for days and weeks before ploughing & under cannot be too strongly condemned."

Now, if there really is such great loss and disadvantage attending the application of manures distributed upon the surface without being immediately plowed in, that "the practice of exposing manures for days and weeks before plowing it under cannot be too strongly condemned," then we agriculturists of Canada should know and be convinced of the fact. Have these gentlemen any dates, the results of experiments, or anything, wherewith to prove the correctness of their theories in the premises, or is this merely an old foggy notion bequeathed to men by their grandfathers, some relic of antiquity, handed down from generation to generation?

Taught by the mass of testimony given by observing farmers of this country and the United States, which is fast obliterating old preconceived theories and opinions, as to this matter, and which go to prove that great loss is sustained by plowing under manure, I am inclined to believe that surface application, for most soils and circumstances, will be found the most advantageous and profitable method of manuring lands. How does the theory above tally with the evidence of the first farmers of the United States, among whom may be mentioned Dickinson, John Johnston, Geddes, and a host of others, who "hold that one load of manure on the surface is worth two loads plowed in?"

I would not indeed argue in favor of surface application under every condition and circumstance.—Thus, some soils would most probably be benefitted by having a portion of coarse manure plowed in and incorporated with them at not too great a depth. And, there are some situations where manure if applied as a top-dressing would be liable to become washed away, and lost. Also, I would not advocate the distribution of manure upon the surface, when undergoing rapid fermentation, excepting during, or immediately before rain or snow, which would have the effect of setting and washing into the soil any of those fertilizing qualities which would otherwise be liable to be driven off and lost. When applied before or after decomposition has taken place, manures will sustain little or no loss of their fertilizing properties. It is getting, however, to be admitted, that there is actually not so much waste from the escape of the gases given off by manures, as is generally supposed. Let it be a golden rule of agriculture, that, he who would be the most successful in the cultivation of the soil, must be not only the most conversant with the details relating to the art, but able to discriminate between those likely to have an effect the most favorable to his particular circumstance, and *vice versa*.

Here I would remark, that some of the advocates of the surface application of manures in the fall, argue in favor of that particular season against any other time of the year for the performance of the work. Some writers, even, go so far as to say that manure spread upon the surface in the spring of the year is liable, from the escape of the salts and gases, to lose a greater part of its efficiency. I fail to see why manure applied to the surface of the soil in early spring, should not give equally as valuable effects as that applied in autumn; I fail to see that a rule arguing against the surface application of manure in the spring, does not equally apply to that spread in autumn, except that in the latter case it would be to some extent, more completely diffused throughout the soil, which after all is the great advantage resulting from surface application of fertilizers over the practice of plowing them under.

I would commend the following extract from the "Rural New Yorker," to the attention of your read-

ers, as likely to throw light upon the subject that does not always seem to be properly understood.

"It is sometimes a question with farmers whether they ought to apply manure to land in the autumn, which they intend to plant to corn or potatoes the following spring—letting it remain on the surface through the winter. Frequently it is convenient to do so. Spring is a hurrying season. Rains delay the work; mud hinders the drawing of manure. If they can keep it without waste through the summer and fall, adding meanwhile ingredients to swell the bulk, and increase the richness, they can draw and spread it in the winter even, when there is more leisure."

"But does it waste by being exposed to the elements through the winter? We think not; chemically at least. It may be washed or floated off from steep hill-sides, or flats liable to overflow. But on level or moderately rolling land, there is probably not only no waste in applying the manure in the autumn or winter, but it will benefit the crops grown the next season, much more than if put on in the spring. Some of our best farmers have adopted this practice, and they find it to work well. How can the manure waste? Will any one tell us? As no fermentation takes place, consequently no gases are evolved to pass off. But it dries, says one, when there is no snow upon the ground, by the wind and frosts. Draw out a load of manure, and spread it, and in a day it will weigh more than a quarter as much as when put on the waggon. True, but what dries out of it? Water, nothing else of value. Dry straw is just as enriching as wet straw. It is questionable even whether barn-yard manure will loose any of its fertilizing qualities if spread on the surface of the ground in mid-summer, and exposed to the sun and winds till completely dried. The gases which are given off, and taint the air, are of little value to the crop. They will return in sufficient quantities to the plant, by absorption through its leaves."

"The advantages of manuring on the surface in the fall are great. Much of the soluble part of the manure is taken up by the water, and carried into the soil, where it is ready for immediate use by the following crop. If the ensuing summer be very dry, a coat of ordinary barn-yard manure may not materially benefit corn, if put on in the spring just before ploughing, from the fact that it will not decompose, and become available plant food, from want of moisture, early in the season. At any rate, if applied in the fall the manure would stimulate the corn quicker than if put on late in the spring. If it be wet ground to which the manure is applied it will cause the grass to sprout earlier and ranker, thus furnishing considerable pasture for sheep in the spring, or the grass will be so much gained in green manure if turned under. We believe in manuring in the fall. Clean the hog pens scrape the barn-yards, draw some muck, empty the stacks, and withal prepare for making and saving manure during the winter, so that next autumn will find you with a more ample supply than ever before."

Summing up everything having a bearing upon the surface application of manure, I find that the great superiority of this system over the practice of ploughing it in, undoubtedly, consists in the fact of the fertilizing particles becoming more dissolved and brought more completely into a state of solution and diffused throughout the soil, by reason of being in contact with the elements, which could not take place or have an effect upon it buried beneath the soil.—Thus, manure if acted upon by the frosts of winter, will have its particles divided, opened, and exposed to the beneficial action of the atmosphere, rain, and all the elements with which they are brought in contact, which will assist in dissolving, bringing into solution, and assimilating for plant food the several constituents which, otherwise, locked up within themselves would be lost to the farmer. In fine, manure if spread upon the surface of the soil, is open to the beneficial influence of every agent which tends to convert it into substances suitable for the food of plants, which if buried under the soil would be beyond the limits of their action. It is obvious to all that when the soil is turned up to the ameliorating influence of the elements, that portion directly in contact with them will be to a great extent changed, by reason of its beneficial agency in unlocking and bringing into a state of solution, suitable for the growth of plants, the elements of fertility which it contains.—Hence the beneficial results produced by ploughing and loosening up the soil. This too is also one principal reason of the soil's greater fertility immediately at the surface. A great portion of the elements necessary for the growth of plants may exist in the soil, but if not in a soluble condition they of course yield no benefit to crops. Now why not apply the same principles for the elucidation of the question of the application of manures? The surface application of manures has been found right in practice, hence the theory must be, and also is correct. J. F. C.

L'Original, C. W., Dec. 6th, 1866.

Canadian Natural History.

The Blue Bird.

EVERY resident in Canada, whether in town or country, is more or less familiar with the sprightly little bird of which our artist has given such a life-like engraving. Better than any description of ours is the following account of its characteristics and habits, which we quote from Wood's Natural History :

"The pretty little Blue-bird is deservedly a great favourite in the country which it inhabits, not only for its delicate blue back, red bosom, and sweet song, but from the engaging familiarity of its character. In many respects the Blue-bird takes the place of the redbreast in the affections of bird-loving persons, and fearlessly associates with mankind, even though it

be not driven to such companionship by cold or hunger. It is the harbinger of spring, and makes its appearance as soon as the snow begins to melt away from the surface of the earth, and the soil to loose itself from the icy bonds in which it had been held. Sometimes a few days of sharp frost or heavy snow will drive the Blue-bird to its hiding-place, but it soon emerges when the inclemency of the weather is past, and cheers the face of nature with its light-coloured feathers and sweet rich song. Many persons are in the habit of arranging a box with a hole in the side as a nest-box for the Blue-bird, and the grateful little creature never fails to take advantage

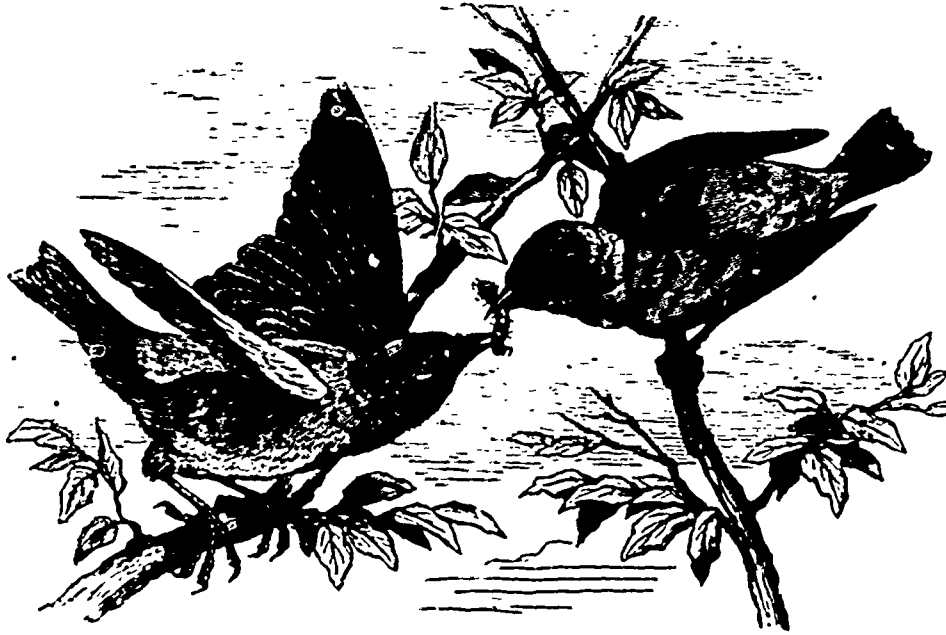
of the domicile thus offered to it, and to pour forth its thanks in frequent music. Although, as a rule, the Blue-bird is not seen except in the spring and summer months, it is evident that some specimens must remain throughout the winter, as even in the depth of the cold season, a few days of sunshine and warmth are sure to witness the presence of two or three Blue-birds that have been tempted by the genial warmth to leave for a while the snowy home in which they have been resting. The habits of this pretty bird are very interesting, and not the least so is the extreme care which it takes of its nest and young, sitting near them and singing its best, and occasionally flying off and returning with a caterpillar or other insect for their benefit. The Blue-bird builds its nest in the hollows of decaying trees and other similar situations, where the eggs and nest are well sheltered from the rain and cold. The eggs are generally from four to six in number, and their colour is a pale blue. Two broods are generally produced in a single season, and it is not uncommon for the bird to rear a third brood later in the year, should the weather be propitious. The food of this bird consists of various insects, chiefly those of the coleopterous order, spiders, small worms, and in the autumn of soft fruits and seeds. The bright, cheerful song of the Blue-bird is heard throughout the greater part of the year, commencing at the end of February or the beginning of March, and not ceasing until the end of October. The spring, however, is the season which is most enlivened by the song. This species is widely and plentifully spread throughout the greater part of North America, and during the cold weather moves Southward towards Brazil, Mexico, Guinea, and the neighboring parts, beginning its migration about November. The total length of the Blue-bird is

rather more than seven inches, and its colouring is as follows: The head, back of the neck, and the whole upper surface is of a rich azure with purple reflections, excepting the shafts of the quill feathers of the wing and tail, which are jetty black, and produce a very pleasing effect when contrasted with the blue. The quill-feathers of the wing are also black at their extremities. The throat, breast, and sides are rich ruddy chestnut, and the abdomen is white. The female is similar to her mate in colouring, but the tints are not so bright.

The White or Barn Owl More Useful to the Farmer than a Cat.

Dr. Hobson of Leeds, England, in a recent publication of his observes:—

I would that an admonition, from that luxuriantly cultivated district, East Lothian, could influence our



English farmers to endeavour to multiply the white or barn owl, but they have hitherto turned a deaf ear to all remonstrance or persuasion of this nature. Mr. Hepburn, from that elysium of Agricultural cultivation, says:—

"Shortly before sun set the white owl leaves its retreat, skims along the hedge rows, hunts over the meadows and corn fields like a spaniel, and drops suddenly on its quarry.

"You see her approach the homestead on noiseless wing, threading the labyrinth of stacks. She now enters the outhouses or the barn, and speedily reappears with a mouse in her claws.

"Perching on the top of a stack, she devours her prey, preens her feathers, and shrieks. Should plenty of food occur, she will remain all night and visit the place very frequently.

"It is at this time, especially if the weather be fine, that mice betake themselves to the outside of the stacks, where, all night long, they sport amongst the extremities of the sheaves, and, doubtless, drink the crystal dewdrops in their season. From her watch-tower, this owl swoops down among them or nimbly seizes them as she slides between the stacks.

"A sorry adept she must be if she do not secure one with each foot at a time. Nor must we forget the owl's services in the meadow and corn-field. With such facts before his eyes, where is the man who has the least interest in the cultivation of the soil that will not protect this beautiful and highly useful bird?"

In 1815, the late George Rennie, Esq., of Phantasie, in East Lothian, had the late Sir John Sinclair, Bart., staying a few days with him whilst I was also a visitor in the house, and I shall never forget the very interesting discussion they had on the destruction of mice and young rats by the white owl.

Like Mr. Waterton, of Walton Hall, they had counted the number of these vermin which had been taken by a pair of white owls to their offspring during one night. Although I do not remember the number, yet I well recollect that it was enormous, and that they agreed to write to the late Mr. Curwen, of Workington Hall, then M. P., for the County of Cumberland, urging him to unite with them in publishing the result of their determinations on this subject; and as these three gentlemen were the great Agricultural luminaries at that day, such a document would have been likely to have had weighty influence throughout the United Kingdom.

Another writer dilates on the mousing qualities of this owl as follows:

"This delicately coloured and soft-plumed bird is always near human habitations, and is generally in the vicinity of farmyards, where it loves to dwell,

not for the sake of devouring the young poultry, but of eating the various mice which make such havoc in the ricks, fields, and barns. The "feathered cat," as this bird has happily been termed, is a terrible foe to mice, especially to the common field mouse, great numbers of which are killed daily by a single pair of Owls when they are bringing up their young family. In the evening dusk, when the mice begin to stir abroad in search of a mole, the Owl starts in search of the mice, and with noiseless flight quarters the ground in a sportsmanlike and systematic manner, watching with its great round eyes every movement of a grass-blade, and catching with its sensitive

ears every sound that issues from behind. Never a field-mouse can come within ken of the bird's eye, or make the least rustling among the leaves within hearing of the Owl's ear, that is not detected and captured."

Stock Department.

Old Sows for Breeding

Some very successful hog-raisers use only young sows to breed from, thinking this course better than to keep them through the winter. A correspondent of the *Boston Advertiser* gives the following reasons for thinking the contrary course the better way:

In rearing swine and making pork there is a universal mistake among American farmers in breeding from young sows, before their physical system is developed. Until this time arrives, most of the food goes to the support of the animal's growth, therefore she cannot be as good a milker, or impart the same vigor of constitution to her offspring. We know by accurate experiment that an old sow's pigs are worth 25 per cent. more than a young sow's. They have more vigor of constitution, and make the largest and most profitable hogs. The reason why our breeds of hogs so soon run out and disappear arises mainly from the erroneous practice of breeding from young sows. Therefore, instead of killing their best sows this Fall, farmers should keep them over for breeders, and make pork of their young ones.

In Europe, no farmer of any reputation thinks of raising pigs from young mothers, any more than keeping a dry cow for milk; but old sows are kept for breeders until they are too old to be profitable in this respect.

The Improved Berkshire Hog.

The Berkshire breed has for a very long time occupied a most favourable position among our domestic swine; and it has undergone various changes as regards size, form and colour. The original Berkshire hog was of large size, of a reddish brown, with occasional black spots or patches; and was remarkable, when suitably fattened, for the weight and excellence of its bacon. Lawrence, in his work on British cattle, published in the latter part of the last century describes this breed as being "long and crooked snouted, the muzzle turning upwards; the ears large, heavy, and inclined to be pendulous; the body long and thick, but not deep; the legs short, the bone large, and the size very great." This breed, with all its defects was an immense improvement on the gaunt and rugged old English pig, but notwithstanding it has been extinct for many years.

Like the other earlier British breeds, the Berkshire, by careful selection and crossing, with better feeding and management, gradually assumed new and improved forms, acquiring a much earlier maturity and a far greater aptitude to fatten. What is now known

and quickly fattening breeds are, from first to last, the most profitable; indisputably they afford the best meat in whatever way it is prepared. The most prevalent modern variety of the Improved Berkshire, both on this and the other side of the Atlantic, are of a black colour, generally spotted, more or less, with white; they are roundly made, short on the leg, with a short arched neck, heavy cheeks, sharp ears, an abruptly rising forehead, short in the snout, well barrelled, broad backed, clean in the limbs, with a general symmetry that seems to have reached perfection. We are quite aware that this description will be more or less recognized in the modern Suffolk and Essex breeds, and in others similarly related, and therefore we do not advocate these points as exclusively belonging to the Improved Berkshire. The latter, perhaps, may be somewhat surpassed, as early and quick feeders, by Mr. Fisher Hobbs's world-renowned Essex breed; but for the *quality of the pork and bacon*, the modern Berkshire still stands unrivalled.

The Board of Agriculture, some twelve or fourteen years ago, imported this excellent breed into Upper Canada; and in a few years a considerable progeny

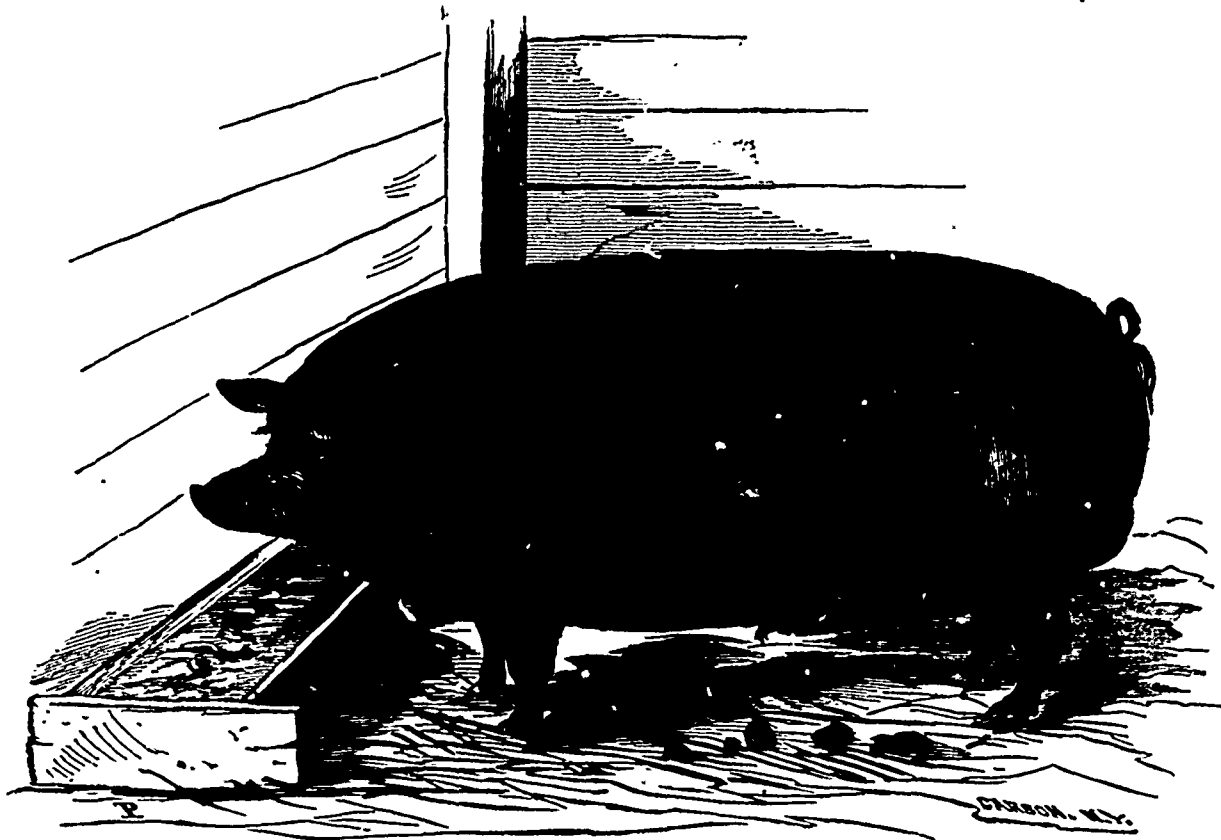
Care of Horses in Winter.

1. DURING the winter months, those horses which are used for labour should be well shod. Unless, however, they are to be driven in such places as render them very liable to slip, the corks should not be very sharp. When a horse is newly shod, be a little careful when you drive him, especially if he feels well, or he may cork himself. Like men, it takes a few days for them to become accustomed to handling their feet with new shoes.

2. See that the stables in which horses stand are strong, and so arranged that they cannot kick each other. In cold weather, if they are not well fed and do not work much, they kick and paw, and bite their rangers for exercise. It is not viciousness that makes them do it, but frequently a want of exercise. Often a valuable horse is badly injured just for want of proper arrangement of the stalls. A little expense to-day often saves a good deal to-morrow.

3. See that the floors are strong, and that the horse-barn is well banked up to prevent the cold air from passing under the building, and making the floor constantly cold. Every means ought to be taken to

FIRST PRIZE IMPROVED BERKSHIRE BOAR AT THE PROVINCIAL EXHIBITION, 1866



THE PROPERTY OF ROBERT WORM, YORK TOWNSHIP.

as the "Improved Berkshire," must be classed among the smaller breeds of pigs, attaining under careful management from 25 to 30 stones, of 8 lbs., in twelve or fourteen months. We are indebted for the present improved variety to a judicious series of crossings on the old stock, with the Chinese and Neapolitan breeds, and, perhaps, other varieties of Southern Europe. An agricultural writer of great repute a quarter of a century ago, observes: "In visiting the various farms, by way of observation, within ten miles of Reading, we could generally tell the cross or crosses of the animals in the farmer's straw yard; in many instances the breed was a compound of old improved Berkshire, improved Suffolk, and Chinese." On more than one occasion have we paused to admire the symmetry of some of these pigs; it was perfection, but certainly accompanied by loss of weight and size, compared with the older breeds; but this is of little consequence for we believe that rather small (not too small)

was diffused through different portions of the Province. Subsequently, several of our enterprising breeders have imported, at much risk and cost, very fine specimens from England, so that the purity of the breed has been preserved as well as widely diffused among us. In no department of live stock has Canada of late years, more progressed than in swine. The old coarse, curved backed, long snouted animal, of former days, has entirely disappeared, at least from all our well-settled districts; and improved varieties have succeeded, which when time and quantity of the food consumed are considered, produce a greater amount of meat of a much better quality. For a good specimen of this excellent breed of hogs, we refer our readers to the annexed engraving.

A calf was strangled lately near Davenport, Iowa, by the shrinking of the rope around its neck during a severe rain.

render the floor as comfortable as possible. A horse that has worked all day and got his legs wet, often takes cold because his legs are kept so during the night by a floor. Warm feet for horses are as important as for men.

4. A horse's bed is of some importance. We know a good many farmers who allow them to stand and lie on the hard floor all winter. They may get used to it, but what can be got used to is not always the best. A good bed of straw, or some similar material, kept clean by frequent changing, should be furnished to all horses. They will frequently paw it from under them, but this is for amusement and not because they do not wish for a bed. When this is the case, great pains should be taken to prevent it.

5. Always clean out the droppings of your horses, both morning and evening. They ought always to be removed so far from the stable that the air will not be poisoned by the emanations from them, or the

sills and sidings of the barn will be rotted by coming in contact with them. We have always thought that the practice of throwing the manure in a heap by the side of the barn door, is slovenly, wasteful, and detrimental to the health of the horse. With a broom sweep out all the dust that accumulates daily.

6 All horses should be groomed every morning when stabled. A good grooming is worth as much as half a peck of oats. Every barn should be supplied with a good curry-comb, card, comb for mane and tail, brush and stiff broom for this purpose. It keeps the circulation in surfaces vigorous, it keeps the skin clean and in good condition to withstand both heat and cold, and makes the horse look very much better. An ungroomed horse is like an unwashed boy, or a person who never attends to his toilet.

7 It is a question with some whether a horse should be blanketed in the winter. If the stable is a good one, and sufficiently warm, we should not use the blanket except when the horse is out of doors, or has been subjected to severe labour or exposure. If it is used when they do not need it, it will do them little good when they do need it.

8 In a cold day of winter, when a horse's bits are full of frost, always warm them thoroughly before placing them in the mouth. Not to do this is very cruel. Touch your tongue or even wet finger to a very cold piece of iron, and you can appreciate the importance of this hint. It may be a little trouble to do it, but it should be done. The frost may be taken out conveniently by placing the bits in water.

9 If you have no labour to perform with your horse see that he has plenty of exercise daily. This is necessary to the health of the animal, as well as to his and your comfort.

10 Do not allow him to drink very large quantities of ice-cold water at once. Moderately warm water is the best for animals, but a large quantity of very cold water is injurious. Especially is this the case when they do not have moderate exercise immediately after drinking, or when the horse is warm or much wearied by hard labour.

11 A horse's food can never be exactly measured to him. Some times he needs more than at other times. Give him as much as he needs, and exercise judgment in regard to the matter. At all times give as much bright hay as your horse can eat. If the weather is very cold, the horse needs heat producing material, and corn is as good a grain as you can give. Grind it and feed wet, and mixed with a little cut hay or bright straw. When it is warm, oats is the best of grain for horses, and for labouring horses nothing is superior to them. Oats are to the horse what steak is to the labouring man; they furnish the material for muscle.

12 Young colts should not be stabled in winter, but protected from cold storms and winds by sheds, or kept in unexposed situations. They need to be kept where they can move about as much as they desire. It gives them better constitutions and better locomotive power. Give them a little grain daily, and domesticate them by treating them kindly and handling them frequently.

13 Brood mares, unless they are worked, should be allowed to run out, except when the weather is severe. Give them plenty of hay and a moderate allowance of oats. A few roots occasionally are good, but never feed frozen roots or those very cold, to them or any animals. It is like putting so much ice in the stomach.—*Cor. Ohio Farmer.*

Raising Fast Horses.

A well-to-do farmer of our acquaintance had the misfortune to rear a really fine and fast horse. The action of the animal gave him great delight, and nothing would do but an exhibition of him among the professionals. He put up his money and won. This gave a higher flight to his ambition, and induced a bolder operation. Success again rewarded his venture. He neglected his farm, imperceptibly acquired habits to which he had before been a stranger, and, spurred on by past success and the machinations of the crafty, whose aim it was to fleece the green and unwary, placed his farm in jeopardy for the purpose of raising money to stake on the result of a race in which his pet horse was to contend for the prize and the mastery. The professionals had now got the over confident farmer in the precise position desired, and the result was what they intended it should be, the defeat of the farmer's horse and the ruin of his owner. The animal changed hands, and so did the farm. It was all down hill with the farmer after this. His family were broken up and dispersed, while he, reckless and maddened by disappointment and remorse, found a premature grave.—*Rural New Yorker.*

The Mule.

In this animal we have a valuable compound, possessing the hardiness of the ass, with the energy and activity of the horse. Incapable of re-production or breeding, its consideration may not properly belong here, and it will therefore receive only a brief notice. From its sterility, it is only valuable as an animal of labour, and especially as a substitute for the horse in warm climates. Contrasted with the horse, in reference to its use in this respect, we find he has many advantages, and among them may be found the following:

1st. His superior strength, both in drawing and carrying heavy burdens. 2nd. His comparative freedom from disease and accident, as contrasted with the horse. 3rd. His endurance of a temperature which would destroy that animal.

Among the economical advantages may be mentioned the amount of food consumed by him, as being less than that necessary for the horse. On this point an eminent writer says: "Although a large-sized mule will consume somewhat more than half the food necessary for the horse, yet if we take into account the saving of expense in shoeing, farriery, and insurance against disease and accident, we may safely affirm that a clear saving of one-half can be substantiated."

The second, and perhaps greater economical advantage, lies in his superior longevity. Mr Oliver, to whom allusion has already been made, informs us that he saw, in the West Indies, a mule performing his task, "that he was assured by the owner was forty years old, and that he himself owns a mare mule twenty-five years old, which has been at work twenty-one years, and that he discovered no diminution in her powers, and within a year past he has often taken upwards of a ton's weight in a waggon to Boston, a distance of more than five miles."

These considerations have greatly increased the use of mules on the sugar, rice and cotton plantations of the South, and have consequently resulted in their increased multiplication in Kentucky, where, in 1850, there were of asses and mules 65,000. This increased demand, coupled with a better acquaintance with the principles of breeding and rearing an animal much more desirable than those raised formerly, has, within the past ten years, given to the breeder an advance of more than one-half in the value of his stock, besides curtailing the expense incident to one year's feed.

As regards the kinds of mares to be used in the production of the best mules, I have but to endorse the views briefly expressed in the following quotation:

"They should be large size, well made, young, full of life, large-barreled but small-limbed, with a moderate-sized head and good forehead."—*Louisville Gazette.*

According to Prof. Voelcker, a lean hog contains eighteen per cent. more water than a fat one; and other authorities state the difference on beef, &c. to be still greater; consequently fat meat is the cheapest to buy.

The following copy of a written notice has been "going the rounds" lately. It is said to have been seen posted near Shrewsbury:—"Lost or strayed from the subscriber, a sheep all over white, one leg was black and half his body. All persons shall receive five shillings to bring him. He was a she gote."

A CHEAP FEED RACK.—So many farmers throw all the hay, straw or corn stalks their cattle receive, on the ground to be trampled on and wasted, that it is worth while to call their attention to the fact that with a few poles or rails they can make a feed rack that will answer a good purpose in the absence of something better. Drive two strong "forks" in the ground so that a pole laid across them will be about two and a half feet from the ground. Take light poles or rails, and cross over the horizontal one, planting the lower ends firmly in the ground; leave eight or ten inches space between the poles—more if corn fodder is to be fed.—*A. H. W., Grundy Co., Ill.*

SHEEP ESSENTIAL TO GOOD FARMING.—"One thing that struck me very forcibly was that all farmers testified that sheep-raising was absolutely indispensable to successful farming; that their manure was necessary to preserve the fertility of the soil; and that without them the whole kingdom would in a few generations be reduced to barrenness and sterility. It is in this view that I regard sheep-raising in this country as more important to the ultimate and permanent prosperity of the country, than on account of their present profits. Whatever else may happen, we cannot permit this virgin soil and these beautiful fields of ours to be reduced to barrenness by the time they pass into the hands of our children and grandchildren. Their fertility must be preserved at all hazards, even at the expense of present profit."—*Lieut. Gov. Stanton, Ohio.*

The Dairy.

Milk Farming.

The *Annual Register of Rural Affairs* for 1867 contains a paper on the above subject from the pen of Donald G. Mitchell, author of "My Farm of Edge-wood," in which that gentleman gives the result of his observations and experience for several years as a milk farmer. He contends that within the immediate neighbourhood of any considerable town, where a constant market can be secured, a dairy farm can be put to no more profitable use than by the sale of milk. He estimates that at the present prices of milk in all large towns, a good cow well cared for, should bring a return of from \$160 to \$200 a year. He says: "It must be a poor cow which under the high feeding that should always belong to a milk dairy, will not give two thousand quarts of milk in a season; we will say, ten quarts a day for two hundred days, or eight quarts a day for two hundred and fifty days; this estimate will surely not be reckoned extravagant. For the past two years (and I see no present signs of abatement in price,) milk has averaged in all the eastern cities of from thirty to seventy thousand inhabitants, at least eight cents per quart. At this rate a cow returns one hundred and sixty dollars. But the price to families throughout the winter months has been ten cents per quart, and a good dairy-man should have many a cow in his stables, which will give (with judicious feeding) fifteen quarts a day for the first hundred days after calving—an average of eight quarts per day for the second hundred days, and an average of five quarts for the succeeding sixty-five days. This leaves a margin of one hundred days before calving, and counts up an aggregate of twenty-five hundred quarts. Nor is there any reason in the world why a good dairyman, by adroit selection and careful feeding, should not bring all his cows to this average."

The above estimates are of course in American currency, but making due allowance for this, it will be seen that the profitableness of milk-farming is pretty clearly shown by them.

Mr. Mitchell next discusses the following questions: "How is a milk dairy to be kept at its best?—by what choice of stock—by what general management—by what course of feeding?"

As to choice of stock, he takes the ground, very correctly as we think, that the milk dairy-man should abjure allegiance to any one strain of blood. He must not swear by the herd-book or have any hobby of race. Now and then a Short-Horn proves a great milker, and there are individual Ayrshires who do wonders in the filling of a pail, but on the whole, grades of good milking points are recommended, while here and there some raw-boned, mis-shapen native animal will yield golden returns. Those cows which will give the most milk under generous feeding, without respect to name or lineage are the ones for the milk-farmer. In an experience of ten years with a herd of twenty or more, the three most profitable milkers Mr. Mitchell has owned, have been a grade Short-horn, a grade Ayrshire, and a raw-boned native.

Mr Mitchell contends that no milk-man can raise his own stock to a profit. Milk is worth too much to him. Cows should be raised in the back county where there is no sale for milk. Young animals are a waste and a nuisance to the milk-farmer. He must snatch away the calves the moment they are dropped, and not let the dam so much as see them. The age at which cows should be bought for dairy use is put at from five to eight years old, and at thirteen or fourteen another owner should be found either among these good people who love to pot old cows, or these bad butchers who peddle tough, stringy beef. If the milk-man can arrange with some back-country farmer to rear for him his best heifer calves, and to pasture his dry cows, it will be of advantage. Indeed 50 acres of good pasture at such a remove into the country as to count little on the rental, is a capital addition to a milk-farm. Cows ought to "come in" on a milk-farm all round the year. With a herd

of twenty-four, two per month should if possible be new milch cows. Such a suggestion would make a butter farmer stare, who wants his animals to be freshest in their flow of milk, when food is most succulent and abundant, and the temperature most favourable. But a milk-farmer must always furnish succulent and abundant food, and must always provide an equable temperament.

We subjoin as peculiarly appropriate to the present season, what Mr. Mitchell says about

WINTER FEEDING.

"I come next to the consideration of the feeding of milch cows, and first—of winter feeding. Of course it must be regular, and there must be the utmost cleanliness. There must be no stint, and for all these in a full flow of milk, there must be warm food. It is quite extraordinary, what an effect the temperature of the food or drink has upon the lacteal secretion. Monthly nurses perfectly understand that a woman who has lately become a mother, must be very careful how she ventures upon chilling drinks: but farmers do not so well understand how damaging it is to drive a freshly calved cow into the frosty air of January, for a drink in an icy brook. No milkman should permit such barbarism. Warm shelter and warm "slop" three times a day, with perhaps an hour of exposure to the sunshine at noon, constitute the proper regimen for a cow in the first flush of her milk.

"Water for milch cows in winter, should have as nearly as possible the temperature of the stable in which they are kept—rather higher than lower. If water can be kept on the flow within reach of every cow, so much the better, and in the well-arranged recent dairy barns, this is provided for. The drier the food the more water, of course, the animals will require; but in whatever shape food may be given, water at will, will be of advantage.

"Heavy, unctuous ground food, of great fattening properties, is by no means so desirable as the lighter meals which carry a large admixture of bran. Bran itself makes an admirable condiment, so does buckwheat coarsely ground, and brewer's grains, if accessible. A little stirring in of bone-meal at intervals of a month or two will be desirable—more especially if the cows are fed largely upon roots.

A steaming apparatus, as I need hardly say, an essential in any complete milk-dairy. There may be a question in regard to the steaming of food for fattening cattle or for growing stock, but for a herd of milch cows there is no room for doubt. The process, moreover, makes available a great mass of coarse material in the way of cornstalks, pea-vines, etc., which would be otherwise unserviceable.

With respect to hay for milk-giving cows nothing is worse than stout timothy, and if the seed be allowed to form, it is but little better than rye straw. Under any system of farming, which looks to the health and good keeping of cattle, it is ruinous to leave timothy until it has taken on that harsh wiry condition, which belongs to its seed-bearing state, but for a milk-farmer such neglect is monstrous. Indeed, I think it may be laid down as a general rule, in ordinary seasons, that the milkman's haying should commence a fortnight before the grazier's, and close a fortnight earlier. What he may lose in weight, he will gain in succulence, and it is this succulence which goes to the promotion of a quick flow of milk. Even the hay which most farmers are disposed to condemn as "flashy"—such as rowen—and which is certainly not adapted to the development of muscle or fat, is yet admirably suited to the wants of a milk farmer. If timothy is grown, and on milk farms, I think it should be grown sparingly—it should be cut when it is in the fullness of its purple bloom, and it is far better that it be cut earlier than later. Red-top (herds-grass, in the naming of many,) makes a good hay for milk, if cut in its bloom; the June grass from old meadows is even better; and best of all—if judiciously cured—is clover. Even before this, if it were enough known to warrant the mention, I should name Lucerne; but a doubt, not yet well settled, in regard to its hardness in the American climate, forbids unqualified commendation.

DAIRY PROFITS.—During the present season, Samuel Thompson of Whiteside county, Ill., milked 42 cows, whose dairy product was \$2,037.50, or about \$48 per cow. Another farmer, Mr. A. Wilkinson, of the same town, milked 32 cows, whose product for the dairy season amounted to \$40 per cow. At this rate a cow will pay for herself during a single cheese season, besides materially contributing to the support of a family in the way of milk.—*Rural New-Yorker.*

The Effect of Cold Weather on the Separation of Cream.

Joining from the management of the dairies of many of our farmers, and also in many of the larger ones, where the butter is the chief object, the managers seem little to understand the effect of a low temperature upon the raising of the cream, or at least they do not arrange their milk so as to obtain the greatest amount of cream. There are several conditions which do much to modify the quantity of cream which may be derived from any given quantity of milk; and the fatty matter which afterwards composes the butter, is held in suspension by the water of the milk, and hence, when standing in the udder of the cow the best and most rich portions rise to the surface, and consequently are last drawn. By the common mode of milking, the poorer and richer portions of the milk become mixed together, and the separation of the cream is made far more difficult and slow. In most of the large English dairies, and in some of the best ordered in this country, it is the rule to divide each cow's milk into two portions at the time of milking, and these two portions are kept entirely separate until the cream is all raised, when it is sometimes mixed, but often kept separate altogether. In some of the large dairies of Devonshire, each milker has three buckets, and divides each cow's milk into three portions, which with their cream are kept entirely separate. It has been stated by eminent English dairy-men that if the first two-thirds of the cow's milk is kept separate from the remainder, at least ten per cent more cream may be obtained. Those who make butter can calculate whether this will pay for the extra trouble which is incurred.

Another mistake very often made is that of putting too much milk in the pans. Experiment has proved that if we take two equal quantities of milk and place one in pans to the depth of six inches, and the other to the depth of only two and one-half inches, the latter will yield from seven to eight per cent. more cream than the former. This is the case more particularly in cold and damp weather, and at this time the mistake is most commonly committed.

The temperature of the surrounding air has also a great effect upon the time required for the rising of the cream; experiment has demonstrated that the process is more rapid in warm than in cold weather. With the thermometer at

80 degrees,	all the cream will rise in 10 hours.
77 " " "	" " " 12 "
68 " " "	" " " 18 "
55 " " "	" " " 21 "
50 " " "	" " " 36 "
45 " " "	" " " 43 "

Sprengle found that if milk was kept at a temperature as low as 37 degrees, but little cream would rise in three weeks.

In order to avoid the trouble of keeping the cream at the proper temperature, it is customary in some dairies to churn the whole milk. The advantages claimed by those who follow this plan may be briefly stated thus: the proper temperature can be readily obtained both in summer and in winter; five per cent. more butter can be obtained from the same milk; the butter is not only of the same quality while fresh, but if properly managed will keep much better.

This plan would not work so well in the neighborhood of a good market for skim milk, but when cheese is an object, there would be little or no difference, for the buttermilk will make as good cheese as skim milk.

In summer it is difficult to reduce the state of the temperature of the cream as low as 55 degrees, but the whole milk need only be reduced to 65 degrees, to which most cellers, without any difficulty, reduce it.

In Brittany, the milk of the previous evening is mixed with the morning's milk, and after standing a few hours, the whole is churned, and is said to produce a large amount of butter, of a better quality, and will keep longer.

DAIRYMAN, in *Germantown Telegraph.*

"PINKEENS" IN THE MILK CAN.—A report was recently laid before the Board of Guardians of the North Dublin Union, stating that a number of river fish, known in Ireland by the name of "pinkeens," had been found in the milk sent by the contractor, who was bound, under a penalty, to supply pure milk for the use of the paupers. In most well-regulated dairies, the pump is known as "the cow with the iron tail," and had the contractor confined himself to the services of that useful animal in diluting his milk, he would in all probability have escaped detection as "pinkeens" are not found in spring water. They abound in the Liffey and its tributaries, and their presence in the milk-cans of the North Dublin Union told its own tale.

The Apiary.

"Apis Mellifica" or Honey Bee.

As the Honey Bee is one of the most interesting insects with which mankind are acquainted, a description of its organism, nature and habits, may not be uninteresting to the readers of THE CANADA FARMER. In giving this we shall notice first the workers, which constitute the "bone and sinew" of the hive, performing all the labour, even to the nursing of the brood. The anatomical structure of the worker presents, even to the careless observer, striking evidence of wisdom in the All-wise Creator, and of the wonderful adaptation of all its parts to their several uses.

The body of our native worker bee is about half an inch in length, of a dark brown colour, which grows darker with age, and is covered with close-set hairs, which assist in collecting the pollen of flowers. The head which is somewhat of a triangular shape, and considerably flattened, is provided with a pair of large eyes, which are stationary and covered with a fine network, which gives the appearance of a large number of small eyes. Another very remarkable appendage to the head consists of the *Antennae*, or two tubes about the thickness of a hair; each consisting of twelve joints, which causes them to be very flexible. They are extremely delicate and sensitive, and by some have been considered connected with the sense of hearing; others again consider them to be the organs of feeling or touch, which we incline to think is correct. We are convinced, however, that they perform more important functions: by these, they recognize each other: by these, they receive impressions, and are assisted to understand and comprehend; so that they may very properly be called organs of understanding. When approaching any object the Bee may be seen to bring its antennae in contact with it, as if to comprehend its nature. The mouth of the Bee may be said to include the tongue, upper and lower jaws, upper and lower lip, and the proboscis connected with it. The tongue is very small and hardly discernable. The upper jaw of the Bee, as of other insects, is divided vertically, thus forming a pair of jaws called *mandibles*. They are furnished with teeth, and enable the bee to perform a variety of operations—as gnawing away any slight obstruction, constructing the combs, applying the propolis or bee-glue, &c. The proboscis consists principally of a long slender piece called the *ligula*; though strictly speaking it is formed by a prolongation of the lower lip. With it the little "busy bee" extracts the sweet juices of flowers which we call honey. The bee respire by means of *spiracles*, or breathing holes, situated in the throat, beneath and behind the wings. In this way oxygen is carried into the circulating system, it being no less essential to the existence of the bee than it is to that of man. How necessary then that hives be properly ventilated, a precaution too much neglected by bee-keepers. To the trunk of the bee are attached three pair of legs. In each of the hinder legs of the worker there is a cavity, or basket, in which is carried the pollen of flowers, which composes the principal part of the food of the young bees. In these cavities propolis or bee-glue is also carried. Bee-glue is the gum or resin that exudes from different trees, such as the pine, the cedar, the balsam and the balm of Gilead. As above stated it is gathered by the worker bee and carried in the basket on their legs to the hive, where it is taken off by other workers and by means of their mandible applied to every hole and crack in the hive, in order to prevent the entrance of vermin or insect enemy.

PROFITS OF BEES.—Among the few brags on bees this year, we notice that a correspondent of the *Rural New-Yorker* says he had seven swarms last spring, which, with the exception of two or three, were light, and he had little hope of profit this year. But the account stands thus: 9 new swarms at \$5, \$15; 150 pounds white clover honey at 30 cents, \$45; 50 pounds buckwheat honey at 25 cents, \$12.50; total, \$102.50, or nearly \$15 per swarm.

Entomology.

The Earth-Worm.

Every one who has ever gone fishing as a lad, or turned up the soil of his garden, or followed the plough, must of course be perfectly familiar with the long reddish worm that is so universally common in rich ground, and that proves so tempting a bait to speckled trout and the other small denizens of our brooks and streams. This worm is in all probability identical with that found equally commonly in Europe, and named long since the *Lumbricus terrestris*, by Linnaeus.

Dr. Fitch, in his eighth report on the noxious and other insects of the State of New York, gives an interesting account of this worm, from which we derive many of the following particulars. In this instance he states, we have an example of a worm which is not the larva of an insect, it undergoes no transformations, but always retains the form in which we are accustomed to see it. It is most nearly related to the leech and the hair-snake, and is therefore associated with them in the class of animals to which the name "worms" strictly belongs.

These earth-worms, it is stated by authors, feed upon earthy matter, from which they digest the fine vegetable mould contained therein, and eject the remainder at the mouths of their burrows. By crawling about in the ground as they do, they are most important and serviceable agents in loosening the soil and opening it for the air and water to penetrate it. And by throwing out their castings at the mouths of their holes, they add to the depth of the soil, and cover tracts that are comparatively barren, with a superficial layer of fine fertile soil. By this means it is that stones left lying undisturbed upon the surface of the ground, will in a few years be found sunk wholly beneath it. "It is some ten years ago (Dr. Fitch relates), that in flagging a walk in my yard, several large flat stones which were rejected as being too thin and unsubstantial for this work were carried aside to an unoccupied part of the yard, and laid upon the grass, with the thought that some use to which they might be appropriated would perhaps occur. By the grass growing over their edges in two or three years they were hidden from view and had become totally forgotten, till recently happening to strike a hoe in the ground there, they were re-discovered. They were found to be sunk, each one, about an inch below the surface, being overlaid to this depth by fine gritty earthy matter, with only its upper part permeated by the roots of grass. I could attribute this deposit of earthy matter upon the upper side of these refuse flagging stones to nothing else than the operations of earth-worms. Instances of a similar character are related by Mr. Charles Darwin, in a paper "On the formation of Mould," one of which is that of a pasture field undisturbed by the plough, and which had received a heavy top-dressing of lime twelve years, and of cinders three years previously. On examination, lumps of the lime were found, forming a well marked white line at a uniform depth of two inches below the surface, and at the depth of one inch was a line of black spots, formed by the remains of the cinders; the soil below the white line being gravelly, and differing very perceptibly from the fine mould above it. Such facts show us what important and valuable agents these earth-worms are, in keeping the superficial portion of the soil in a most salubrious condition for the growth of vegetation.

The principal habitation of these worms appears to be at a depth of about a foot and a half below the surface; here, in places where the soil is rich and the worms are numerous, the earth is completely mined by their burrows, which extend in every direction like a complete labyrinth. Though these worms sometimes inflict a little damage upon fallen fruit vegetables, and plants on the whole they may be regarded as eminently beneficial, since they enrich the soil, and keep it loose and porous, improving the drainage, and admitting the air.



Increase and Improvement of Agricultural Implements, &c.

To the Editor of THE CANADA FARMER:

SIR,—Having recently held meetings for the consideration of agricultural subjects at Whitby, Oshawa, Newcastle, Markham, and other places, I am desirous of recording in your journal my conviction that a large number of Canadian farmers in this, as well as in other sections of the Province, are beginning to appreciate the necessity and advantages of a more thorough and systematic cultivation of the soil. Hitherto a rotation of crops can scarcely be said to have formed a distinct feature of the agricultural practices of our best managed districts. Manures have been too much neglected, and the best portion of barn-yard dung (the liquid) suffered to run to waste. Now, I find by personal intercourse with farmers, that deep and thorough culture is occupying more attention, and wheat and other grain must be less frequently repeated than was the case but a few years since.

As illustrative of the present tendency of our agriculture towards a deeper and more thorough culture of the soil, may be instanced the increased demand that has recently sprung up for improved implements and machines, which, while they are cheaper, render more effective agricultural labour. What an astonishing change has been produced of late in our agricultural mechanics! For several years after the Provincial Association was established, we were mainly dependent for our show of agricultural implements and machines, at the annual Exhibitions, to the genius and promptitude of our American neighbours. Now we manufacture equally as good articles on this side, and the demand for them is steadily increasing. In fact I find that not only our agricultural implement makers, but our manufacturers generally, with all their improved appliances, can scarcely keep pace with the constantly increasing demand. Mr. Massey, of Newcastle, who has made a Wood's Self Raking Reaper and Mower for the Paris Exhibition, informed me that he could not meet the demand for these improved machines the past season. These and other articles that will be sent to the Paris Exhibition, will afford the people of Europe the means of estimating Canadian progress in the more important and useful manufactures. Mr. Massey's establishment is not large, but it is exceedingly compact and complete, and possesses every convenience.

I was not a little surprised to observe the great advancement which Oshawa has made in manufacturing industry since I last visited it, some dozen years ago. The Hall agricultural works are very extensive and complete, furnished with the most improved and expensive machinery, and turning out annually an immense amount of work. Whiting & Co. have also a large establishment for the manufacture of scythes, hoes, rakes, &c., articles of a very superior finish. Miall & Co. have a large cabinet-ware manufactory, very complete, producing articles both good and cheap. The number of mechanics employed in their establishments give quite a stirring character to this thriving village. Whitby has also very much improved of late years, and being the county town, surrounded by a rich agricultural district, it possesses, notwithstanding the absence of water power, the substantial elements of progress. These thriving little towns along the frontier, surrounded by a highly fertile soil and good farming, furnish pleasing proof of the mutual and beneficial relation between agriculture and manufactures. I am indebted to the kind attention of Mr. Shier, of Whitby, President of South Ontario Agricultural Society, for an opportunity of seeing a portion of this district. Unfortunately the weather was very unfavourable for out-of-door observation, or the holding of meetings.

I may just add, that in Ontario, as in many other parts which I have visited, there is more attention being shown to the increase and improvement of the Dairy particularly cheese making. No large establishment on the association principle yet exists, but the "factory system," in a small way, has been recognized in several places. In Markham I found active preparations going on of an important character;

the Hon. D. Reesor, and other influential persons, are earnestly aiding the enterprise. The factory is situated close to the village, the manufacturing room, (30 feet by 20 feet) is already completed, and prepared for receiving the vats and other appliances. The press room will be 60 feet by 15 feet, and the drying room 60 feet by 24 feet, making together a building 150 feet in length, and having capacity for making into cheese the milk of 500 cows, and so arranged as to admit readily of further extension, as occasion may require. This new or rather increased element in agricultural practice, by enlarging pasturage, will tend to arrest the exhaustive effects of too frequent cropping, and also to increase the number and improve the breeds of horn cattle; objects of pressing and paramount importance.

I was much pleased in going over the other day the works of Paterson Brothers, near Richmond Hill, who turn out every season a large quantity of Agricultural implements of the most approved patterns and workmanship. Their chaff-cutters and fanning mills are constructed on the best mechanical principles, and for cheapness and efficiency are unsurpassed. Quite a little village has sprung up from a wilderness within eight or nine years. Having an air of comfort and neatness that is pleasing to contemplate, and the mental and moral habits of the numerous workpeople are duly cared for by their considerate employers.

I will now only express the hope that my appeal to the members of the numerous Agricultural Societies in various parts of the Province, during the year about to close, to meet occasionally for the consideration of subjects affecting their common interests as farmers, will not have been made in vain. Already, I am happy to know, the suggestion in several instances, has been acted upon, and so far with satisfactory results. Winter has now set in, bringing comparative leisure to farmers for intellectual and professional improvement. To meet each other, say once a month, for the purpose of comparing notes and experience, and to discuss questions relating to the further advancement of their important and indispensable art, will tend to promote social and neighbourly feeling, draw out the latent powers of our young men, and increase the wealth and happiness of the community.

Yours &c.,

University College, }
December 10th 1866. }

GEO. BUCKLAND.

"Spontaneous Growth of White Clover."

To the Editor of THE CANADA FARMER

SIR,—In reference to the enquiry by "J. L. B." of Harvey Hill Mines, and the answer thereto in your last issue under the above heading, allow me to say that my experience has been that white clover does not "invariably" grow where ashes have been spread. Other conditions are necessary to the spontaneous production of clover. It must be certain kinds of soil, otherwise a peculiar chemical condition of soil upon which ashes is spread, in order to the spontaneous production of clover. Exactly what kinds of soil are necessary, or what the peculiar chemical conditions must be, I am not able to say. It is stated by a certain writer, that the same results may be obtained by spreading lime upon waste moss ground even where there is nothing below but pure peat moss. A case lately came under my notice where a kind of clay was thrown from a well twenty feet deep, from which next year there sprung up an abundance of white clover. Now I am not satisfied with the answer you gave "J.L.B.;" for if "the soil is so full of the seed of white clover, that the plant springs up whenever and wherever circumstances are favourable to its germination," I would ask, why the seeds do not germinate in every well cultivated field? Are the "circumstances not favourable" in such fields? or does it require the stimulating properties of ashes or lime? If it be argued that the circumstances are not favourable, then I would enquire how it is that the seeds sown by the hand of man in every well cultivated field will germinate readily and produce white clover? Is not the original seed (of which it is said the soil is full), and that which is reproduced alike? But if it be argued that it requires the stimulating properties of the ashes, then I would enquire how it is that the seed sown germinates without the ashes? Or how is it that clover does not spring up in every soil where ashes have been spread? If it still be argued that the seeds are in the earth, I would enquire why were they placed twenty feet below the surface, as in the case above related where they germinated in clay thrown from the bottom of a well twenty feet deep? There are other interesting questions relative to the spontaneous growth, not only of white clover, but of many other plants and shrubs

that come up "without calling" in almost every variety of soil, but I will extend my enquires no further at present. If yourself or any of your contributors will satisfactorily answer the above questions in harmony with the hypothesis that the soil is full of seed I shall be greatly obliged.

J. H. THOMAS.

Brooklin, C. W., Dec. 19, 1866.

NOTE BY ED. C. F.—We did not mean to convey the idea that all soils without exception are plentifully supplied with white clover, but that "the soil" in which the plants plentifully grow on ashes being applied is full of the seed. Our correspondent seems to think that there is a strictly spontaneous growth of plants in some cases, and that under certain chemical conditions, plants grow otherwise than from seed. We did not intend the word "spontaneous" to be thus understood, but used it to indicate the growing of seed that man had not sown. No chemical conditions will produce a plant without a seed, germ, cutting, or something of the sort. It is well ascertained that seeds will remain in the earth an indefinite number of years, and at last grow when the circumstances are favourable. If our correspondent thinks there were no seeds of white clover in the dirt that came from the bottom of a well twenty feet deep, we must differ from him. The burial of seed at far greater depths is known to have taken place in multitudes of cases, resulting from upheavals and depressions of the soil that have taken place during convulsions of nature. It is not easy to account for all the phenomena connected with the appearance and disappearance of white clover, but we believe it will be found that the well ascertained principles and facts of plant growth sustain the general correctness of our reply to the question of "J.L.B."

Miller's Infalible Tick Destroyer.

To the Editor of THE CANADA FARMER:

SIR,—Being a regular subscriber to your valuable journal, which I take much pleasure in perusing, I beg to inform you that last year my attention was called to Mr. Miller's Tick Destroyer advertisement. I bought a package for thirty-five cents, which I used in solution and applied to twenty sheep. The result was good. Three months ago, I purchased another package, the one-half I mixed in hog's lard, and which, according to the printed instructions, I applied to the backs, sides, and breasts of ten sheep. In a few weeks afterwards I observed one of the sheep to be diseased, I caught him, and on examining his back found it one mass of corruption. I then made an examination of the other nine, which I assure you was a repulsive sight; the smell emitted was loathsome, and some were crawling with maggots, I lost no time in shearing off the wool from the ridge of the back, and was obliged to flay off the skin from the tail to the nape of the neck, which was one mass of scab and humour, and I have every alternate day, from the first inspection, continued to wash and dress their backs, which, I assure you is anything but a pleasant job. I first give them a good washing with castile soap and warm water, and next apply cloths saturated in olive oil, nicely bound on the animal with strings. Some are getting better, others are still bad. If you or Mr. Miller can suggest any preferable application, I will feel thankful, as I am afraid some of them will die.

P. MCG.

KOMOKA, 26 Nov. 1866.

NOTE BY EDITOR CANADA FARMER.—In a private note accompanying this communication, "P. McG." states his object to be the "benefit of his fellow subscribers to THE CANADA FARMER." We confess we are unable to discover in what respect his experience is likely to be of service to any intelligent sheep-owner. According to "P. McG.'s" own admission, when he used the preparation according to the directions that accompany every package—"in solution and applied to twenty sheep, the result was good." Observe, however, the course he pursued with the next package he purchased. Not content with the maker's plain and unmistakable directions to "mix the contents of this box with five gallons of rain water," "P. McG."—alike unwarrantably and unwisely—mixed half its contents into hog's lard. Instead of a healthy "cleansing wash," "P. McG." had

thus prepared a *salve*; and from the nature of its constituents it could not fail, when smeared among the roots of the wool, to produce considerable irritation of the skin of the unfortunate animals. "P. McG." has only himself to blame for his dear-bought and painful experience. Hog's lard is never alluded to in any way in the printed directions that accompany the Tick Destroyer; neither are there any instructions respecting "the backs, sides, and breasts of the sheep." The label affixed to each package is simply as follows:—"Mix the contents of this box with five gallons of rain water. Shed the wool of the animal at regular distances of four inches over the whole body, and run about a quart of the liquid from a spout into the divisions thus made. In using this composition, a certain amount of caution must be used, lest any of the liquid should enter its eyes, mouth or nostrils, as there are poisonous ingredients used in its composition. The above quantity is sufficient for 15 or 20 sheep." "P. McG.," therefore, has taken an unwarrantable liberty in the application of the Tick Destroyer, by departing from the printed instructions issued by the maker of the preparation. If it be asked what difference it could make, we reply that the tendency of a *salve* is to strike into the pores of the skin, thus conveying into the circulation of the animal, the poisonous ingredient which was meant to kill the ticks, while a diluted wash would not have the same tendency, or at least not in anything like the same degree. But for the mistake made in the mode of applying the Tick Destroyer, we should have been inclined to think "P. McG." had been imposed upon in his second purchase, with some spurious imitation of the article prepared by Mr. Miller. In consequence of the reputation of the Tick Destroyer, there are several counterfeits of it in the market against which sheep-keepers will do well to be on their guard. It will probably be too late for any practical purpose in the cases of the sheep above referred to, but if the animals are still affected, or a like trouble should present itself in the experience of any others of our readers, we would recommend a wash composed of corrosive sublimate, one dram, alcohol, one ounce, soft water, fifteen ounces: dissolve the sublimate in the alcohol, then add the water.

ADDRESS WANTED.—"John A. Cull," of Toronto, writes:—"In your issue of Dec. 15. I notice that a communication had been received from Giles Membery, of Adolphus Town, in which the "Platt Ridge Proof" spring wheat is spoken of very highly, and a most uncommon yield obtained from 2½ bushels sown is mentioned. Will you do me the favour to give me Mr. Membery's correct address, together with any further information respecting the wheat in question at your earliest convenience."

ANS.—We do not know Mr. Membery's post office, and request that he will inform us for the benefit of our correspondent and others who may wish to know more of the wheat in question.

The Canada Farmer.

TORONTO, UPPER CANADA, JAN. 1, 1867.

Our Fourth Volume.

In presenting our readers with the first issue of this journal for 1867, and beginning our fourth volume, we congratulate ourselves and them in view of the success and usefulness of THE CANADA FARMER during the past three years, and would say a few words in reference to its future. We enter on our fourth year of editorial duty, conscious of much past defect and short-coming as judged by the standard of excellence we set up when this periodical commenced its career, yet with a feeling of honest and innocent pride at what has been accomplished, and resolved to spare no effort to attain a higher mark of excellence in this than in any former year. With enlarged experience, more effective assistance and increased facilities, we think we may without rashness promise that Vol. IV. of THE CANADA FARMER will be more worthy of public patronage than any of its predecessors.

Our subscribers and friends can materially help us in attaining this result. By promptly renewing their own subscriptions, and doing all in their power to enlarge our circulation, they will encourage our endeavours, as well as widen the sphere of our influence

and usefulness. For a variety of reasons, the larger our list of subscribers, the better will be the paper we are enabled to produce. We further ask our patrons to read our columns not only attentively but critically, since we claim no infallibility and do not ask anything to be taken on our authority which will not bear the test of investigation and experience. We and our circle of readers are a company of students in the college of nature, our business being both to teach and to learn. There is a carping criticism which mouses after flaws and slips. We do not court that and should not pay it any deference. But to all earnest enquirers after the facts and principles connected with husbandry, we extend the invitation that they will subject our teachings to closest scrutiny, and supply us with any information and suggestions that may promise to be of use to the farming public.

We again invite correspondence on practical subjects. Our best thanks are due, and are hereby tendered to a number of writers who have from time to time sent us communications. But there are many thoroughly qualified to instruct and to interest their brother farmers through these columns, who have never yet put pen to paper for this purpose. Some of them have repeatedly promised to do this, but they have honoured their promises with no "observance" as yet. We suggest to such that the New Year is a fitting time for repentance and amendment. While advertising to this matter, we beg to request that our correspondents will write in a clear, distinct hand,—without abbreviations or omissions,—on one side of the paper only,—without prefatory or closing apologies,—and as briefly as the nature of the subject will admit.

Among other improvements in THE CANADA FARMER we should like to be enabled to give a more full and particular account of the state of agriculture throughout the country,—items of local farming intelligence,—and especially notes of the crops during the growing season. If intelligent, leading agriculturists in the various parts of the country, would supply such matters to their local journals, and then send us clippings for our information, they would do us signal service, and help much to enhance the value and usefulness of our pages. We beg to inform correspondents that there is no need to pay full letter postage on a manuscript or printed matter intended for the press. Sent unsealed and open at the ends, such mail matter is transmitted for one cent per half ounce,—a trifling outlay which we are sure none of our readers will grudge for such a purpose.

It will also greatly aid us if all the parties concerned in getting up club lists, especially officers and members of Agricultural Societies, will complete their work as soon as possible, and send in full returns at an early day.

BOUND VOLUMES.—Volumes I, II. and III. of THE CANADA FARMER are now ready, each consisting of 24 numbers, and comprising 384 pages of reading matter in a bound form. The binding will be charged 30 cents in addition to the subscription price, making \$1.30 in all for each volume. Parties desirous of having their numbers for the past or any previous year bound, will please send them to us prepaid, securely packed, with their name and address, together with 30 cents in stamps or otherwise, and we will return them bound.

Mr. Howard on American Agriculture.

Mr. James Howard, the celebrated agricultural implement manufacturer, of Bedford, England, paid a visit to this continent last summer. On his return to his native land, he was very naturally importuned to give some public account of his travels and adventures in the western world. Yielding to the wishes of his friends, he on November 10, read a paper before the Central Farmers' Club entitled "Things in America." Though he did not wholly confine himself to agriculture, that was the chief topic on which he dilated. Some of his remarks and opinions are worthy of being reproduced on this side of the Atlantic, and well weighed by United States and

American farmers. The views of such a man are entitled to great respect. The Messrs. Howard's implement manufactory is the most complete establishment of the kind in Great Britain, and the member of the firm who was lately in this country, in conjunction with his brother, have made the business what it is, commencing with but small beginnings, and gradually working it up to its present dimensions. Mr. James Howard is esteemed by British agriculturists as a man of extraordinary energy and ability. He has read extensively, observed widely, and is thoroughly posted up in the principles and details of practical farming. He visited America with the specific object of seeing all he could of agriculture as carried on in this part of the world, and especially, to note the peculiar features and recent improvements of farm implements.

We are pleased with the liberal and kindly spirit in which Mr. Howard speaks of Americans at the outset of his paper. He bestows unsparing and just rebuke on the English travellers who have burlesqued, ridiculed, and satirized the great Republic, and gives his own general impression of the American people in the following short paragraph:

"I do not maintain that in personal manners they come up to the English standard, but any deficiency in this respect is more than compensated for by the absence of that stiffness and formality of the one class of English, and of the extreme servility of others. I travelled 6000 miles without being subject to rudeness of any kind. I mixed with all classes, for there are no first, second and third class on their railways or steamboats, and I met with nothing but civility and politeness. The working-classes are as a rule better educated and more intelligent than our own—the wealthier classes communicative, open-hearted, and hospitable."

During the discussion which followed the reading of his paper, Mr. Howard gave expression to the significant remark: "The first note I made after landing was this: 'It is of no use for a fool to go to America.'"

Coming now to the chief topic of Mr. Howard's paper, and that which chiefly concerns us, we find first a lively description of the mode of clearing up land and putting in the first crop. The description is incorrect in one or two particulars, but as Mr. Howard did not see the process, he may be excused for not giving an exact account of it. Thus he tells his hearers that after the new land has been chopped and burnt off, "it is ploughed, or as we should think, scratched over." He adds:—"Two or three crops of Indian corn are taken, in order to get rid of the second growth of underwood; when it is left in grass until the larger stumps are sufficiently decayed to be extracted." Now as all our readers are very well aware, the backwoodsman does not dream of putting a plough into his newly-cleared fallow, but uses a stout three-cornered harrow or drag, by means of which the seed is literally "scratched" in. Again, Indian corn is a very unusual first crop, and unless in very peculiar and exceptional circumstances is not grown immediately after clearing, because it requires hoeing, which is very hard work when you have a soil full of undecayed rootlets to operate upon. A broadcast grain crop,—wheat or oats,—is the usual thing,—followed by grass,—and the object is not "to get rid of the second growth of underwood," but to give time for the aforesaid innumerable little rootlets to rot, and for the larger stumps to decay, so as to admit of the plough being used.

What Mr. Howard says in regard to our grass lands, is well worthy of being pondered by the farmers of this country. He remarks:

"The grass of America has nowhere the splendid, rich green of our English pastures. Whether this arises wholly from the climate, I have some doubt I think want of care in preparing the land, selection of seed, and subsequent stocking, have something to do with the miserable condition and appearance of the American pastures. If sheep are depastured on young permanent grasses, a good pasture must not be expected, even in our more humid climate."

There can be no doubt of the correctness of this criticism in the main. Though from the humidity of

the British climate, and its more moderate summer heat, the meadows and pastures present a richer green than ours, except in the early spring, when the hue of our fields may challenge all the world; yet it must be owned that there is too much slovenliness and carelessness about seeding down and stocking our grass lands. Poor seed is often sown, stock are turned on before the young herbage is fairly established in the soil, the land is both mowed and pastured without a thought of top-dressing, and it is no wonder that our fields look bare, struggling, and leaden-lined to one whose eye is accustomed to the rich, luxuriant, well cared for meadows and pastures of the father land.

Another bit of adverse yet just criticism upon our mode of farming, is contained in the following paragraph, which relates to a subject on which we have been wont to give "line upon line and precept upon precept:—"

"The system generally pursued in American farming is one of exhaustion. The evils of this practice are beginning to be felt in the older-settled States in the gradually and steadily diminishing yield. There can be no doubt that the evils of such a course will be much more generally and seriously felt unless a change of system be adopted. Rotation is little observed. Root crops, except potatoes, are rarely seen. Crop after crop of corn is taken from the soil without anything in the shape of fertilizers being returned. The bones of the country are either thrown away, or when collected, are exported. So also of the linseed and cotton cake—as there is very little native demand, they are exported to Europe. The use of manure and feeding stuffs is practiced by a few, but they are quite the exception. An old farmer on the banks of the Wabash, in Indiana, told me he had grown grain crops—generally Indian corn—for thirty-five years in succession, with scarcely a dressing of manure, and that the last crop of Indian corn had yielded no less than 80 bushels an acre. This land, as you may suppose, is remarkably rich; but, as a shrewd Quaker farmer from Ohio, who joined us about an hour after remarked, such a course was too common, but that it must come to an end—that he had cleared no less than 600 acres of land himself, had brought up a large family and settled them in farms, and had found it most profitable to keep plenty of stock, to observe a proper rotation, and to deal with the soil liberally."

Mr. Howard was astonished and delighted at the immense circulation of agricultural journals on this side of the Atlantic. He states the subscription list of the *American Agriculturist* at 150,000, and says of the *Country Gentleman* and *Prairie Farmer* that they have also a large circulation. "We don't know whether Mr. Howard got his figures respecting the *Agriculturist* from the office of that journal, but if he did, we are inclined to think he may set it down as an illustration of a remark he makes in another part of his paper to the effect that, "The Americans can certainly drag." In doing this, they sometimes draw the long bow, which we are afraid has been done in this case. But there is no doubt as to the fact that agricultural journals are very largely patronized in the United States, and in this respect, not only British but Canadian farmers may learn a lesson. We had the pleasure of a visit from Mr. Howard at our office, and had he inquired as to the circulation of the *CANADA FARMER*, he would no doubt have been surprised and gratified at its extent, yet it is not a title of what it might be, ought to be, and would be if the great mass of our farming population were but half alive to their true interest. Besides the three agricultural journals named by Mr. Howard, there are at least a dozen in the United States, all of which, so far as we know are liberally supported.

Referring to the grain crops raised in this country, Mr. Howard thinks our average of wheat per acre is not a creditable exhibit, in which we perfectly coincide, and the explanation of which is to be found in that system of exhaustive tillage to which he had previously referred. The yield of Indian corn both for the grain and as a green forage crop, he regards as "something wonderful." He adds, "I find my own farm horses do well upon the grain."

Coming now to his own speciality, agricultural machinery, Mr. Howard states that "the trade in

agricultural implements has reached gigantic proportions. From inquiries I made, I found that at least 100,000 reaping and mowing machines are made annually in the States." He explains that the scarcity and high price of labour have conspired to render this extensive use of machinery on the farm, an absolute necessity on this continent. Of our threshing-machines he says: "they are very inferior to ours," and immediately adverts to their being driven by horse instead of steam power; so that we are left in doubt whether their inferiority consists in quality of work, or defect of power. He says, "I thought one great want of American farming was good steerage drills, and horse-hoes to follow." Here he no doubt refers to wheat and other grain crops which the British farmer is in the habit of weeding, but which in this country are left untouched from seed-time to harvest. To a New York farmer whose barley was full of thistles, he said, "If that crop had been in England we should have cut out the thistles." He replied it would not pay, adding he did not mind thistles, as he always had a good crop of wheat after them. Mr. Howard evidently does not quite relish the idea of so many American implements being "furnished with a seat for the men to ride." It is too aristocratic for the labourers, and too hard on the horses. But after all, horse flesh is cheaper in this country than human flesh, and we are not aware that any of the machines furnished with seats, are oppressively hard on the teams. Mr. Howard is very properly "down" on the farmers of the western world for their unworkmanlike and shallow ploughing. "The furrows I must tell you are not a foot wide, none of your fancy ploughing-match style. The depth of the ploughing is according to my notions, much too shallow—a fault," he adds, "not at all uncommon on this side of the Atlantic." This brought Mr. Howard to the department of steam ploughing, in which he is especially at home. He is surprised that nothing has been done in this direction as yet, and thinks, very justly, that on the great prairie expanses, the steam-plough would have splendid scope for its immense capabilities. We need not dwell on this point, having so recently given a series of articles, and illustrations, descriptive of the apparatus for ploughing by steam manufactured by the Messrs. Howard.

Mr. Howard gives pretty full statistics of the live stock in the United States, which is by no means in the same proportion to the territory and population as in England with the exception of pigs, which "reach the fabulous number of thirty-three million, or just about as many pigs as people." The cattle he thinks well of, but "the sheep are of a very non-descript character." The quality of the meat is generally speaking "most inferior," but whether it be the climate, the food, or the cooking, that is to blame, Mr. Howard does not know. He thinks our working horses too light, and expresses the opinion that if we want to grow "bigger crops," we must have "bigger horses." The cheese-factory system, grain elevators, Chicago cattle market, Auburn implement trial, and several State fairs, are successively noticed along with several other matters, to which we cannot refer.

In conclusion, we are disposed very naturally to wish that Mr. Howard had bestowed a little more attention on Canada. He lumps this country in among the States of the American Union in one part of his paper—in another place he says, "The inclosed land of America, I allude to the States, I leave out Mexico, Canada, and the other territories," and throughout he gives no prominence to this country as part and parcel of the British Empire, and as having special claims and attractions to the old country emigrant. He does indeed say in one place, "Canada offers a fine field to the farmer," but he adds to the trader and manufacturer it is not to be compared to the United States, and in answer to the question, where on this continent is it best to settle, he gives the preference to the North Western and Southern

States. He remarks that there is "some very fine land near Toronto," as though it were exceptional and remarkable, whereas there is equally fine if not finer land in many other parts of this province. It is a pity Mr. Howard did not attend our Provincial Show. He was at the New York State Fair, and if he had been at our Exhibition, he would have seen that in many respects we can beat our American neighbours hollow, and he would have given the Central Farmers' Club a much more glowing account of a portion of this continent which from its political and social condition, as well as its industrial and business advantages, holds out no small inducement to settlers of British origin.

Agriculture at the Paris Exhibition. of 1867.

The Imperial Commission entrusted with the oversight of things in connection with the approaching French Exhibition, are giving a prominence to practical agriculture in their arrangements, unthought of at any prior exhibition of the industry of all nations. In the official part of *Annales de l'Agriculture Française*, of Oct. 15, details are given as to what is designed in this department. From a translation of this official document which appears in some of our British exchanges, we condense a few leading particulars which cannot fail to interest our readers.

The commissioners introduce the subject by stating that the Universal Exhibition of 1867, has been organized with the design of showing to the public both the products of labour, and the methods of production in operation under circumstances as nearly as possible like reality. The object is to show the labours of the agriculturist actually going on. This of course, cannot be done, either in the Palace or the Champ de Mars; the commissioners have therefore set apart a large experimental field on the island of Billancourt, a short distance from the Champ de Mars, and presenting to the extent of about 44 acres, a soil of average quality and suited for various trials of cultivation.

This tract of land is divided into several parts, corresponding to the great subdivisions of rural labour. We quote the programme issued by the commission in reference to this portion of the arrangements:

"The first part will be devoted to labours executed on the farm by machines. Under special shelter, threshing machines, straw cutters, root cutters, riddles, will be in operation. With these examples of farm work will be connected exhibitions of industries which are often associated with them, such as the rearing of different kinds of fattened fowls, the making of starch, sugar, alcohol, butter, and cheese, wine, oil, and also the keeping of bees, and the preparation of wax and honey. There, under the eyes of the public, may be carried on the labours of the forge and the smithy, of wooden shoe making, of basket making, of turning; there may be placed mills for making charcoal, for cooking, and machines for making drain-pipes and other rustic pottery. In the part of the grounds destined for the labours of the farm, agriculturists specially interested in such experiments, may see the preparation of commercial manures, the crushing of coprolites, the manufacture of superphosphates, the disinfecting of animal substances suitable for improvements or manures.

"The second part will be devoted to instruments of labour, of cultivating and harvesting, worked by steam or animals. There will be specially arranged experiments as to the employment of ploughs and reaping machines. Periodical sowings will allow the regular working of machines for sowing and hoeing. All means will be taken to represent, each month, all the labours of the field according to the weather and the season.

"In the third part space may be found for specimens of natural or artificial meadows, for works of drainage, for irrigation, superficial or subterranean, with liquid manure, weak vinegars, or pure water. The comparative employment of elevating machines, sluices, and other machines suitable for the management of water in an agricultural point of view, will be the subject of interesting experiments. In this part of the experimental field, mowing, haymaking, and raking machines will be in special operation.

"The fourth part will be devoted to beetroot, potatoes, and other weeded plants, according to the newest methods, and with the most improved implements.

"The fifth part is devoted to special cultivations,

kitchen gardens and nurseries, mushroom-beds, cress plots, plantations of roses, gooseberries, strawberries, and other vegetables, with fruits or flowers, whose cultivation is so important in the environs of great towns.

"This division of the experimental field has been adopted with the view of organizing two series of agricultural experiments, intended for the general instruction of the public and the special instruction of agriculturists.

"The first series is designed for daily experiments, which will make the public acquainted with the principal operations and the different phases of agriculture, according to the crops and the seasons. These experiments will be previously agreed on by the exhibitors, who will furnish the means of making them, and the director attached to this part of the Exhibition. The latter will regularly prepare a daily programme, which will be previously published, both at Billancourt island and the Champ de Mars, and will superintend and direct the carrying of it out.

"The series of experiments is intended to ascertain the comparative value of the methods, the implements, the new machines, the knowledge of which is for the interest of agriculture. Competitions, intended to shew the working of improved implements, will be held on plots reserved for the purpose, and under the following regulations:—

"The first competition will comprehend the cutting of grass and lucerne by machines, hay-making and hay-raking by machines, the putting into ricks by elevators. By sowing clover, and frequent irrigation of the turf, the grass-cutting experiments may be repeated every week.

"The second competition will be devoted to cultivation by ploughs and other implements driven by steam, and these, moreover, will work during the whole period of the Exhibition. The important questions connected with this mode of cultivation will render the experiments in this competition specially interesting.

"The third competition will shew the results obtained by the employment of animals in bringing the soil into cultivation, in tillage, in harrowing, and rolling.

"The fourth competition will be devoted to sowing machines, which will work in a special plot, tilled, harrowed, and prepared every fortnight. For the first time it will be possible to estimate the utility and the degree of perfection of these machines by observing, on the plants raised, the good effects of employing them. The use of the sowing machines will be followed by studies of the horse-hoe and all the implements destined for the cultivation of young plants.

"The harvesting of the cereals will be the subject of the fifth competition, whose importance will be appreciated by all agriculturists."

The above is a very complete and interesting programme. If thoroughly and carefully carried out, the results cannot fail to be extremely useful to practical agriculturists in all parts of the world. Liberal provision is made for the accommodation of exhibitors, and the necessary helpers and workmen. Exhibitors are permitted to erect temporary buildings to any extent, on condition that they conform in outward appearance to the plans adopted by the commission. Rough materials are to be put within reach at cost price, and teams of horses, oxen, and moveable steam engines provided. A depot will be established at Billancourt for the sale of the apparatus and implements which have been in operation in presence of the public. Sales of breeding and other animals will be periodically held during the Exhibition. Having made all the arrangements they can think of to secure the success of the affair, and to facilitate the designs of exhibitors, the commissioners request suggestions, and engage to comply with all reasonable wishes that may be communicated to them by French or foreign agriculturists.

There can be little doubt that this important display of agricultural operations at the very gates of Paris, will attract a large concourse of visitors. Not agriculturists merely, but people of all classes, even the gay and fashionable throng, will wend their way to the farm-island, and who knows but the agricultural department may furnish the most popular sensation of the season, to the mercurial Parisians, and their friends from abroad. Already the spirit of enterprise is aroused, and preparation for providing shelter and refreshment for visitors is being made on an extensive scale. Another programme similar to the above is laid down for the horticultural department, but we have not yet observed in any of our exchanges, more than an allusion to the fact that its details are as comprehensive and complete, as are those for the agricultural department.

The Household.

Love of Home.

THERE is a certain feeling, at once natural and capable of cultivation, which we know by the name of love of home. It is not only capable of cultivation, but well worthy of it, since its practical uses are many and important. Families are bound together by it, interests of mutual value are protected by it, temptations of various kinds are repelled by it, and its influence upon society is most beneficent and happy. It should be the aim of every family to develop and strengthen this feeling as much as possible.

If home is to be loved, it must be loveable. Its outward surroundings, and its internal economies must be fitted to inspire affection and regard.

"Home's not merely four square walls." No, those walls must enclose that which is estimable,—they must surround scenes of domestic endearment and attractiveness,—if the love of home is to strike root downward and bear fruit upward. The wife and mother is the presiding genius of the in-door realm, and upon her mainly depends the arrangement of that net-work of gentle yet mighty influences which binds the heart in fond attachment to home. She ought to be a good house-keeper, neat, clean, and orderly in her habits, and systematic in her performance of house-work.

The sentence just framed has a volume in it,—too large a volume to be mastered by many a burdened and over-wrought mother. Nevertheless so much depends on making home a scene of comfort that it should be the aim of every house-keeper to realize the picture, which is, we admit, much more easily drawn on paper than wrought out in real life. Farmers' wives as a class are heavily taxed, since in addition to the ordinary cares of other households, they have the dairy and a variety of matters to see to such as require attention only on a farm. It is not often that kitchen help can be afforded or obtained, and frequently there is a hired man to board, perhaps two of them. All this makes it no easy task to secure neatness, order, and comfort inside the farm-house. Much may be done to lighten these in-door burdens and cares by the exercise of thought and attention on the part of the sterner sex. By timely provision of dry wood and needed household supplies, by putting up various convenient "fixings" about the house, and by occasionally lending a hand with heavy lifts, great help may be afforded. The children, even if they are all boys, should be taught and trained to make themselves useful about the house. It should be a pleasure to the biggest boy at home to fetch a pail of water, or in any way wait upon his mother or sister. Let children only be brought up to be polite and attentive, and it will become natural to them. It is a hateful sight to see a circle of big, stout, burly boys lounging round a cooking-stove, while a worried, flushed, and weary mother is toiling unhelped to get the meal ready: nevertheless it is one that may be seen very often.

More, however, than comfortable provision for mere animal wants is required to foster love of home. There must be intelligence and goodness. Habits of thought, reading, and profitable conversation must be cultivated. The mind must not be let run to waste. Books and periodicals must be provided, to stimulate and supply the mental appetite. Gratifications of taste must be furnished. Music is one of these that should in some way or other be present in every household. We know a young man of natural musical ability who plays a multitude of tunes on a five cent tin whistle, and rough as the instrument is, it is astonishing what nice melody he brings out of it. Singing should be cultivated. There are few pleasanter indoor gratifications than singing when the whole family circle, parents and children, can join in it. Various indoor recreations may be resorted to in stormy weather, and during the winter evenings. It is by such means, and especially by the careful training of young people in the practise of all virtue, that love of home is implanted, deeply rooted, and rendered productive of immense benefits to those in whose bosoms it reigns.

Poultry Yard.

Buff Cochins.

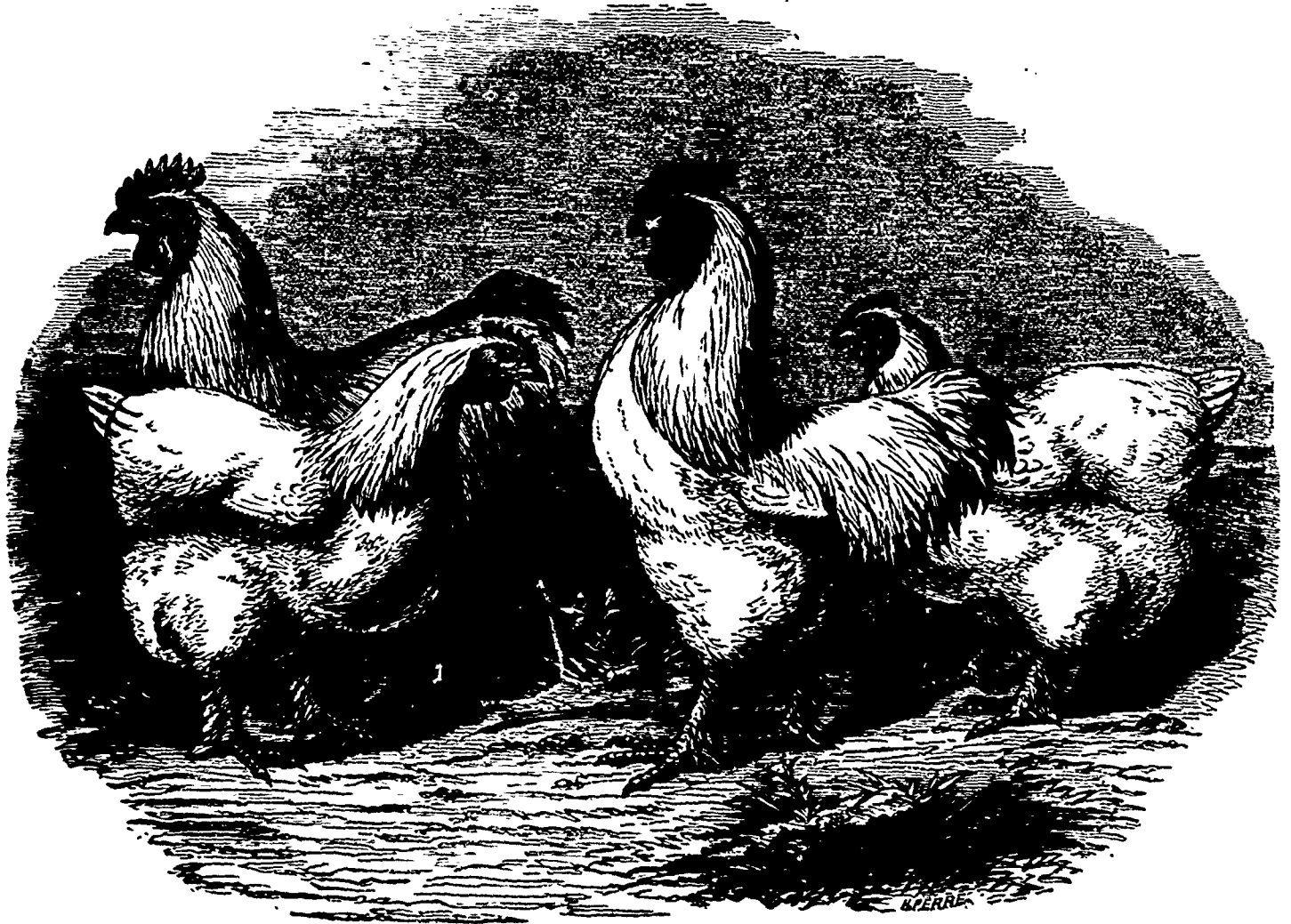
Cochin China fowls will always form in themselves a history of poultry. The first were possessed by Her Majesty Queen Victoria, which gave them great importance. The prices paid, for them, at first were ridiculous. At much as fifty pounds was at one time thought cheap for a cock and two hens. Fortunately for all poultry-fanciers they bred in large numbers, and consequently soon became cheaper. Having been over-praised in the former instance, they were after a while treated with contempt—an illustration

buff to deep orange, and all must admire the massive build, small head, rich full hackle, and majestic carriage, which "The Henwife" correctly states are true types of the high-caste Cochins. The legs should be yellow in all colours, and well feathered to the toes. His crow is to the crow of other cocks, what the railway whistle is to that of the errand boy in the streets, it is loud, hoarse, and prolonged. The commonest fault at exhibitions is that both cocks and hens are shown with twisted combs—this should be avoided in selecting the breeding stock. Breeders may not care to exhibit, purchasers may, and the value of the stock is affected by it. The birds we have engraved were exhibited at the last Provincial Exhibition by Col. Hassard, the Secretary of the

robust than the coloured ones. He also thinks they sit less and lay more eggs than the buffs.

Partridge and Black Cochins are almost identical with the buff in general characteristics, plumage of course excepted, and it is impossible to obtain a perfectly black cock, as the yellow will appear in the hackle, in spite of all efforts to breed it out. We much wish some spirited amateur would import a few of those very handsome birds. All classes are very hardy, as the Colonel has proved by thorough testing of them. Two of the specimens exhibited at the recent Provincial Show, passed three winters at Quebec, the first two winters without suffering the least from frost. The last winter the thermometer having gone down to 42° below zero, with wind

FIRST-PRIZE COCHIN CHINA, OR SHANGHAE FOWLS, AT THE PROVINCIAL EXHIBITION, 1866.



THE PROPERTY OF LT.-COL. HASSARD, R.E., TORONTO.

of the tendency of mankind to go from one extreme to another. Moderate profits were despised, and the birds were left to their own intrinsic merits. They stood on these, and have remained favourites with many, and in England still form one of the largest classes at the exhibitions. They are, in truth, a most useful fowl. Where the space is too confined to admit of a roving variety, they are just the breed required. A small yard is sufficient for them; and even a portion of a garden divided off with laths four feet high is quite sufficient to keep flowers or vegetables safe from their claws. The pullets if well fed must, and do, lay at six months old, so that it is easy to ensure eggs in winter as a succession, and if killed under six months old they are very good eating.

The Cochin China when properly bred is a beautiful bird, and does not suffer by comparison with the most graceful and highly colored of our poultry. Its feathering is exquisite, having tints from the palest

Poultry Association. As we stated in our review at the time, we consider them far beyond anything seen here for many years past. Upon further enquiry from the owner, we find that with these strains both buff and white, which are descended from the renowned studs of Fokes, Stretch, Boys, Peters, &c., the Colonel took a 2nd prize at the Crystal Palace in a single cock in the class of chickens—a 1st and 2nd prize at Calne in Wiltshire, in the chicken class, also at the North Hants Agricultural Society a prize for adults, with high commendations and commendations on many other occasions. When it is remembered that those exhibitions were open to the world's competition, and that the best exhibitors in England were beaten by the owner of the birds we have illustrated, there is no longer cause of surprise that we should have pronounced such an enthusiastic judgment on the stock. The Colonel has some fine specimens of white Cochins, and states that it is a mistake to suppose them less

blowing, the combs of the cocks, suffered very slightly. There was no fire in the shed where these birds were kept at that time. Only keep them dry in winter and give them plenty of wood ashes to frisk in, and they will amply repay the trouble and expense of their maintenance. The Cochins are long-time favourites of ours, and we are very glad to be able to present our readers with so true a representation of what this breed of fowls really is, when bred properly. For want of care in keeping them pure, they degenerate into ungainly, lanky, stilted-looking birds, such as that portrayed on the opposite page. Our readers know well that the artist has not caricatured the ordinary Cochin or Shanghai in the representation given of him. We say, look on this picture, then on that, and mark well the vast difference between the fowls they respectively exhibit to view.

Since the above was written, the following remarks on this breed of fowls have come to hand in *The Farmer*, (Scottish.) They are from the graceful pen

of Mrs. Ferguson Blair, authoress of "The Henwife" and herself now best known by the title of her interesting Poultry-book. Mrs. Blair furnishes "weekly notes on Poultry-keeping" for the above-named journal, and we quote the following from a recent contribution. Her opinions are entitled to great weight as they are based on much study, observation, and experience with the various breeds of poultry.

"All persons conversant with poultry matters allow that in order to secure early hatched chickens it is a necessity to have Cochin hens to act as mothers. Dorkings, &c., may lay during winter, but they rarely sit until their usual time, which is spring. Cochins, on the contrary, sit three or four times a year, and as they are good winter layers, if young, they can be depended upon to hatch the eggs of all tardy sitters. For this purpose alone, therefore, Cochins would be valuable additions to our stock; but I consider them besides very beautiful birds. Their soft downy

feathering, of such exquisite tints of yellow and maize, all ladies must admire, and the true types of the high-caste Cochins are of handsome, massive build, majestic carriage, large size, and (which is but little known) very short on the leg. They are hardy, docile, and very productive, their eggs are not large, but by no means so small as those of the Lamburghs. They bear confinement well, and a fence 3 feet high is sufficient to keep them within bounds. They require no perch in their houses, preferring the floor, which must, however, be littered down with straw as in a stable, and as regularly renewed, for the feathering is so delicate in colour and texture that it is easily soiled and ruffled by damp. I do not consider Cochins good table fowls unless when quite young, and I consequently advise their being kept principally as egg layers and sitters. Pure-bred birds command high prices, and at all our principal shows the classes fill well. Each fancier has her or his individual taste regarding colour, and, as the varieties are numerous, if the points and qualities are good, colouring only holds a secondary place. White Cochins, from the contrast of the scarlet comb, yellow bill, and snowy plumage, are peculiarly attractive, and they are quite as robust as the coloured birds, but they must have a clean grass run, and be seen only under a pure sky. They are apt to become yellow if exposed much to the sun, so require a shaded yard—if the birds are intended for exhibition—the yellow tinge being a great disqualification. To those who have the wish to breed early chickens for market, I confidently recommend crossing the Cochin hen with a Dorking cock. The chickens will feather more quickly than the pure bred Cochins, which are backward in fledging; and although there may be a shade of yellow in the skin at that early season, say in March, poulterers cannot be fastidious, and I have known them thankful to pay high prices for chickens that would be almost worthless later. There is no doubt Cochins are very productive, when properly managed; and I strongly advise the introduction at once of a few hens into all poultry-yards, feeling sure they will give satisfaction on trial."

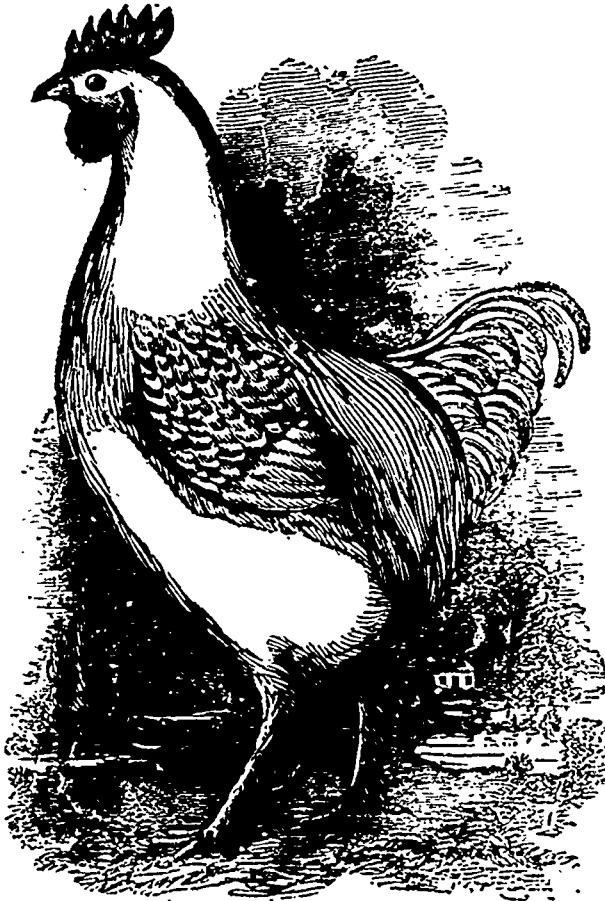
Veterinary Department.

Injuries Incident to Frosty Weather.

FRACTURED BONES IN HORSES.

In a former number we mentioned that the haunch bones are often fractured, and more particularly that portion known as the prominence of the haunch. The posterior part, or, technically speaking, the tuberosity of the ischium, is occasionally fractured during this season, from horses slipping and falling heavily.

The treatment must be similar to that recommended for fracture of the haunch, viz., rest &c. It frequently happens that a small piece of the bone becomes detached, and gives rise to very troublesome symptoms. The horse is stiff in his action, the muscles of the back part of the haunch and thigh become very much swollen and painful, and abscesses form in various parts, which point and burst, and discharge matter for sometime, and then to outward appearances heal over. This, however, is deceptive; for as soon as the horse is put to anything like hard or fast work, the muscles swell, and in ten or fifteen days abscess forms, and these symptoms, if not relieved, may continue for years, breaking out and healing over every two or three months. It is caused by the bone not uniting; it is completely detached and acts the same as any foreign body, such as a piece of food, becoming lodged in the muscles. It is a constant source of irritation and setting up an inflammatory action followed by



ILL-BRED COCHIN.

abscesses. The treatment must be directed towards the removal of the irritant; and this is easiest done when the abscess has burst. The horse should be cast and secured in a proper manner. Then proceed to examine the parts by means of a probe. If the sinuses are deep, they should be laid open, when the offensive agent will generally be readily found, and may be removed in some cases by the finger, or a pair of forceps. The parts should then be fomented with warm water, and a mild astringent injected daily; when recovery will soon take place.

The tibia, or what is called the thigh bone in the horse (in man the femur is the thigh bone) is liable to fractures of a compound nature. It is perhaps the most humane course to order the destruction of the animal. It occasionally happens that the bone is not displaced, and if properly treated reunion will soon set in. The horse should be put into slings and kept perfectly quiet for several weeks, and the leg kept steadfast by means of splints and bandages.

Dislocation of the patella is a common occurrence in frosty weather. The patella is a small bone situated on the lower part of the femur, and entering into the formation of the stifle joint. It corresponds to the

cap of the knee in man. Displacement of this bone may be caused by the horse falling, or in some instances from merely slipping. The symptoms are,—the horse is unable to bring the leg forward, the bone appears prominent, as owing to the articulation of the joint it always slips to the outside. By pressing on the part he will evince pain. This dislocation can be easily reduced. The leg should be pulled gently forward, and at the same time the joint manipulated with the hand, and in some cases it will require considerable force and dexterity to reduce it. After the dislocation is reduced, the joint ought to be protected against the operation of those circumstances which tend to renew the accident; the animal should be kept perfectly quiet, and fomentation applied; it might also be necessary to keep the leg in a forward position for some time. The name generally applied to dislocation of the patella amongst horse owners is "Stified," and the treatment often had recourse to by persons

ignorant of the nature of the affection, consists in applying a high shoe to the foot of the sound limb, with the view of making the animal stand on the injured leg. Such treatment is certainly absurd, and it often proves very injurious.

The tendon of the flexor pedis muscle as it passes through a groove on the inner side of the hock joint is frequently injured from horses slipping, and gives rise to a large swelling which is known as "Sprung Hock." The inflammation extends to the joint itself, causing great pain and difficulty of motion; the inside of the hock becomes very much enlarged, and if the animal is kept at work, or the case not properly attended to, the tendon becomes permanently thickened, which greatly interferes with the proper action of the limb. The horse should have perfect rest, and a shoe applied with high heels, so as to take the strain off the tendon somewhat; the inflammatory action should be treated with soothing remedies, as hot fomentation and anodyne liniments. When the acute inflammation is somewhat subdued, stimulating liniments are found of service, followed by blisters at intervals of eight or ten days. When of long standing, and the joint diseased, it will be necessary to use the actual cautery.

HOCK CHOLERA.—The Veterinary editor of the *North British Agriculturist* recommends the following treatment for this disease now so troublesome in some localities:

As the disorder is so rapidly fatal, remedial measures are seldom of much avail. The stomach and bowels should be unloaded, if the pig is tolerably vigorous, by an emetic of sulphate of zinc; a dose of castor-oil should afterwards be given; and if there is pain or scouring, the physic may be united with a little laudanum. A warm, comfortable, clean bed is essential; the diet should consist of milk and water, or well boiled gruel. We have seen little pigs benefitted in the earlier stages by a warm bath; spirits and water, or ammoniacal stimulants, should be freely used to sustain the failing strength. The prevention of cholera will be effected by cleanliness, comfortable housing, and proper diet, avoiding especially all putrifying food and filthy water.

It is a common opinion that broken bones in horses will not unite. This is a mistake. Reunion will take place in them as readily as in the human being, but the difficulty arises in keeping four-footed patients quiet during the treatment necessary for the complete reunion of fractured bones.

An exchange says poll-civil may be cured thus: "Cover the top of the head with a piece of canvass, with two holes for the ears to pass through, and wash the sore daily with a lotion made of one drachm of sulphate of copper to the pint of water."



Farmers' Gardens.

Who should have a good garden if not the farmer? He has plenty of land to devote to it; there is no extra expense for the team-work required about it; the manure-heap is close by to enrich it: the road to both barn and fields lies close by it, so that its condition and wants are seen twice or thrice every day; there are, therefore, all desirable facilities for having a good garden in connection with every farm. Moreover, tilling the soil is the farmer's business, at which he ought to be an adept. The skill in husbandry for which there is so much scope in a garden, is just what the farmer of all men should pride himself in possessing, and giving proof of to all comers. Nor is there any class of people to whose families a garden is a greater convenience, or more pressing necessity, than the farming class. Removed far from that access to a daily market which makes up for the want of a garden to town and city residents, the farmer's household must do without fresh vegetables and fruits unless they are home-produced. Without a garden, the winter diet will be mainly bread, meat, and potatoes. When spring comes, and the system craves juicy, cooling vegetables, rather than stimulating food, they are not to be had, and the old round of salt pork and potatoes must be pursued. Lettuce, radishes, green peas, early beans, and potatoes would be most welcome variations of the culinary monotony, but they are non est. So on through the summer-time. The want of a garden is a constant source of privation, and there are all the inconveniences of living in the country, without the advantages of such a life.

This is no fancy sketch. Very few farmers have gardens. Probably it is not going too far to say that fully one-half of our farmers have not even an apology for a garden. And in the case of the other half, what a wretched apology the garden so-called is, for the institution that ought to go by that name. The only surrounding of the farm-house in multitudes of cases is the "door-yard" as it is termed; which consists of a wood-pile with a considerable area of chip scatterings, and a general litter of sundry household utensils, wash-tubs, pails, kettles, and farm implements. Others have a small plot of land "laid out" for a garden; that is to say it is intended sometime or other to make a garden on that particular spot, but the convenient season has not arrived for carrying out the good intention, and so it lies waste. Here and there you may see a garden half over-run with weeds in the corner of a grain-field, or surrounded by a tumble down fence, through which the fowls, calves, and even larger animals pass and repass at pleasure. In a few pleasing instances—alas that they are so few—you will find attached to the farmhouse, and lending an indescribable charm to it, a well-kept garden, the trees, shrubs, flowers and vegetables forming a beautiful natural picture, and presenting a tempting array of objects "pleasant to the sight and good for food."

A nice flower garden is the cheapest and most attractive ornament any dwelling, whether in town or country, can possibly have. As a gratification and educator of taste there is nothing to compare with it. Although many affect to despise flowers and to care nothing for "looks," it would be difficult to find a person so stolid and boorish as not to be more or less affected by their gentle influence. They speak with a silent eloquence that moves the heart.

"Their voiceless lips are living preachers,
Each cup a pulpit, and each leaf a book."

The natural desire and love for flowers are displayed in children. How eager they are the first fine days of spring to go to the woods and see if there are any wild flowers. How delighted they return each with a bunch of gathered beauties. And all through the genial summer-time a ramble in search of flowers counts among their greatest pleasures. Why should not these natural instincts be gratified, and home rendered attractive by the cultivation of a flower-garden? On the Sabbath how pleasant a sight is the garden, and how elevating and instructive it is to "consider the lilies," to remember the Author and Creator of all forms of loveliness, and to think how he hath "made everything beautiful in its time." In sickness there is a world of refreshment and solace for an invalid in the sight of a flower-garden beneath the chamber window.

"Very pretty no doubt!" some one replies, "but it don't pay to raise flowers." We reply it does pay, and there is no rod of ground on a farm that yields so much clear profit as the rod on which roses, violets, and lilies bloom. After the bare necessities of one's being are supplied, there is nothing more to gain but satisfaction. Most people fancy they find this in turning things into money, but there are cravings of human nature that are not satisfied by looking at the face of a dollar-bill, or at the image and superscription of a gold or silver coin. Some of these cravings find satisfaction in the spectacle of beauty, and there is quite as much pleasure to be derived from the sight of a beautiful flower-bed, the seeds for which cost a few cents, as there is to be had in gazing at a beautiful carriage or a nice piece of furniture which has just come home. After the necessities of life, we repeat, come its satisfactions, and the flower-garden yields these more or less to all minds, and most of all to the mind that is reflective and cultivated, as all minds ought to be.

But whatever may be thought about the flower-garden, there can be no question that a good vegetable-garden is both convenient and profitable. In actual money value, half an acre or less devoted to garden culture, will yield annually more profit than four or five times as much land occupied by ordinary farm crops. The pecuniary view, which is the only one some people seem capable of looking at, is decisive in favour of a vegetable-garden, and along with this, there are the arguments based on the comfort and health that will accrue to a family from this source. Nobody can say of a vegetable-garden, "it don't pay," even in the lowest sense in which that phrase can be used. Why then is it that so few farmers have gardens? The reason usually assigned is, want of time to attend to their culture. A little thought on the subject will however suffice to show that this reason is a fallacious one. Of course a garden cannot be kept without some expenditure of time upon it. But the amount required is not much at once. Supposing the garden arranged, as every farmer's garden ought to be, so that it can be ploughed, the preparation of the land is but a short job. When once the ground is ploughed and harrowed, the seeds can be put in little by little. A few minutes now and then, while waiting for a meal, or giving the team time to feed and rest, will do wonders toward cultivating a garden. There are broken half days, and fragments of time often occurring which may thus be turned to excellent account. Many a farmer could till a garden well by simply giving to it the time he spends in smoking a useless pipe, or the wasted hours of loafing in the village store or tavern. With a little forethought, system, daily care, patience and perseverance, every farm might easily have its garden. What a smiling land of beauty, and what a rich land of plenty ours will be when this is realized. It is one of the "betterments" for which it is our mission to labour, and if a single reader of this article shall be stirred up to the resolve that he will have a good garden this year, we shall not have put pen to paper in vain.

Grapes in City Yards

UNDER this head Dr. Chas. W. Ridgely, writes to the *Horticulturist* to say that he has twenty-five specimens of the most approved varieties of hardy grape vines growing in his door-yard, which consists of only thirty feet by twenty of clear space. He says that in this small patch of ground, after making due concessions to domestic claims, he laid out a grape border forty-five feet by three feet wide, and another twelve by five. He took up the stiff soil to a depth of two feet, and mixed it with a liberal proportion of old field-sods, street-scrapings, plaster, coal-ashes, sand, &c. He then procured the choicest vines and planted them about two and a half feet apart, training them in four courses on the trellis, one above another, setting up stout posts to support the four horizontal bars; the first placed one foot from the ground, and the others above it at intervals of two feet.

Each vine has a space on the trellis nearly ten feet long and two feet in height. By careful pruning and pinching, a vine can easily be confined to this space. Should a long-jointed Isabella or Herbemont aspire to reach its neighbour on the next higher course, it may be passed behind the bar occupied by the other and suffered to spread itself a little. The arms may be lengthened by two or three buds each season, but this must be done cautiously lest the older spurs should suffer.

Dr. Ridgely says that the Iona is the prince of hardy grapes, besides its excellent flavour, it is early, prolific and beautiful. The Delaware comes next; were it of equal size and not so wonderfully sweet, it would rival the Iona. The saccharine element is in such excess, that it seems almost to have candied, and the grape tastes like sugar. The Isabella is large, early, and sweet, with a thick skin. The Diana is rich, vinous and sweet, with an agreeable peculiarity of flavour. Rebecca is excellent, ripening thoroughly. Allen's Hybrid is sweet and pure, but deficient in flavour. The Elsinburgh is the smallest of grapes, but it is rich and sweet, and worthy a place in every choicest collection. Dr. R. says that his Catawbas ripened as well as usual this season, but retained the tough, acid centre, and the Isabellas, as insipid as ever, make him marvel at the avidity with which he used to devour them.

NUTRIMENT IN WATER.—In the new number of the *Journal of the Royal Horticultural Society* we have the conclusion of Professor Schuitzenstein's paper on the constituents of water, in which he asserts positively that pure pump, spring, or river water contains an inexhaustible supply of nutriment; that is the real staple food for plants; and that the knowledge of this is calculated to throw light on many puzzling phenomena in vegetable physiology and culture. The art of making water nutritious should be the true aim of horticulture and agriculture. The Rev. W. Kingsley gives an illustrated note describing his method of border-heating. By placing pipes for the circulation of hot water among drain-tiles under the earth, near the roots of trees, he maintained a temperature equal to that of a very gentle hotbed, during the winter months. He thus (at South Kiltverton) obtained fruit of excellent flavour, which otherwise could not have been ripened. He considers his system as yet as merely an experiment. This number of the *Journal* also contains several papers of a purely horticultural nature, as well as extracts from the "Proceedings."

SAVE THE SOAP SUDS.—"I say now that are is a wicked waste—d'ye know it, neighbor Flandry?" "What, uncle Enoch? Dunno as I quite understand ye." "Why, throwin' out and wastin' that way all them soap suds the way your gals there is doin'." "What is soap suds worth, uncle Enoch?" "Bout a hundred dollars, I guess, what your folks'll make 'tween now and spring. 'Ourn was worth more'n that, last winter, and I guess our folks don't wash more dishes and clothes'n yours." "Why, what in natur do you do with soap suds to make 'em worth that, uncle Enoch?" "Didn't I tell ye? Wal, raly now, I meant to done it, and I will now. We save every mite of our suds and dish water for the garden and truck patch, splashin' it over the ground 'bout once a week all winter. It's good for gooseberries and currants, and kills a powerful lot of bugs and beetles and pesky worms, and fattens the ground moro'n a hundred dollars' worth besides. That's what soap suds is good for."—Cosmo in *Sat. Even. Post*.

Agricultural Intelligence.

The Cattle Plague in Britain.

This terrible scourge has abated to such a degree that its further spread seems no longer to be dreaded. During the week ending Nov. 3rd, 1866, only two cases were reported, and the hope was expressed that no more weekly returns would be needed in reference to this dreadful visitation. This is a gratifying condition of affairs when it is remembered that so recently as during the month of February last 15,706 animals were attacked in one week, and that in the aggregate there have been 253,725 cases of the disease, or one in every nineteen of the estimated stock in the British Isles.

The following are the figures which Mr. Clode gives us as the aggregate result of the cattle plague up to October 27, so far as the facts have been reported to the Statistical Office:—

	Great Britain.	England.	Wales including Monmouth.	Scotland.	
Of the estimated Ordinary Stock of Cattle, the aggregate number of reported Attacks have been.....	6,141	6,966	1,437	4,835	per cent.
Of the Number of Cattle and Farms &c, where the disease has been reported to exist the aggregate number of Attacks have been.....	55,553	64,445	65,593	69,024	"
Of the Total Number of Attacks have been reported, there were—					
Killed.....	35,024	40,917	14,534	13,900	"
Died.....	51,210	47,695	71,610	62,337	"
Recovered.....	13,766	11,385	13,806	23,763	"
	100,000	100,000	100,000	100,000	"

In the United States there are more pigs than human population. In England there is only one pig for every nine human inhabitants.

The plan of giving farm labourers shares in the general returns instead of monthly wages, is recommended by a correspondent of the *Country Gentleman*.

S. H. Cowles, of Norfolk, Conn., raised one and a half bushels of potatoes from one potato, planted in twelve hills with two pieces in a hill.

Mr. Bradley Harrington of Hudson, Mich., has presented the editor of the *Hudson Herald* with a beef weighing seven pounds and measuring 21½ inches in circumference.

The cattle disease has disappeared completely from Switzerland, and the prohibition decreed by the Italian Government against the importation of cattle has been removed.

The *Rinderpest* having broken out afresh in Austria, the Bavarian Government has refused to allow a large number of oxen intended for the English market to cross the frontier.

Lady Herbert, of Lea, at her rent audit, presented her tenants, the Misses Woody, with the whole of their rent back, as a compensation for the heavy losses they have had during the fearful rage of the cattle plague.

The *Farmer* (Scottish) of Nov. 14, 1866, says: What we trust will prove the last cattle plague return was issued on Thursday; it reports that last week there were but two attacks in England—one in Warwickshire and one in Yorkshire.

At a recent rent audit, the tenants on the estate of Mr. J. E. Heathcote, of Apedale Hall, were allowed 10s. in the pound upon the losses they have suffered from the cattle plague. This allowance is independent of what may have been received from the insurance association.

The total amount of the claims of the members on the funds of the Fifehire Cattle Plague Association on account of cattle lost by the cattle plague before the passing of the Cattle Diseases Prevention Act exceeds £30,000, and the General Committee have declared an interim dividend of 3s. per £1.

PROLIFIC OATS.—Mr. Hutchison, of Contentibus, near Mid-Calder, got two ears of black oats from a crop on his farm this harvest on which there were 323 and 318 grains respectively. So says *The Farmer*, (Scottish.)

A worldly-wise exhibitor at a late agricultural fair in Connecticut divided a bushel of peaches, entering one half in his own name and the other in the name of a gentleman of some prominence in the vicinity. His own half was unnoticed, but the other half bushel took the prize, proving there is something in a name.

The plan of building cottages for farm labourers and employing married men who will occupy them has many advantages over the plan of hiring single men who must be boarded in the farmer's family. Generally this arrangement is more agreeable to both parties, is often less expensive to the employer, and better, more careful and contented men can be secured.—*Western Rural*.

The *Chester Chronicle* is sorry to announce that the old fatal disease, pleuro-pneumonia, has made its appearance again in the neighbourhood of Beeston Castle. Mr. Joseph Aston, of Brassey Green, had a cow died of it last week. Several others of the neighbourhood have also lost cows from the disease, including Mr. Lewis, of Broxton, who had lost not less than nine.

Sir Thomas B. Hepburn, Bart., of Smeaton, East Lothian, has intimated to Mr. Pringle, who is about to begin a new lease of Harperdean farm, that he and his son will have the unrestricted privilege of killing both hares and rabbits on the lands. A similar liberty has been given by the hon. baronet to Mr. Aitchison, the new tenant of West Garleton; and it is said that the same privilege is to be extended to all the other tenants on the estate.

NEW MANURE.—We learn from *Valignani's Messenger* that MM. Blanchard and Chateau by mixing acid phosphate of iron and magnesia with nightsoil, have succeeded in fixing its volatile principles. Acid phosphate of magnesia and iron is cheap, and, moreover, an excellent disinfecting substance, and it appears from the experiments which the city of Paris has made on a large scale, that both as an agricultural and a sanitary agent, this phosphate will render great service to society.

MASSACHUSETTS AGRICULTURAL COLLEGE.—The *Springfield Republican* thus records the action of the trustees of the State Agricultural College, at a special meeting lately held at Amherst, in regard to buildings: "Abandoning their former favourite idea of a single grand and expensive structure, which would use up all their money, they assumed that favoured by the late President, Judge French, and by Mr. Oimsted, the landscape architect, of various small buildings, each with a special purpose, and voted to erect between now and September 1, 1867,—1, a brick edifice on the chestnut-tree ridge and south of the glen, with dormitory accommodations for 50 students, and four recitation rooms, surmounted by a tower with a clock; 2, a chemical laboratory of wood, on the western slope of the ridge, and also south of the glen; 3, a boarding house of wood, north of the glen, with dining hall for 50 students; 4, a model barn of wood, 100 feet by 40, like the last, north of the glen; and 5, on the hill, between the old and new highways, a dwelling house of wood, for the President, which shall front to the west and overlook the other buildings. The cost of all these edifices is calculated at \$65,000, and Mr. Richards, architect, of Boston, is employed to make plans and detached estimates for the same.

Miscellaneous.

FARMERS' BOYS.—It is said to be a fact that the farm boys in some sections of New England have left the farms to such an extent as to seriously depreciate the price of farm land, owing to such quantities of land being offered by aged farmers desiring to rid themselves of the cares of the farm, their children having gone West or into the city. Is it going to be better at the West? Boys, here, seem to have the same Quixotic desire for "dressed up labour." The farm has lost its charm—home its attractions. Ledgers, business successes, hopes, etc., are alone talked of. It used to take a lifetime to get rich—they try hard now to be rich at thirty—break-go on—fall—recover, and so on. How shall we raise our boys so that when they are men they will be farmers?—*G. in R. N. Yorker*

EFFECTUAL THOROUGH ECCENTRIC.—The *Journal of Horticulture* says:—"A correspondent," probably a schoolmaster, writes to us thus—

"I have no fault to find with the working abilities of a jollying gardener whom I employ, but I do complain of his orthography, notation, and making a hoo an interjection! For a week's work, some Lobelias, and his boy's help, he charged 22s. after this fashion—

"Wan wick..... 15
Lubbeclers..... 5
Sun's oblong..... 2
22"

We sympathize with our correspondent, but his pain may be assuaged by finding that another gentleman, an American, had his love of the correct still more grossly outraged by the following account being sent to him:—

"Aosafada..... 1 50
atacinomomagin..... 50
Fade, Josef Jahn..... 2 00

The items of that bill are not apothecaries' articles, as might be supposed, but merely, 'A horse half a day and a taking of him home again,'"

The correspondent we have quoted from, concludes with this backhander to parochial seminaries: "My man was a national school scholar." The only just inference from the fact is, he did not make good use of his advantage. Not so, a co-labourer, who is said to have sent the following to his employer:—

Grantham, Oct 6.
Mr. W..... To W. W.....
Five days work at digging Docks,
Piling Bean stalks into cocks,
Dr. wing Leeks and trimming ditto,
(Easy work that I could sit to),
Lugging Carrot tops away,
To be burnt another day,
Turning manure with a stick up,
Irish Apricots to pick up,
Many other trifles also,
Work that Hand will hardly call so,
But I think, as I hope to thrive,
There's quantum suff for shillings five.

Advertisements.

AN ELEGANT GOLD MEDAL

Will be presented by the subscriber to each

TOWNSHIP AGRICULTURAL SOCIETY

WHOSE Members shall purchase and use a given quantity of his

PREPARED MANURE

during the year. The Medal to be the property of the Society, and to be competed for annually upon such crops as the Society shall designate, and the winner to hold the Medal till a more successful competitor shall win it from him

Secretaries, or other members of Agricultural Societies, can obtain full particulars by writing to

E. L. SNOW, MONTREAL,
v4-1-10* Manufacturer of Canadian Super-Phosphate

PRIZE OFFERED!

I HEREBY give notice that I now offer a prize of a

**HORSE POWER STRAW-CUTTER,
VALUE \$35,**

To the party who shall cut the most hardwood, 2 feet long, in four hours, with Drag Sawing Machines of my manufacture.

N. B.—Parties competing for the above prize will have to furnish me with their names, township and post office address, also the names of the parties present who can prove to the quantity cut inside the four hours, on or before the first day of February, 1867.

Bradford Foundry, Dec. 27, 1866.

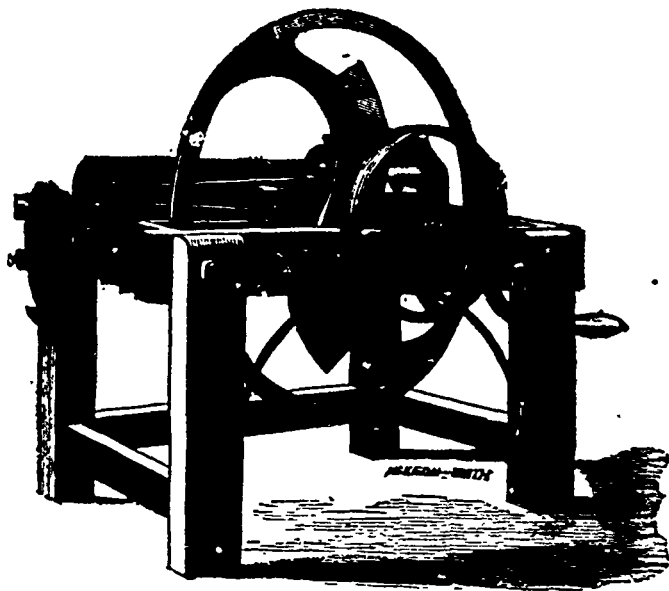
v4-1-11

GOOD FARM LANDS!

FOR SALE,

ON EASY TERMS AND WITH UNUSUAL ADVANTAGES
TO SETTLERS.

Apply to C. J. BLOMFIELD,
Secretary Canadian Land and Emigration Company, Toronto
Bank Building, Toronto. v3-22-41



**RICHMOND & CHANDLER'S
CELEBRATED ENGLISH STRAW-CUTTER,
(WITH IMPORTED ENGLISH KNIVES,)**

Manufactured and for sale by

JOHN WATSON, Agr Foundry.

Agr. C. W., 24 December, 1866.

v4-1-1t

Great Sale of Blood Stock.

CATTLE, SHEEP AND HOGS.

I WILL sell at Public Auction, without reserve, on WEDNESDAY, 30th JANUARY, 1867, at my farm, 4 miles from Brampton Station, G. T. R., and 20 miles west of Toronto, the following Thorough-bred Stock, viz. :-

- 12 Short-Horn Cows and Heifers.
- 8 Short-Horn Bulls, including "Baron Solway."
- 11 Galloway Cows and Heifers.
- 6 Galloway Bulls, including "Black Jack."
- 10 Leicester Ewes in Lamb.
- 8 Leicester Ewe Lambs.
- 1 Leicester Shearling Ram.
- 6 Leicester Ram Lambs.
- 1 Cheshire Boar, 2 years old.
- 6 Young Cheshire Sows.

This includes my entire herd of Galloways, which is unquestionably the best herd in America. The 7 yearling bulls, by "Baron Solway" and "Baron Renfrew" are a lot of superior animals. The stock has not been pampered, or overfed, all are in fair breeding condition.

Catalogues with "v" pedigrees will be sent to any one making application.

Teams will meet the trains at Brampton on the day of sale and the evening before, to convey parties to the farm. Entertainment will be provided for those who wish to come the day previous to the sale.

TERMS - All sums under \$40. cash, over that amount 9 months' credit will be given on approved notes, or a discount of 8 per cent. allowed for cash.

SALE TO COMMENCE AT HALF-PAST TWELVE.

JOHN SNELL,

Edmonton P.O., C.W.

Edmonton, Dec. 1st, 1866.

v3-24-3t

Seeds Direct from the Growers.

CHAS. SHARPE & CO.,

SEED GROWERS AND SEED MERCHANTS,
SLEAFORD, ENGLAND.

Will be glad to send, on application, special quotations of FARM AND GARDEN SEEDS, of their own growth, from choice Transplanted Stocks. v3-11-24t

FEATHERS,

FEATHERS, FEATHERS.

THE subscribers will pay 45 cents per pound for good

LIVE GEESE FEATHERS

delivered at their Warerooms, Toronto.

JACQUES & HAY.

v3-23-10t

Markets.

Toronto Markets.

"CANADA FARMER" Office, Dec. 31, 1866.

There is plenty of snow and good sleighing.

There has been little or nothing doing in produce since our last issue. The receipts of grain on the street market have been very light; offerings have been principally confined to dressed hogs, which have been in fair supply.

Flour - is in better demand and prices are rather firmer. No. 1 superfine is held at from \$8 45 to \$8 50 with sales at better figure. Extra selling at from \$7 25 to \$7 50, superior nominal at \$8 00.

Wheat - Market rather firmer for prime samples sales of round lots are reported at from \$1 40 to \$1 41 inferior samples would bring \$1 30 to \$1 35. Fall Wheat nominal none offering.

Oats - Selling on the street at from 30c. to 32c.

Barley - no round lots offering. Street prices at from 40c. to 45c.

Peas - Receipts, 350 bushels. Nothing doing in round lots. Street prices at from 60c. to 65c.

Dressed Hogs - Selling at from \$4 50 to \$5 25 on the street.

Provisions - A few round lots of store-packed butter have changed hands during the week at 11c. and dairy at 12c. Lard 11 1/2c. in lots, and 12c. in single packages. Eggs 20c. in lots, and 25c. from farmers' baskets. Cheese 11 1/2c. to 12 1/2c. Pork - Mess \$18, prime mess \$14, prime \$12. Hams in salt, 10 1/2c, smoked 12c; bacon, 8 1/2c; Cumberland, 9c shoulders in salt, 7c.

Hides, Skins and Wolf - Green, from butchers, \$6, green salted \$3 to \$3 25, calfskins, 1c, green salted 15c to 16c, sheepskins, 60c. to \$1. Wool selling at 30c.

Poultry - Chickens, 30c. to 40c., turkeys, 70c. to 80c., geese 60c to 60c; ducks, 60c. to 60c. per pair.

Hay and Straw - Hay, \$10 to \$12 50. Straw, \$6 to \$8 50.

GRAIN AND FLOUR ON HAND ON THE 25TH DECEMBER, 1866, AT THE FOLLOWING STATIONS ON THE LINE OF THE G. T. R.

	Flour, bbls.	Wheat, bush.	Flour, bbls.	Wheat, bush.
Carlton	.....	.....	Tavistock	..... 700
Weston	2,000	.....	Mitchell	..... 500 29,000
Malton	..... 600	.....	Caronbrook	.....
Brampton	..... 400	4,000	Seaforth	..... 200 35,000
Norval	..... 400	.....	Harpurhay	.....
Georgetown	..... 200	.....	Clinton	..... 700 15,000
Acton	.....	.....	Stratford	..... 500 24,000
Rockwood	..... 800	.....	St. Marys	..... 500 24,000
Guelph	1,000	15,000	London	1,000 2,500
Breslau	..... 300	.....	Lucan	..... 700 8,000
Berlin	..... 300	.....	Ailsa Craig	..... 100 4,000
Petersburg	.....	.....	Park Hill	..... 11,000
Baden	.....	.....	Widder	..... 2,000
Hamburg	..... 400	.....	Forest	..... 3,000
Shakespeare	.....	350	Goderich	1,000 10,000
				11,900 184,050

THE CATTLE MARKET.

Transactions during the past week have been almost entirely confined to extra prime cattle, fed expressly for the Christmas market. The following prices per 100 lbs dressed weight, were given for animals fed for the Christmas market: -

- 1st prize, \$12 50 to \$15.
- 1st class, \$9 to \$10. Other kinds, none offering.
- Sheep, extra, \$10 to \$12 each.
- 1st prize, \$20 each.
- Lambs, good, \$4 to \$5 each.

Contents of this Number.

	PAGE
THE FIELD:	
Abell's Thresher and Separator, with an Engraving.....	1
Pastures.....	1
Steam in Agriculture.....	1
Familiar Talks on Agricultural Principles: Barley.....	2
Surface Application of Manure.....	3
CANADIAN NATURAL HISTORY:	
The Blue Bird, with an Engraving.....	4
The White or Barn Owl More Useful to the Farmer than a Cat.....	4
STOCK DEPARTMENT:	
Old Sows for Breeding.....	4
The Improved Berkshire Hog, with a Fine Illustration....	5
A Calf Strangled.....	5
Care of Horses in Winter.....	5
Raising Fast Horses.....	6
The Mule.....	6
Weight of Lean and Fat Hogs.....	6
"Lost or Strayed".....	6
Cheap Feed Back.....	6
Sheep essential to good farming.....	6
THE DAIRY:	
Milk Farming.....	6
Dairy Profits.....	7
Effect of Cold Weather on the separation of cream.....	7
"Pinkeens" in the Milk Can.....	7
THE APIARY:	
"Apis Mellifica" or Honey Bee.....	7
Profits of Bees.....	7
ENTOMOLOGY:	
The Earth-Worm.....	8
CORRESPONDENCE:	
Increase and Improvement of Agricultural Implements	8
Spontaneous Growth of White Clover.....	8
Miller's Infallible Tick Destroyer.....	9
Address Wanted.....	9
EDITORIAL:	
Our Fourth Volume.....	9
Bound Volumes.....	9
Mr. Howard on American Agriculture.....	9
Agriculture at the Paris Exhibition of 1867.....	9
THE HOUSEHOLD:	
Lore of Home.....	9
THE POULTRY YARD:	
Buff Cochins, with two spirited engravings.....	12
VETERINARY DEPARTMENT:	
Injuries incident to Frosty Weather; Fractured Bones in Horses.....	13
Hog Cholera.....	13
Setting of Broken Bones in Horses.....	13
Cure for Poll-Evils.....	13
HORTICULTURE:	
Farmers' Gardens.....	14
Grapes in City Yards.....	14
Nutrition in Water.....	14
Save the Soap Suds.....	14
AGRICULTURAL INTELLIGENCE.	
The Cattle Plague in Britain.....	15
Small Items: Hogs and Population, Shares of Profits for Farm Labourers, Large Yield from one Potato, Immense Beet, Cattle Diseases in Switzerland; Rinderpest in Austria, Compensation for Cattle Plague losses, Cattle Plague Returns, Generous Landlord's allowance, Fleisberg Cattle Plague Association, 1 rustic Oats, World-wise Exhibitor, Cottage Farm Labourers, Pneumo-pneumonia, Hare and Rabbit-shooting privileges, New Manure, Massachusetts Agricultural College.....	15
MISCELLANEOUS:	
Farmers' Boys.....	15
Effectual though Eccentric.....	15

THE CANADA FARMER is printed and published on the 1st and 15th of each month, by GEORGE BROWN, Proprietor, at his Office, No. 28 and 29 King Street East, Toronto, U. C. where all communications for the paper must be addressed.

Subscription Price \$1 per annum, (POSTAGE FREE) payable in advance. Bound volumes for 1864, 1865, and 1866, may be had for \$1 30 each. Subscribers may either begin with No. 1 of the present Volume, or with the first No. of any preceding volume. No subscriptions received for less than a year, and all commence with the first number for the respective years.

CLUBS will be furnished at the following rates: -
TEN COPIES for..... NINE DOLLARS.
TWENTY COPIES for..... SIXTEEN DOLLARS.
FORTY COPIES for..... THIRTY DOLLARS.
ONE HUNDRED COPIES for..... SEVENTY DOLLARS.

To Agricultural Societies ordering more than 125 copies, THE FARMER will be sent at SIXTY CENTS.

Communications on Agricultural subjects are invited, addressed to "The Editor of the Canada Farmer," and all orders for the paper are to be sent to GEORGE BROWN, Printer and Publisher.