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THE
CANADIAN AGRICULTURIST,

AND
JOURNAL OF TRANSACTIONS

OF THE
Board of Agriculture, Agricultural Associations,
&c. &c. &c.

PUBLISHED MONTHLY,
AND DEVOTED TO
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WILLIAM McDOUGALL, EDITOR AND PROPRIETOR.

VOL. VIII.—1856.

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INDEX.

	PAGE.		PAGE.
<i>Agriculturist</i> , Arrangements for 1856.....	1	Carrots, Importance of	159
Agricultural Papers, Reasons for taking	15	Cashmere Goats.....	50
“ Laborers, Proposal to import	52	Cast-iron, Experiments with	285
“ Association, 100, 181, 208, 261	261	Cattle Tie	21
“ “ Meeting of the	265	“ To determine Sex of	336
“ Reports—Caledonia Springs	173	“ Feeding and Fattening	67, 76
Agriculture, Ancient and Modern...3, 48,	57	“ Disease among	183
“ Experiments in	12	“ Diseases of, To cure	256
“ Hints to Boards of	13	Cedar, The, for Hedges.....	97
“ in New Brunswick	59	Celery, Winter Treatment of.....	337
Air, condensed, Effects of breathing	191	Cellar Walls, To protect	135
Apple Trees from Cuttings	77	“ Cleaning	193
“ Manure for	280	Cement, An excellent	286
“ Pruning	106	Cisterns, Mode of building	314
“ To destroy Caterpillars on... 224	224	Chemistry, Agricultural	199
Apples, How to keep	102	Cheese-making in New York	223
“ Several kinds on a Tree	142	Charcoal for Hogs.....	324
“ Cooking the	146	Chicago and its Beef.....	21
Ashes as a Top-dressing	103, 171	Chickens, To raise	212
Ash (Prickly), for Hedges	190	Chilblains, To cure	145
Awards at Agricultural Shows	35	China and Glass, Care of	72
Bacon, Curing without Smoke.....	270	Churns and Churning	179
Balky Horse, To make draw	258	Cleanliness, Effects of	194
Barrel Machinery, Trapp's patent	36	Climate, Effect of Northern, on Grain ...	242
Bates (Thomas), Notice of	187	Clothes Lines, Galvanized Wire for	77
Bathing in Summer	230	Clover, Remarks on	61
Beech and Thorn for Hedges	96	“ Experiment with	156
Bees, Management of	219	“ Seed, Gathering	221
Bill Hook.....	78	“ Effects of on Animals	259
Bingham Plough	70	“ for Manure	276
Board of Agriculture, Meetings of... 108,	181	Coffee and Coffee Pots	39
Bogardus's Iron Horse-power	252	“ How it came to be used.....	238
Bones, How to dissolve.....	170	Colic in Horses, Lecture on	318
“ As a Manure	199, 212	Cold Feet	45
Boots, Machine for blacking	195	Colts, Bad effects of Grass on.....	135
Bots in Horses.....	318	“ Kicking, To cure	154
Boydell's Traction Engine	241, 300	“ Care of.....	255
Branch Shears	79	Colza as an Oil Plant	230
Breakfast, Nice dish for	105	Common-Place Book, Notes from	112
Brine and Poisons	74	Cooking, Effect of Heat on Meats	80
Brine, Is it Poisonous?	101	Corn (Indian), Use of in Great Britain ...	17
Buckland (Prof.), Lectures by..... 3, 48,	57	“ Culture of	276
“ Agr. Tour by, 118, 267, 300, 325	325	“ How to Harvest	160
Buckland, Dr., Death of	285	“ Planter, Batchelder's	272
Bucks, To prevent from Fighting	246	“ and Cob Crusher	272
Buckwheat Porridge	51	Corns, To cure	50
Bull, Mode of Ringing a	217	Cows, Kicking, To manage	105, 200
Butter Making	44	“ Feeding Milch	228
“ To cure bad tub	135	“ To tether safely	266
“ Making, curing, &c.....	177	Crab Apple, The, As a Hedge plant	215
Cabbage, To Winter	337	Cramp, Remedy for	283
Canadian Ploughs at Paris	25	Cranberry, The High	285
Canada Thistles, To destroy	230	Cream, Experiments in Churning	192
Carob Bean, Notice of the	211	Cream Cheese, To Make	324
		Crops, Alternate	79
		“ in England, 1856	253

	PAGE.		PAGE.
Cucumbers, To multiply	230	Fish Breeding, Artificial	109
Cultivation, Deep	184	“ Propagating	259
Cutter, Vegetable	32, 60	Fruit Trees, How to get to your liking ...	79
Curing Beef and Pork, &c.	257	“ Mulching	66, 230
Curraus, Pruning and culture of	119	“ Fertilizers for	242, 280
“ Wine, To make.....	230	“ Economical mode of setting	
“ Bushes, Soap-suds for.....	253	“ out	111, 280
“ “ Winter Treatment of .	337	“ Soil for	156, 242
Diarrhoea Cordial	329	“ Injured by Mice, To restore	
Digestion, Philosophy of	258	“ 195, 276	
Ditch-digger, Pratt's.....	36	“ Pruning and care of	196
Drains, Deep	31	“ Labels for.....	259
“ Stone-pipe for	37	Fruit in Cans, Poisonous	105
Draining, Effect on Wheat crop	255	“ How to use	224
Dysentery, Remedy for.....	266	“ To Protect from Worms.....	328
DOMESTIC RECEIPTS—		Food, Cooked and Uncooked, &c.....	74
Muffins (Indian), 53.—“No-Matters,”		Fountains, Iron	136
How to make, 53—Salt in Cooking		Fowls, To fatten	258
Vegetables, 53—Nursery Pudding, 50—		Fuel, New kind of	286
Buckwheat Porridge, 51—Dry Broth,		Gadflies to destroy.....	248
43—Crackers, Doughnuts, Nice Fruit		Galloway Cattle	50
Cake, Cup Cake, Hard Gingerbread,		“ Discussion on	120
Cinnamon Cakes, Cookies, &c., 99—		Gate, Patent Self-acting	36
Crackers, 105—Cider, To keep sweet,		Garden Engine	103
136—Virginia Egg Bread, 136—Apple		“ or Hedge Shears	79
Syrup, Apple Custard, Apple Pottage,		“ Tools	141
To make, 146—Vegetable Seasoners,		Gardening in Canada, Discussion on	127
156—Cheap Cake, 195—White Cake,		Ginger Beer, To make	203
195—Loaf Cake, 196—Fruit Pies, 196		Glass, Recipe for Silvering	253
—Rice Cakes, 203—Ginger Beer, 203—		Gloves, To clean Buckskin	258
Cooking Onions, 203—Stewed Cucum-		Gooseberries, To preserve	228
bers, 218—Currant Dumplings, 228—		“ To prevent Mildew on	286
Jams, To prevent graining, 230—To-		Gourds, Species of.....	197
mato Pickles, 238—Tomato Wine, 241		Government Land, Quality of	273
—Lemon Butter, 258—Snow Bread,		Grain Mill, Iron.....	277
279—Currant Dumplings, 279—Toma-		Grass, Blessings of	257
atoes for Winter, 283—Baking Apples,		Guano, Where and how obtained.....	222
283—Corn-meal Pudding, 283—Preser-		“ Price of	30
ving Herbs, 283—Preserving Butter,		“ Its History.....	81
287—Soda Crackers, 287—Removing		Hair Snakes, Singular Phenomena	333
Fly Spots, 334.		Hair, Treatment of the	226
Education, Remarks on Agricultural	315	Harrows, Improvements in	172
Eggs, To Preserve	328	Harvest of Great Britain, 1855	34
England, Report of Crops, 1856.....	275	Hay Caps	63
Experimental Farm, Hints respecting ...	132	Heaves, To Cure.....	332
Fall, Work for the	280	Headache, To Cure Neuragii	329
Farm, Stick to the.....	217	Hedges, Discussion on	95
Farmer's Note Book, Passages from	42	“ Plants, Description of	96
“ A Man of taste.....	168	“ Best in the United States	194
“ Enemies of the	201	Hemlock, Cultivation of the	80
“ Young, Advice to	236	“ for Hedges.....	97
Farms, Advantage of Small.....	277	Hens, Everlasting layers	167
Fat, Use of to Animals.....	237	Hereford Cattle, Weights of, &c.....	138
Fences, Best kinds.....	183	Hessian Fly, The	310
Fencing, Rest systems of for Canada.....	85	Hollow Horns, Cure for	256
“ Rev. T. Schreiber's Remarks on	161	Honey Locust, Tho	96
Fergusson, Hon. Adam, Notes by ...	112, 143	Hopper (George), Notice of.....	186
Fibrous Slabs, Use of	229	Horns, to cure broken	50
Fife Wheat, Account of	249, 279	Horse Breeders, Notice of.....	192
File Superseded.....	337	“ Cure for Wounds of	256
Firewood for Winter	29	Howard's Prize Plough.....	71
		Hydrophobia	334

INDEX.

	PAGE.		PAGE.
Indian Rubber, Uses of	256	Miscellany (Editorial), 27, 56, 83, 115,	176, 204, 231, 260
Ink Stains, To take out of Linen	194	Molasses, Boiling improves	161
" Writing, To make	202	MISCELLANEOUS ARTICLES—	
Implements, To Preserve	330	Alphabet, The	57
Insects upon Apple Trees.....	247	British Cavalry, French Lady Instruct. ..	69
Iron, Malleable. Discovery and uses of ...	19	Case-hardening, Method of	281
Itch, Cure of, in half an hour	334	Coal, Extent of	229
ILLUSTRATIONS—			
Anderson's Washing Machine	218	Discoveries of the Age.....	220
Bogardus's Iron Horse Power	252	Dying Scenes, Curious	286
Bingham Plough	70	Elephants, Mode of catching	105
Cattle Tie	21	Facts worth Knowing	165
Corn and Cob Crusher	271	Great Thoughts	66
Garden Engine	103	" Hudibras," Author of	75
" Tools	141	Long Sermons.....	107
Galloway Cow	120	Microscope, Revelations of the	284
Hand and Horse Grain Mill.....	277	Miser, Misery of	223
Hinge Harrow	172	Moon, Surface of the.....	203
Howard's Prize Plough.....	71	Not given to Change	15
Iron Field Roller	106	Phrenologist posed	62
" Pig Trough.....	47	Science, Every-day facts in	160
Manny's Reaper and Mower	59	Water Spouts, Electricity cause of.....	198
McCormick's Reaper.....	98	Writers for the Press.....	336
Osage Orange Fence	51	Needles, How made	254
Post Augur	19	Niagara Falls, Stratum of Salt under....	59
Pruning Knives	78	Oil Varnishes, To make	146
" Shears	79	" Anointing with for Disease	159
Reversible Subsoil Plough	189	Opium, Effects of	332
Seymour and Morgan's Reaper	16	Orchards Manuring	200
Straw Cutter, Hide Roller	16	Osage Orange, Notice of	51
Vegetable Cutter	32	" Answer to Questions	92
Wind Mill for Pumping.....	10	" Expense of Hedge	255
Judging Animals, Difficulty of	46	Paris Exhibition, Account of	213, 233
Kingston Exhibition.....	261, 289	Parsnips for Stock.....	33
" Prize List	295	Patents, Recent English	72
" President's Address	298	Paterson's Reaper	168
Kitchen Garden, List of Vegetables, Seeds		Pez Weevil, Remarks on	310
for	110	Peach Trees, Shortennig in	97
" Paper on, by Mr. Mundie	125	" Growing in Canada	168
Lambs, To fatten	822	Pig-trough, Iron	47
" To keep Foxes from	240	Plantain, The.....	240
Lawes (J. B.), Notice of	199	Plants, Distribution of	201
Lime, Action of on Soil	254	Plaster, Benefits of	279
Live Fences, Remarks on.....	130	Plough, Reversible Subsoil	37
Locust (Thorn), for Fences	162	" Construction of the.....	73
Madawaska, Quality of Lands on the ...	274	" Wheels adapted to the	107
Mahogany, To clean	229	" Trial of, at York Mills.....	147, 175
Man, What he costs	330	" Report of Committee on	174
Manures, Paper on, by Prof. Hind	149	" Improvements wanted in	282
" Advantage of covering.....	180	Ploughing, Advantage of deep	184
Manny's Reaper and Mower.....	59, 214	" Matches, Rules for	244
Markets, Notice of English.....	155	" Ploughing Sandy & Clay Soils	233
McDougall (W.), Remarks of, on Fencing	85	" in Fall.....	312
Melons, How to grow	156	Poisons, Vegetable	220
Mice last Winter	154, 163, 190, 224	Potatoes, Fluke	50
Milking, Art of	82	" as big as a barrel.....	89
" Machine, A new.....	271	" The Chinese	64
Millet, Profit of	218	" should be Planted early	137
Mince Pies without Meat	11	" To improve Seed	166
		" To Winter.....	327

	PAGE.		PAGE.
Potted Cheese, To make	107	Steam Culture	11, 335
Prize List of Kingston Exhibition	295	“ Plough for the Prairies.....	226
Provincial Exhibition	203, 251	“ Engine, Experiments with Boydell's	241
Pruning and Budding Knives	78	“ Ploughing in England	335
“ Evergreens	180	Stock, Care of in Winter	33
“ Fruit Trees	196	“ Raising in Canada	132
Pumpkins, Different species of	197	“ Imported to Canada	167
POETRY—		Straw Cutter, Hide Roller	16
“ Agricultural Ode	231	Strawberry, Twelve varieties of	281
“ Child of the Country.....	287	Strychnia, Antidote for	154
“ Success to the Farmer	116	Sweet-briar as a Hedge plant.....	245
“ The Fireside	26	Sweeny, Remedy for	330
“ Wife, Come Home!	286	Thorn, The Native, for Fences	165
Railroads in Canada	111	Toronto Hort. and Agr. Club.....	85, 125, 150
Rails, Number of per Acre	247	Treadwell (Sheriff), in Europe	54
Rain Water, Importance of collecting ..	269	Trees, Life of	231
Raspberry Vinegar, To make	207	“ Cutting by Steam	309
“ Successful culture of.....	243	Turnips, Special Manures for	13
Rats, Method of poisoning	276	“ Varieties, and time for sowing	202
Reaper, McCormick's	98	“ for Milch Cows, To remedy the	251
Reapers and Mowers, Points in trials of	169	“ effect of.....	251
Reaping Machines v. Hand Labour	313	Tull (Jethro), Notice of	212
Red Root, Enquiry respecting	182	University College, Agricultural Dept. in	120
Rheumatism, A remedy for	154	Vegetable Productions, Benefit of	203
Roller, Iron Field	106	Ventilation, Necessity of	191
Root-grafting condemned	102	Wade (John), Communication from	249
Salt with Liquid Manure	210	Washing Machine, Anderson's.....	218
Scratches in Horses, To cure	227	Watering Cattle.....	142
Seymour and Morgan's Reaper, Notices	137, 189	Water-melon Molasses, To make.....	100
“ of	137, 189	Waterproof Cloth, To make.....	141
“ Seed Planter, Description of novel.....	194	Weeds, Keep Seeds of from Manure	287
“ The Vitality of	239	“ How to treat.....	337
“ from perfect Fruit.....	242	Weevil, Enquiries respecting	248, 277
Sharpening Edge-tools	62	Welland, Prof. Bucklaud's Notice of	267
Shears, Sliding Pruning	78	Wells, Quicksand in.....	246, 216
Sheep, Management of.....	23	Wheat Crop in Great Britain	8
“ Management of in Winter	38	“ Insect, Description of	329
“ To cure Foot-rot in	228	“ Caterpillar, Gaylord's	41
“ To remedy Scours in	287	“ Fly, Ravages of the	205, 249
Shoeing, Remarks on	313	“ Fly (The), in Prince Edward	278
Shoes, Wooden	50	“ Salt for	251, 230
Short-horns, Notice of Mr. Thorne's	207	“ Machine for Hulling.....	259
Shows, Canadian and State, for 1856 ..	219	“ Smut in	283
Silver Ware, To wash	195	“ Culture	310
Skin Diseases of Animals.....	157	“ Golden Drop.....	337
Smoky Chimnies, A remedy for	105	Whooping Cough, Remedy for.....	283
Snow Drifts and Fences	104	Wind Galls, Remedy for	256
Soap, To make Windsor	135	Wind-mill, Modern Use of	10
“ Common, To make.....	201	Wine, To make of Apples.....	199, 328
Statistics of Land and Crops in G. Britain	9	Winter Shelter for Animals	82
		Woman and her toils.....	331

THE

Canadian Agriculturist.

VOL. VIII.]

TORONTO, JANUARY, 1856.

[No. 1.

NEW ARRANGEMENTS FOR 1856.

Arrangements have been completed by which the subscribers have become the publishers of the *Canadian Agriculturist*. They desire to aid in promoting the Agricultural prosperity and material advancement of their country, and they believe no better means can be employed than to place in every farmer's home, a good agricultural paper, filled with useful suggestions, the results of the experience of others, and plain expositions of those sciences which relate more especially to agriculture. With this object in view, the publishers intend, by employing the best talent, by copious illustrations, and by superior typographical workmanship, to make the *Agriculturist* an acceptable companion to the farmer, and an instructive and welcome visitor to his family.

They feel confident that with the means at their disposal, they can make the *Agriculturist* worthy of general support, and they respectfully solicit the aid of enterprising farmers in every township, to extend its circulation and usefulness. Agricultural Societies will find this Journal much more suitable for distribution among their members, than foreign publications, which must necessarily be uninformed in regard to the peculiarities of Canadian Agriculture, and devoted entirely to the advancement of their own county.

The editorial department will be under the supervision of the proprietor of the journal, as heretofore, assisted by special contributors of acknowledged skill and experience. Efforts are being made to extend the list of *practical* correspondents, already comprising some of the first agriculturists in the province, and no reasonable effort will be spared to make the *Agriculturist* second to no other paper of its class. We beg to refer the reader to the advertisement on the last page for particulars as to terms, &c.

WIMAN & Co.,

Publishers.

Toronto, Jan., 1st 1856.

Our readers will learn from the announcement in the preceding article, that some changes have been made in the publishing department of this Journal. The Proprietor removed last spring to a farm, a few miles from the city, and has found it exceedingly difficult to procure the publication of the paper at the proper time, and in a proper manner. Printers, like other people, are apt to neglect those who are not at hand to push them up, and they are never in want of excuses to account for delays and inferior work. To remedy this difficulty, and to relieve ourself of much labour and anxiety, we have arranged with Messrs Wiman & Co. to become the Publishers of the *Agriculturist* for the present year, and probably longer. They will have the *business* department entirely in their hands, and all communications, orders, &c., not relating to the editorial department, should be addressed to them.

The writer will thus be enabled to give his whole attention to the preparation and selection of matter for its pages, and with the assistance of able contributors he hopes to make the Volume for 1856 superior to any of its predecessors. The terms will remain substantially as announced in the last number for 1855, except that, to *single* subscribers the price will be 3s. 9d. The Publishers intend to establish an extensive local agency; and to meet, in some degree, the expense of such a system, the price to parties subscribing for single copies, will be reduced only 25 per cent. We had intended to adopt the plan of sending not less than *two* copies to any order, and to give these for *one dollar*, or 2s. 6d. each. But it has been thought advisable, in order to secure a large increase to the circulation, and thus extend the benefits of the *Agriculturist* as widely as possible, to receive *single orders*, especially through agents, and, in such cases, to reduce the price from 5s. to 3s. 9d. We trust the friends of agricultural improvement throughout the British Provinces will give their countenance to the work in its improved form and character, not merely by subscribing and recommending it to their neighbours, but by contributing from their stores of accumulated knowledge and skill, some item of interest and value to its pages. If each intelligent subscriber would consider it a duty to send one such item during the year, what an interesting aggregation would the Volume present?

Why are the American journals so much superior to those of any other country in their local correspondence? Is it because their readers are more intelligent, or more patriotic? They certainly exhibit a more enquiring disposition than our people, and are not so unwilling to give their neighbours the benefit of any new fact they may discover. We hope this peculiarity of Canadian readers of agricultural journals may soon disappear. Let those of our friends who can write, and who think they have anything to write about that would be interesting or useful to their neighbours, make a beginning this year.

The present number is sent to many persons as a specimen of the forthcoming Volume, especially to Secretaries of Agricultural Societies; and if they decline to support a *home paper*—one that may justly claim some credit for the present improved condition of Canadian agriculture—preferring to encourage a foreign speculation, which has no other interest in, or connection with, the country, than to take away as many of its *dollars* as possible, they will be good enough to return the first number to the Publishers.

SQUASH.—A Squash was recently exhibited at Chicago, weighing 192 lbs!

AGRICULTURE—PAST AND PRESENT.

LECTURE DELIVERED BY PROF. BUCKLAND, BEFORE THE TORONTO MECHANICS' INSTITUTE,
DECEMBER 21st, 1855.

In attempting to sketch the progress of Agriculture from the earliest periods of authentic history to the present times, the usual limits assigned to a simple discourse will allow me to glance only at a few prominent points which have distinguished, or characterized this invaluable art at its successive stages of development.

I make no apology for bringing before the attention of a city audience, a pursuit that is purely rural; for it will be at once admitted by all who are capable of rightly estimating the value of the subject, that it has a powerful claim on the earnest consideration of all classes of the community. In a country like this, so peculiarly adapted to agricultural pursuits, in which, perhaps, not less than three-fourths of our entire population are directly engaged, and on the extension and improvement of which, the increase and prosperity of our towns and cities mainly depend, the ancient, and indispensable, and truly noble art of husbandry, can never want zealous advocates, sincere admirers, and earnest and enlightened cultivators. The first and most pressing physical want of man is food, and the only means he has of obtaining it with certainty and in abundance, is by a judicious cultivation of the soil. The history of this art indeed is no other than the history of civilization, and its various epochs constitute the several steps of the world's progress in wealth and knowledge, happiness and liberty.

I have no intention of treating this subject in a dry and technical manner; much that would be interesting to the practical cultivator must necessarily be omitted as unsuitable to the occasion, and the time allotted to this lecture, will not allow me to descend into particulars.

First, I may remark that Agriculture, which is the art of cultivating the ground in order to raise food for the sustentation of man, and the animals he domesticates, must necessarily be the most ancient pursuit. Its first records are found in the inspired writings of the Book of Books,—the Holy Bible. The only authentic account we have of the origin of our race clearly indicates the intimate connection that subsists between man and the earth, out of the dust of which he was created. Our first parents were placed in a garden "to dress it, and to keep it,"—thereby indicating that the elements of both vegetable and animal life were treasured up in the soil. True it is that they lost their original innocency by transgression, and forfeited the elevated joys and privileges of paradise, and thereby

"Brought death into the world
With all our woe;"—

incurring a condition which the posterity of Adam has continued to inherit;—"In the sweat of thy face shalt thou eat bread, till thou return unto the ground; for out of it was thou taken; for dust thou art, and unto dust thou shalt return." A little further on the sacred historian informs us that the first offspring of the first human pair betook themselves to the pursuits of husbandry;—"Abel was a keeper (that is feeder) of sheep, but Cain was a tiller of the ground." Here we have evidence in the very infancy of the race, of the practice of the two great departments of Agriculture,—pas-

turage and tillage, precisely as they are divided and followed at the present day. That is to say we have Agriculture proper, or the art of cultivating the soil for vegetable productions, and that second, though by no means unimportant branch, which consists in the production of animal food. In the records of Agriculture, going back to the period immediately preceding the deluge, we find that Noah and his descendants were engaged in this indispensable pursuit. Among the earliest records of mankind we find frequent mention of the land of Egypt, indicative of its high agricultural condition. The Israelites had frequent recourse to this country in periods of distress and famine for corn and pulse, thereby indicating the advanced state in that early period of the world's history, of its industrial resources.

The cause of this fertility and early agricultural advancement, is to be found in the annual over-flow of the Nile, to the operations of which the formation of the valley of Egypt is mainly ascribable. The materials left by the subsiding of the waters, constitute what farmers would now call a rich top-dressing. Recent accounts from that country inform us that the government had prohibited the exportation of corn, anticipating a scanty harvest next season on account of the late partial inundation of the river.

"How easy," says Pliny, "is the husbandry of Egypt. For there the river Nile serving the turn of a good ploughman, begins to swell and over-flow at the first new moon after the summer solstice. He (the river) begins fair and gently, and so increases gradually. * * * It is always observed, that if he rise not above twelve cubits high, the people are sure to have that year a scarcity." After describing the mode of cultivation, Pliny goes on to say; "The same husbandry is in Babylon and Phenicia, where the Euphrates and Tigris over-flow their banks in like manner, but to better effect and greater profit, owing to the more general use of sluices and flood-gates. And in Syria they have small light ploughs on purpose for making their shallow furrows and ditches;—whereas with us in *Italy*, in most places, eight oxen at least are required for one plough; and, indeed, to make any speed with it, they must work till they blow and pant again."

It is worthy of remark how from the simple circumstance of the annual over-flow of a river, the foundation of a regular system of husbandry was laid, and the aid of Geometry and siderial observations were required in order to restore to the respective owners of the soil their rightful occupancies,—whose land-marks had been obliterated by the swelling waters;—thus rendering Egypt the parent of Agricultural, Mathematical, and Astronomical Science.

It has been well observed that the agriculture of a hot and a cold, a dry and a wet country, presents in most interesting contrast the effects of man in overcoming, as a preliminary work, the effects of climate, and the extremes of drought and moisture.—The reader of Scripture will call to mind frequent expressions and inferences, requiring such explanation, and without which, some of the most powerful parabolic figures, both of the Old and New Testament, lose their force; when speaking for instance, of *dry places*, with the same understood feeling of dreary barrenness which our northern ear is now accustomed to attach to swamps and marshes; a superabundance of water in fact, instead of a deficiency.

We learn from the early history of the Jews that flocks and herds constituted the principal wealth, not only of that peculiar people, but also of many of the surrounding nations, Egypt alone, perhaps, excepted. The hand of nature had marked out that singular country for cultivation rather than pasturage, a characteristic which it continues to retain to the present day. The sheep for instance is an animal whose natural habitation is on dry and elevated ground, and consequently unsuited to the moist valley of the Nile. The tending of this useful animal was a favorite and honorable employ for both sexes of whatever rank or condition amongst the ancient nations of the East, and its improvement and diffusion afforded indisputable evidence of the progress of one of the principal departments of the world's Agriculture. Mr. Spooner, the well known author

of an excellent scientific and practical treatise on the sheep, observes in reference to these primitive nations, that "It is a singular, and not uninteresting circumstance, that in the same land where Abraham sat at the door of his tent viewing his flocks and herds; where Laban sheared his sheep, and Rebecca drew water for her father's flocks from the well,—in the same land the wandering Arab on the wild Turcoman still tends his flocks and droves, and leads them from pasture to pasture, watering them and tending them in the same manner as they were tended four thousand years before. The correctness of the language of Scripture is indeed evidenced by the manners and customs of these pastoral people, who, whilst all the world around them has changed, themselves have remained comparatively the same."

After these Asiatic Empires the next historic nation of antiquity is Greece, whose language, literature, and art, have exercised a powerful influence in elevating and refining the taste of all succeeding ages. Yet the literature of Greece, whether emanating from poet, historian or philosopher, contains almost nothing in relation to Agriculture.

We are told, however, by Pliny that no less than forty Greek authors had written upon husbandry, whose works in his day were no longer extant. Some imperfect idea may be formed of the state of agriculture of this imaginative and highly polished people from the writings of Heriod, Theophrastus, Theocritus, Homer and Xenophon, from whom we should infer that the art of cultivation was in a state of rude and primitive simplicity. Indeed it would appear from the united testimony of Herodotus and Thucydides, that Greece was not a country naturally gifted for the pursuits of agriculture. There is proof, however, that there was no want of domestic animals both for food and labor. An excellent breed of cattle, sheep, swine and goats existed in Bœotia; and poultry in great abundance. The horses of Thessaly were long celebrated; the breed of asses was also very superior; and the speed of the mules at the Olympic games has left an immortal memorial in the poems of Pindar.

Of the agriculture of the Romans we have a much more accurate and extensive knowledge;—the records that have come down to us being highly interesting and copious. From the very foundation of the city we learn one fact, which left its trace in Rome for many centuries afterwards, namely, that the assignment of a certain portion of land to every citizen, was the first care of the state, and that that quantity should not be exceeded was watched with the most jealous interest. The allotment to each amounted to not quite two English statute acres. This was a matter, however, subject to subsequent modifications, for we find after the expulsion of the Kings that seven acres was the amount assigned to each individual. In an oration recorded by Pliny, Marius Curius said that "he was not to be counted a good citizen, but rather a dangerous man to the state, who could not content himself with seven acres of land." We infer from this fact that the husbandry of the Romans at that early period was rather garden culture, than the extensive and systematic course which characterizes British agriculture. The small allowance of seven acres to each citizen was afterwards increased to fifty, and when their conquests were on a large scale to five hundred, beyond which the law would allow none to go. From the writings which have come down to us from these times, it is evident that the art of husbandry was conducted upon systematic principles, and on a scale much more commensurate with its importance. The high estimation in which this invaluable and patriotic art was held by the Romans is a matter well known to the readers of history. The most illustrious statesmen, orators, mariners and scholars, deemed it the most honorable employment of any in which they could engage. Generals, who were placed at the head of her legions, who pushed her conquests, and carried her eagles round the then known world, could handle the plough as well as the sword; they returned from the conquests of kingdoms to exert their energies in attending to their farms; and thought it a reward for their labors, when they could obtain manumission from service to the state, to enjoy the real pleasures of their country homes. Agriculture then stood on the capitol of Rome, emblematical in the figure of Ceres, overlooking and exerting a beneficial influence over a large portion

of the then civilized world. History is fond of telling, that when the heralds came from the Senate to call Cincinnatus to the Dictatorship, they found him at the plough. — Nothing can show much more strongly the high estimation in which the Romans were accustomed to regard agriculture, than the names of many of the patrician families. — Attilius Seranus, who was elevated to the Consulship from the personal labor of his farm, got his surname of Seranus from his skill in *sowing*. The family of the Fabii, the Pisones, the Lentuli, all of aristocratic note, took their names, we are told, from *beans, rape and lentils*. The great name of Cicero, their immortal orator, literally interpreted into English, means a *vetch*. Agriculture was indeed patronymic in the Roman Senate, in which was to be often found embodied in the same person, the statesman, the scholar, and the farmer; and when disengaged from their senatorial duties, the personal labors of the field seem to have stood to them in much the same relation that the moors of Scotland, or the champaign and copses of England may be said to do to the members of our Imperial Legislature.

Pliny, in speaking of the abundant harvests gathered during the earlier days of Rome, says;—"What could be the cause of this abundance? Was it not because in these days the land was cultivated by the hands of great Generals, and the earth, as was most natural, delighting to be upturned by laurel crowned ploughmen, and husbandmen decorated with triumphs?—or was it that such men sowed fields with as much skill and prowess as they won them; and laid out their ridges with as much judgment as they marshalled battalions?"

How much of this noble and patriotic spirit has descended the stream of time and marked and animated the agriculturists of modern periods, the present history of Europe and of our Father-land in particular, amply shows; the laurels of British victory have been won, (and, thank God, are *now* winning) by the indomitable valor of the owners, the occupiers and the tillers of the soil, who, as a class, in all periods of history, have been the great conservators of the institutions, as they have been the gallant defenders of the rights and liberties of their country.

Rome indeed possessed a rich and varied agricultural literature, based upon practical knowledge, and animated by the elevating influences of a high intellectual culture. The most popular and admired sketch of Roman agriculture that has come down to us, is, perhaps, that contained in the first Georgic of Virgil, the prince of Latin poets. Its extreme beauty, indeed, has had the not unusual effect of calling down somewhat severe criticism upon its didactic qualities as an agricultural effusion. But in truth it hardly affords fair ground for such a discussion. Like all the rest of Virgil's beautiful compositions, it, (if we may credit high authority,) is founded upon a Grecian model, and like most of them it has the rare merit of transcending the original. He continually directs the attention of the farmer to the changes and prognostics of the heavens,—a department of agricultural science affording the most brilliant opportunities for poetic language and imagery; and his verse abounds with sententious directions on the most proverbial and elementary points of husbandry, such as the frequently quoted passages on paring and burning, on fallowing, and on the alternation of green and grain crops, which Pliny seems to have read with critical attention and deferential respect. One passage is worth quotation, on account of its reference to the important subject of the alternate husbandry, destined, like many old things, to be revived in after ages, as a new invention. "Our poet is of opinion," he says, "that alternate fallows should be made, and that the land should rest entirely every second year. And this is indeed both true and profitable, provided a man has land enough to give the soil this repose. But how, if his estate be not sufficient? Let him in that case help himself thus. Let him sow next year's wheat-crop on the field where he has just gathered his beans, vetches or lupines, or such other crop as enriches the ground. For, indeed, it is worth notice that some crops are sown for no other purpose but as food for others; a poor practice in my estimation."—In another place he tells us, "Wheat, the later it is reaped the better it casts, — but the sooner it is reaped the fairer the sample. The best rule is to

cut it down before the grain is got hard, when the ear begins to have a reddish-brown appearance. 'Better two days too soon than as many too late,' is a good old maxim, and might pass for an oracle."

Here is sound, practical advice, which farmers in the present day are continually neglecting. A short time since an eminent English agriculturist, (Mr. John Hannan, of Yorkshire) instituted a series of troublesome and expensive experiments, in order to determine the most fitting time for cutting grain; and it is not a little remarkable that he arrived at the precise result, which Virgil so explicitly stated near two thousand years ago! This is one fact, among many that might be adduced, that should caution us against forming a conceited estimate of our own modern acquirements, and as a consequence, depreciating the wisdom and authority of antiquity. Chemistry has demonstrated that the Roman poet was right, by showing that the starch and gluten of over-ripe grain becomes converted into the woody fibre of the husk or cuticle of the seed; a substance comparatively indigestible and unnutritious.

The following quotation from the same author is excellent, and the advice it contains as applicable to us in Canada in the nineteenth century, as it was to the agricultural members of the Great Roman Republic in its palmiest days.

"Cato would have this point especially to be considered, that the soil of a farm be good and fertile; also, that near it there be plenty of laborers:—and that it be not far from a town; moreover that it have sufficient means for transporting its produce, either by water or land. Also, that *the house be well built*, and the land about it as well managed. But I observe a great error and self-deception which many men commit, who hold the opinion that the negligence and ill husbandry of the former owner is good for his successor, or after-purchaser. Now I say, there is nothing more dangerous and disadvantageous to the buyer, than land so left waste, and out of heart: and therefore Cato counsels well, to purchase land of one who has managed it well, and not rashly and hand-over-head to despise and make light of the skill and knowledge of another. He says too, that as well land as men, which are of great charge and expense, how gainful soever they may seem to be, yield little profit in the end, when all reckonings are made. The same Cato being asked, what was the most assured profit rising out of land?—made this answer,—"To feed Stock well;" being asked again, 'what was the next?' he answered to feed *with moderation*.' By which answers, he would seem to conclude that the most certain and sure revenue was *a low cost of production*. To the same point is to be referred another speech of his,—'That a good husbandman ought to be a seller rather than a buyer;' also, that a man should stock his ground early and well, but take long time and leisure before he be a builder;—for it is the last thing in the world according to the proverb;—'to make use and derive profit from other men's follies.' Still, when there is a good and convenient house on the farm, the master will be the closer occupier, and take more pleasure in it: and truly it is a good saying, that the master's eye is better than his heel."

These it must be confessed are wise and prudential maxims, possessing a general application to all countries and to all times. With regard to the proverb that "fools build houses for wise men to live in," however applicable it may frequently be, all we can say is, that its suitability to the city of Toronto, just now, is not very apparent.

How is it possible for the intelligent agriculturist of the present day to read such passages as we have just quoted without identifying the same subjects as still handled week after week in fresh and eager controversy, in our current agricultural periodicals eighteen centuries after these opinions were written? What a train of reflection, observes a modern writer, does it suggest on the eternal youth and freshness of nature! While not only the individuals who lived, thought, and thus wrote, but the very language they *spoke*, and the vast empire which seemed to them almost imperishable in its wide spread and unprecedented dominion over the earth, are all gone, but in the darkness of centuries that have closed over them like the long watches of a winter's night, the same themes come to us again after the slow and struggling dawn of a new civilization, from

whose daylight we endeavor to look back to the great yesterdays that the world has seen, and which but for the historian, the poet and the philosopher, would have left only such traces as exist in the ruins of the Colosseum and the Parthenon, or the vast architectural memorials that remain, without a tongue to tell their tale, in the plains of Central America. It seems difficult to realise the thought that the same sun which shone over the ripening corn, the same seasons which directed the labors of the Egyptian, the Greek and the Roman, that the same face of nature which smiles on race after race of mankind, whose spoken language is extinct,—still holds for us the same unvarying course,—renewing the blessings of each opening year, under the beneficent guidance of ONE, to whom “a thousand years are as one day.”

(To be Continued.)

WHEAT CROP OF THE UNITED KINGDOM,—STATISTICS, &c.

An interesting discussion has been going on, for the last month or two in England, as to the extent of the last harvest, and the consequent amount of breadstuffs that must be imported to feed the population. A Mr. Caird has stated in the *Times*, the result of a survey by him from “Solent to John O’Groats,” which is, that the crop of last season was more than an average one, and that not more than 1,000,000 quarters will be needed from abroad. The conclusion is, that the high prices are not warranted, and are caused by speculation and the holding back of grain by the farmers. This has roused up the agriculturists, and many sharp retorts and positive denials are levelled at Mr. Caird. The agricultural papers are full of letters on the subject, and many facts and figures are adduced to show that Mr. C. is wrong. The *Mark Lane Express* in its Agricultural Report for November thus notices the subject:—

“Considerable excitement has been observed throughout the month, in consequence of the high value of all agricultural produce and the immense amount of controversy going on respecting the yield of the present year’s crop of grain. That the opinions given by Mr. Caird have been framed for the purpose of allaying popular excitement, and to keep prices in check, does not admit of a doubt. But the question to consider is, Are we to close our eyes to the fact that consumption in this country is considerably in advance of the production, and that we shall require a very large importation of food? Now, unquestionably, the best mode of meeting a difficulty of this nature is to obtain corn wherever it can be purchased, and to offer such prices for it as will tempt the importers to increase their operations. At the present moment there is a good margin of profit on the imports of both wheat and flour from the United States; but it must be borne in mind that the wants of France are nearly as great as our own, and that, as a consequence, we have now a formidable competitor in the field for the first necessities of life. To assume, as Mr. Caird has done, that 1,000,000 quarters of wheat will be adequate to our additional consumption until the close of next harvest, is simply to argue upon a false basis; and a trifling acquaintance with the import trade will at once prove that even large crops of wheat in this country—and this year’s supply is certainly not equal to last season’s, either in point of condition or weight—have never been equal to the demand. We find, however, of late, a growing feeling in favor of lower prices; and this feeling appears to have resulted from two causes. In the first place it is clearly apparent that a peace with Russia, which country appears to be completely exhausted in its struggle with the Western Powers,—is not very far distant; and in the second, that the quantity of food produced in the United States and Canada, above the wants of both countries is very large, even after making due allowance for exaggeration. On the other hand, however, there is evidently a scarcity of grain in Germany, Turkey, and

Egypt, whilst it is stated on good authority that the future shipments of flour from Spain will show a considerable falling off. Our present position—though not one of extreme difficulty, because we are quite satisfied that high prices here will bring us all the corn that may be required above our own growth—is singularly important, because we find no decrease in the consumption, which is frequently the result of a high value; and to attempt to disguise the fact that our wants are very extensive, is simply to deprive us of a supply of foreign food which may be found highly useful at no distant day.”

The following agricultural statistics have been quoted in the discussion above alluded to, and will no doubt be new and interesting to many of our readers :—

QUANTITY OF LAND CULTIVATED, AND ITS PRODUCE IN THE UNITED KINGDOM,

Mr. Spackman, in his excellent work on Statistics, assumes as follows :—

Quantity of land cultivated.....	16,522,970	Acres.
Annual produce of wheat for the United Kingdom,....	22,000,000	Quarters.
Other grain.....	51,000,000	“
Viz—England, wheat, 18,000,000.	} ----- 22,000,000	“
Scotland ditto, 1,750,000.		
Ireland ditto, 2,250,000,		

CULTIVATED LAND IN ACRES :—

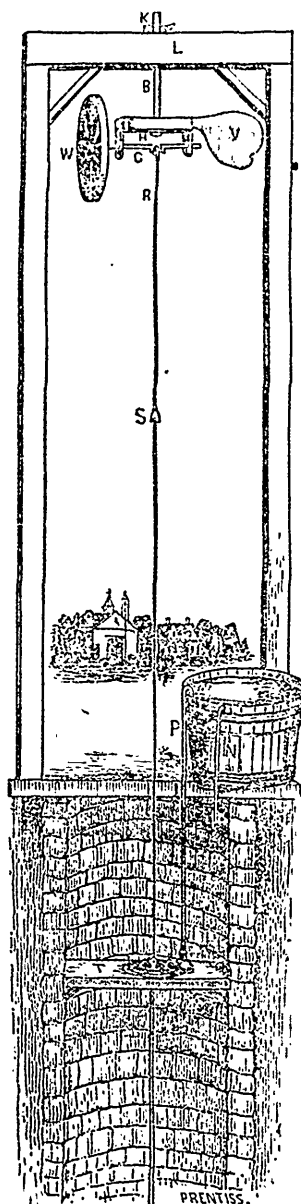
England.....	10,252,800	Arable.	15,579,200	Pasture.
Wales.....	890,570	“	2,226,430	“
Scotland.....	2,493,950	“	2,771,050	“
Ireland.....	5,389,040	“	6,786,240	“
British Isles.....	109,630	“	274,060	“
	<u>19,135,990</u>	“	<u>27,436,980</u>	“
Waste reclaimable.....			15,000,000	“
Waste unreclaimable.....			15,871,463	“
Total statute acres of United Kingdom.....			77,364,433	“

Mr. Macqueen published his work upon Statistics in 1850, from which we give the following extracts :—

5,500,000	acres	wheat.....	24,000,000	quarters.
3,500,000	“	barley, peas, &c.....	18,375,000	“
7,000,000	“	oats.....	45,500,000	“
3,500,000	“	potatoes, £49,000,000.		
1,600,000	“	gardens, £27,200,000.		
2,000,000	“	turnips.		
9,000,000	“	hay, clover, and grass.		
17,600,000	“	best pasture.		
3,900,000	“	studies, carrots, fallow, &c.		
13,400,000	“	natural pasture.		
8,894,433	“	rivers, lakes, &c.		
1,280,000	“	forests, copses, &c.		
100,000	“	hops.		
<u>Total,</u>	<u>77,364,433</u>	“	<u>Annual value,</u>	<u>£658,548,536.</u>

ENCOURAGING YOUNG MEN.—We copy the following from an exchange : Among the important things which should not be forgotten in every-day life is to encourage young men just starting in business. Old-established concerns will always do well enough, but young men always need encouragement in business, and it should always be the aim of all citizens to bestow their patronage upon the most deserving in our community in the several branches of trade and merchandise.

THE WIND-MILL—A MODERN APPLICATION OF IT.



The Wind-Mill is a very old invention, and has done good service in its day; but the unsteadiness of the power—for what is more fickle than the wind?—and the great strength of machinery necessary to resist high winds and tempests, have combined to drive it out of fashion in these modern go-ahead times.

But the ingenuity of these same modern times has looked into the subject, to see if the evils complained of could not be removed by new mechanical arrangements, and the result is that a machine has been constructed that will *adapt itself* to the ever-varying conditions of the propelling agency, unfolding its wings to the gentle breeze, and shutting them up in the face of the hurricane. The Vermont Wind-Mill is the latest improvement of this kind, and if it is half as good as it is said to be, it must prove useful to the farmer in favourable situations.

One of the most useful applications of the Wind-Mill, on a small scale, is that of raising water. The annexed figure is an illustration of the manner of applying wind-power to this purpose. Messrs. Ruggles, Nourse, and Mason, of Boston, U. S., have used the "Combination Pump" in connexion with the wind-power, and they say it is particularly adapted to the purpose, as it requires less power and possesses the means of forcing, and can be placed at any desirable depth below the top of the well, confined to plank T, where it is not subject to accident or frost. If placed in the well at a distance not exceeding 25 feet above the water, this pump will readily force the water from the deepest well. To prevent the water freezing in pipe P, make a small hole just above the pump, which will not practically affect the operation, but will allow the water to drain out of the pipe when the wind ceases to blow.

By reference to the figure, the principles on which they are constructed will be at once comprehended. The direct application of the power, without the intervention of any gearing or machinery, obviates much friction, hence a small amount only of power is required. The diameter of the wheel should not exceed four feet, and a few inches less is preferable. It is firmly fixed by its hub on an iron shaft formed of an inch bar. The sails or buckets are secured, at their outward ends, to a wooden rim, similar to that

of a large spinning-wheel. A $\frac{5}{8}$ inch crank is raised on the shaft at C, upon which is adjusted the upper end of the piston-rod, R.

THE BODY OF THE MILL—A piece of plank, E, is suspended from the cross-girt of a frame, L, by an iron bolt, B, furnished at its lower end with a large head, H, and a washer, and secured by a nut, K, at the upper end, admitting of an easy circular motion of E around the bolt. This motion is coincident with that of the swivel on the piston-rod, S. The rudder, or vane, V, will necessarily throw the wheel, W, at all times, into the wind. The shaft, C, is suspended from the body by two straps of iron, through which it passes.

A breeze which merely agitates the leaves of the trees will set the machinery in operation. And when, in windy weather, a surplus of water is raised, it returns to the well by a waste pipe. A well, suitably located, will furnish water enough for an ordinary garden, and without labour, by the aid of this mill and pump.

STEAM CULTURE.—A writer, evidently of high scientific attainments as well as practical skill, has written a series of articles for the *Mark Lane Express*, (London, Eng.) on the subject of steam culture. He examines the various machines that have been "tried and found wanting", and those also but partially tested, including Romaine's Canadian Plough. He comes to the following conclusion:—"We would rather leave our readers to draw their own conclusions, than sum up in a single sentence a sweeping verdict against this kind of culture in any form. Cycloidal action we have seen impossible, tricloidal little better, while the extremes on either side are ten degrees worse. In short, the longer we live, the more our ideas harmonize with the straight forward action of our *old friend* THE PLOUGH, with his faithful allies, "drag-harrows," "cultivators," &c. No doubt objections many are brought against them; but these we shall briefly dispose of in a subsequent article, as worse than imaginary. Meantime, let none of our readers suppose that we look upon the plough and our present system of culture as perfect." For the benefit of our non-technical readers, we may explain, that "cycloidal action" is rotary, combined with a forward movement of the rotating cylinder. A carriage wheel is a good example. "Tricloidal", as used by this writer, means a more rapid rotation, viz. *three* revolutions of the cylinder while advancing a distance equal to its circumference. Romaine's plough is, we believe, constructed on this principle. The "plough" consists of a cylinder, armed with hooked teeth, placed behind the engine, and made to rotate rapidly as the machine advances. The writer in the *M. L. Express* very satisfactorily demonstrates the impracticability of all such machines in an *economical* point of view. If impracticable in England, where steam has been profitably applied to many farm operations, such as threshing, &c., what shall we say to steam ploughing in Canada?

TO MAKE MINCE PIES WITHOUT MEAT.—Prepare your pie-crust and apples in the usual way: when seasoned, and in the pie-pans, fill to the top of the apples with custard prepared the same as for custard pie; then put on the top crust and bake; you will have a good imitation of mince-pie in appearance, but in flavor far preferable, although the taste is similar.

EXPERIMENTS—HINTS FOR THE BOARD OF AGRICULTURE.

To the Editor of the Agriculturist.

Sir,

In the present state of agricultural science, when the economy of applying certain artificial compounds to the soil for the purpose of increasing its produce, or maintaining its fertility, has become a necessary study to the farmers of this country, it is the duty of our Agricultural Association to assist them in such investigations, and to endeavor by well digested and carefully conducted experiments, to throw some light upon the various important subjects which are connected with this inquiry.

It is true that we have had experiments made in this country, the results of which have been communicated to our Agricultural Journals; but it must be admitted that very few of those which are recorded are capable of being employed by the scientific agriculturist in directing his practice, having in general been conducted without those precautions which are absolutely necessary to render experimental investigations of any real value, and we therefore find that the results are not regarded with confidence by the public.

In our well organized Board of Agriculture, numbering among its members some of the leading agricultural improvers of the province, we possess special advantages for arranging and carrying out such experimental inquiries respecting the effects of manures, and the economy of their application, as may tend to place our knowledge of this department of agriculture upon a foundation likely to advance the interests of the Canadian farmer, and at the same time to extend our knowledge of the laws which regulate the development of our crops.

The board might direct their attention to the propriety of instituting a series of experiments with such fertilizers as bones and guano, more especially when applied to turnips; and to test the efficiency and economy of the various compounds of ammonia. They will be true benefactors to the country if they undertake the task, and carry it successfully to the end.—By such experimental investigation in the field, they will do more to advance agriculture and to awaken the attention of the public to the value of science, than by any other plan they could adopt.

One of the most important steps which the agriculture of the present day has yet made towards its establishment as a science, has resulted from the light which the researches of the chemist have thrown upon the nature of the connexion which exists between the soil of a field and the crops which are grown upon it. The fact that every plant, even the weed which springs up in the neglected field, abstracts from the soil a certain amount of earthy matter for its development, and which therefore it is necessary that it should contain to come to perfection, though for a considerable time recognized, has only within the last few years been employed to direct the practice of the farmer. But the mere knowledge that every plant requires for its growth a certain number of mineral ingredients, was insufficient to explain how a field, in the highest degree fertile to one particular crop, was incapable of yielding a remunerative return of a crop of a different kind. The difficulty however, so far as the chemical constitution of the soil is capable of influencing the growth of any particular crop, has been satisfactorily removed by the conclusion which innumerable analyses of both wild and cultivated plants have led the chemist to form, that the different families of plants require the materials of the soil in very different proportions; and also, that a plant like the turnip extracts chiefly, matter of a different kind from those selected by the wheat and other plants belonging to a different family.

It is easy therefore, when we are in possession of such facts, to understand how one field in a farm, apparently well adapted by its mechanical condition for the growth of any description of plant, may, while capable of yielding a fair return of some crops, refuse to bring other crops to perfection.

The apparently contradictory results which have followed the application of certain manures, as bone-dust and guano, to the soil, may also be explained in accordance with the above information; and lead to the conclusion, that when these manures proved without value in certain localities, and produced advantageous effects in other places, that the materials which they are capable of supplying were not of the kind in which the soil was deficient or of which it had been chiefly deprived by the preceding crops raised upon it.

The effect which the growth of a crop of turnips is capable of exerting upon the soil, or in other words, the quantity of mineral ingredients required for its full development, is particularly worthy of attention. It will be evident that as, in the present position of the agriculture of this country, the turnip crop must every year become more important, it is only in proportion as the farmer is acquainted with the elements it requires, that he can judge of the value of the various substances offered to him as manures.

According to the most recent and trustworthy analyses, the quantity of earthy matters, as we may term them, taken away from the soil of a field, by 20 tons of turnips is as follows:—

	Bulls.	Tops.
Potash	142.66	88.82
Soda	17.31	16.76
Lime	46.24	72.14
Magnesia.....	18.16	9.58
Oxide of Iron and Manganese	4.35	2.67
Phosphoric Acid.....	25.77	28.80
Sulphuric acid	46.24	38.81
Chlorine	12.24	49.75
Silice	27.03	2.67
	340 lbs.	310 lbs.

In all 650 lbs. of matter derived from the soil. Like the potato, the turnip is distinguished by the very large amount of the alkalis, especially of potash, which it extracts from the soil, 265½ lbs. of potash and soda being taken away in 20 tons.

In Europe certain manures have been regarded by the farmer as specially applicable to the growth of the turnip crop:—thus bones, and lately guano, have been considered the staple manures of the turnip growers; yet, examination of both of these applications shews us, that they are signally deficient in some of the matters which, from the above table, we perceive, are indispensable to the development of the turnip.

The bones of the ox have the following composition:—

Phosphate of Lime	55½
Phosphate of Magnesia.....	3
Soda and Common Salt.....	3½
Carb-nate of Lime.....	3¼
Fluoride of Calcium.....	1
Gelatine	33¼

100

It will be perceived from the preceding statement, that where bones have produced a full return of turnips, the soil must have been deprived of the potash and soda necessary for

their growth, and of course rendered less capable of supplying those substances to the wheat and the other succeeding crops of the rotation ; as twenty bushels of bones, which in many parts of England are considered sufficient for an imperial acre, would not convey to the soil more than 34 lbs. of soda, and a trifling amount of potash and magnesia, while the best Peruvian guano is seldom found to contain, in a hundred pounds, more than four pounds of potash.

Now, as the only judicious method of maintaining the productiveness of the soils of a country is by keeping up the stock of fertilizing materials which they contain, it is of consequence to investigate, by experiment, whether, by the addition of the different ingredients to bones and guano, we might not only increase the produce of turnips, but materially improve the succeeding crops of the series. By mixing the alkalis potash and soda with either bone-dust or guano, we will not only supply the matters in which they are chiefly deficient, but also give to the soil other valuable ingredients.

Some experiments should be undertaken for the purpose of testing the value of guano and bones, and mixtures of these manures with alkali as applicable to the turnip crop. As to the mode of conducting the experiments, we would propose, 1st, That a field should be selected, and patches each containing half-a-rood measured off from it ; and that the appearance of the soil and sub-soil, with the history of its treatment and cropping, should for some years previous accurately be noted by the experimenter ; and samples both of the surface and undersoil of each patch, preserved for analysis. 2nd, The same quantity of the same parcel of seed should be sown on each patch, and, if possible, on the same day. 3rd, The quantity of the manures applied, as well as of the seed, should be determined by weight, and be from the same samples in every case. Samples of the manures should also be preserved. 4th, A report of the appearance of the crop should be presented by the experimenter every month, and the amount of the final produce in each patch should be carefully ascertained by weight, the produce in tops and bulbs being separately determined. Samples of the produce of each patch should also be examined in the laboratory, as some interesting experiments made in Scotland, and recorded in the Transactions of the Highland and Agricultural Society tend to show, that the kind of manure employed exercises a considerable influence over the composition and fattening qualities of the turnip crop. The same statement is made by some continental authorities respecting other crops, and there is reason to believe, correctly ; but on this and other subjects connected with agriculture, numerous experiments are yet required, before the question can be regarded as settled.

The experimental patches might be arranged in the order which is here laid down, a square being left without manure, so that the natural action of the soil, and the amount of the materials which it is capable of supplying to the crop may enable us to judge of the increase due to the artificial materials employed:—

Mixture of dissolved bones and alkali.	Farm-Yard Manure.	Mixture of Guano and Alkali.
Guano alone	No Manure.	Dissolved Bones alone.

As to the superior value of bones dissolved in sulphuric acid, compared with ground bones, as an application to the turnip crop, there cannot, among those who have tried both be a second opinion. It is, therefore, of consequence, that the manure, poor, as we have seen, in alkalis, but rich in phosphates, should be tested as to its effects, not merely upon the turnip, but also upon the crops of succeeding years; and for this purpose it would be desirable that the experimenter should closely observe, and carefully ascertain, by weight, the amount of produce on the patches for at least the two years succeeding the experiment. It is not to be denied that such experiments, properly conducted, impose considerable trouble on the experimenter; yet experiments must be made, and on the soils of this country, before Canadian Agriculture can be advanced to any degree of scientific exactness.

AGRICOLA.

Toronto, 17th December, 1855.

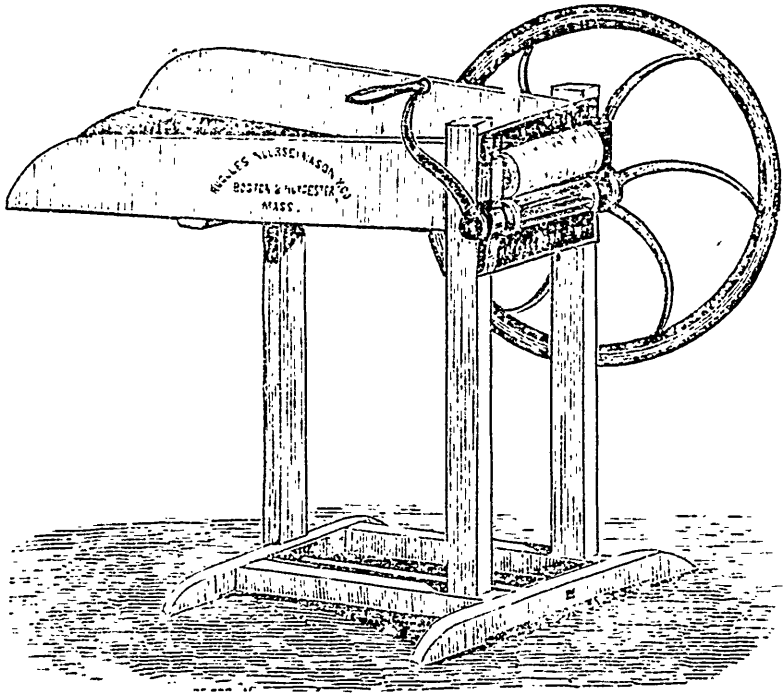
TAKE AN AGRICULTURAL PAPER.

It is a matter of surprise that there are still so many farmers who consider it useless to take one of the many agricultural papers. With such men reasoning is of little avail. Plain facts are even doubted, if they cost time to read them and postage to pay for them. Sometimes, however, a random shot convinces one or two, to such a degree as to make a trial. As an encouragement to take such a paper, we would state what the results have been with ourselves. In 1839, a travelling clergyman in the far west, handed a copy of the *Cultivator* to a missionary, who read it and thought it good, but not adapted to his calling, although he had a farm. He in turn handed it to another missionary, who was so well pleased with it, that the subscription was immediately forwarded, and monthly the *Cultivator* made its visit beyond the bounds of civilization. It told of splendid Durham cattle, Berkshire pigs, &c. It introduced the reader into the society of many practical men. The successful apiarian, JOHN M. WEEKS, wrote articles for its columns, which were just the thing for us, who knew not how to obtain honey without murder. The right to use his hive, and also his Manual were obtained. Success attended the effort, and made the land to flow with honey. A removal to Canada in 1843, rendered it necessary to commence with cutting a "bee tree." The result has been that from the small sales of spare honey, enough was realized in time to purchase 200 acres of wild land, worth now two thousand dollars. All attributable to the information obtained from reading an agricultural paper. J. V., *River Thames C. W.*

A NIGGER LIEBIG.—"I say, Sambo, does ye know what makes de corn grow so fast when you put de manure on it?" "No, I don't hardly." "Now I'll jist tell ye. When de corn begins to smell de manure, it do'nt like de 'fumery, so it hurries out of de ground, and sits up as high as possible, so as not to breaff de bad air."

NOT GIVEN TO CHANGE.—A man with a moderate appetite dined at an hotel, and after eating the whole of a young pig, was asked if he would have some pudding. He said he didn't care much about pudding; but if they had another little hog, he would be thankful for it.

THE IRON ROLLER STRAW CUTTER.



CREDIT, Dec. 17th, 1855.

To the Editor of the Canadian Agriculturist.

SIR,— Not finding among the many interesting accounts of machinery contained in your valuable periodical, any description of a really good chaff-cutter, adapted to the use of a man keeping several horses, and feeding them all chopped stuff, I am induced to trouble you with this, requesting you to inform me if you know of any really efficient machine to be worked by horse-power (say one or two horses) and which will cut up a large quantity of stuff in the least time and with the least manual labour. With most of the common ones worked by hand I believe I am acquainted, and have found them generally inefficient, requiring too much *time* and *labour* to be used on a large scale. I am fully convinced by experience of the great advantage of chopping feed, to both horse and owner, but manifestly to the latter; as all waste is prevented, and from one-third to one-half good clean wheat or oat straw may be used with benefit, and by mixing a little bran, a few oats, bruised or boiled, (according to circumstances) a little salt, a mess will be produced which horses will eat greedily, and fatten upon too; mine will at any time leave the best timothy hay to eat chopped stuff consisting of half straw.

Now is the time, when prices are unprecedentedly high, that it behoves every farmer

to economize his fodder, and I am sure that if every man fed his team upon my system, much fine hay that is trampled under foot and thrown out on the dung-hill, would be taken into Toronto and sold for £7 or £8 per ton, clear gain to the farmer, his horses looking none the poorer.

If, sir, you are of my opinion, and think it worth while to insert the above in an early number of your journal, and will at the same time tell us where to procure such a machine as I have mentioned, it will be to the benefit of the farmers, and you will much oblige,

Sir, Your obedient servant,

H. R. FORSTER.

REMARKS.—Straw or Chaff-cutters are made in such variety, and are so well known to our readers of all classes, that we have not thought it worth while to attempt a comparison of good qualities, or quite safe to recommend one kind in preference to another. We have used and seen used, several kinds, but cannot say that we have yet found one that wholly satisfied us, or that seemed incapable of improvement. Upon the whole we prefer those that cut upon the raw-hide roller. The Yankees, who are very cunning in matters of this sort, use them in preference to any other. The grand objection against them here is, that they cut the straw too long. Messrs. McIntosh & Walton of this city have added more knives to meet this objection, and they now sell them very rapidly. One of these straw-cutters of the largest size, driven by a single horse-power, or one of Emery's two-horse-powers with a single horse, would cut in an hour or two, as much feed as would be consumed by the stock of an ordinary farm-yard in a week. Care would be necessary in feeding, as roots or stones in the straw would be very apt to disable the machine. We intend to set one of this kind in operation at Millbank Farm next winter, if no better shall make its appearance in the mean time. We may mention for the information of our correspondent, that a new adaptation of the hide-roller principle has been recently brought out in the United States. It is called Gale's Straw-Cutter, and is highly spoken of.

INDIAN CORN.

A REMEDY FOR THE HIGH PRICE OF BREAD IN ENGLAND.

Among the various suggestions for mitigating the high price of food in England, with which our agricultural exchanges are filled, we find, in the *Manchester Express*, that of using Indian Corn. The deficiency in bread-stuffs is variously estimated from one to four millions of quarters, and how this is to be supplied is the great question. All eyes are turned to America, and though our supply is large, we, who are on the spot, know that it can never meet so great a deficiency. During the famine in Ireland Indian corn and meal was sent over in large quantities from America, and its use being thus forced upon the people under the pressure of absolute want, their prejudices gave way, and, we understand, large exportations are now made to that country, and Indian meal has become a common article of food. The English, it seems, have not yet be-

come practically acquainted with it. But from a letter in the *Mark Lane Express*, by a Mr. George Griffith, we infer that another market is about to be opened up to the corn growers of America. After mentioning the failure of supplies from the north of Europe he says:—

If we look, on the other hand, to America, at least for this season, we cannot expect that she can send us enough wheat and flour to bring down the home price sufficiently to relieve the great hardships that the working classes are now laboring under, especially as the Greek merchants are transplanting their scene of operations from the Baltic and the Black Sea, to America, it being well known from their great command of capital, and the combined manner in which they act, that high prices always follow in the wake of their operations.

Yet amidst all the adverse views of our future, as to the price of bread, there is one channel by which we may hope to have it sold at a moderate, if not a low price, and that is, by the use of Indian corn, when ground and dressed.

By the blessing of Providence this year's crop of Indian corn in America is superabundant, the various estimates putting it down at from 800 to 1000 millions of bushels, and it must be apparent that our present high prices and the fear of their continuance will cause the people of Great Britain to turn their attention to the use of this valuable article of food.

More than half the population of the United States live upon it, and the following may be relied upon by those of our fellow-countrymen who have never known what Indian corn flour is.

It is ground in the same way as wheat, the stones being kept wider apart than for wheat, and driven more slowly; and as the stones used in the United States are made in England, there will be no difficulty in procuring them.

It is also ground into grits, called "Hominy," by large hand steel-mills, similar in construction to those used for grinding coffee.

Hominy is eaten by the rich and the poor in America, and men can work more, longer, and have better health, (inasmuch as it is an antagonist to indigestion) than with any other food, animal not excepted; and it has one great advantage, that it can be eaten hot or cold. It is used in water, milk, or broth, as oatmeal is with us, four pounds' weight being enough for ten persons; it is also made into stirabout; and although American wheat is amongst the finest in the world, Indian corn flour is more nutritious. When broken in a steel mill, it is put to soak all night in warm water, and with bacon or milk twelve pounds will last one man a whole week.

In another form it is called "Samp," the skin is scalded off, and used as peas porridge with pork.

Wheat flour when mixed with one third Indian corn flour is preferred to bread made altogether from wheat.

It is also used as pudding, blended with milk, eggs, and treacle.

The French-Canadians burn the skin off, and boil it in milk for breakfast; in fact it can be mixed with or adapted to anything.

The non-use of it in England arises from its not having been tried, and the climate of the south and east parts of England will be found favorable for its growth.

One pound of this meal put into a quart of water, with three parts of water added at intervals whilst boiling, will weigh four pounds and a-half when served up in a dish.

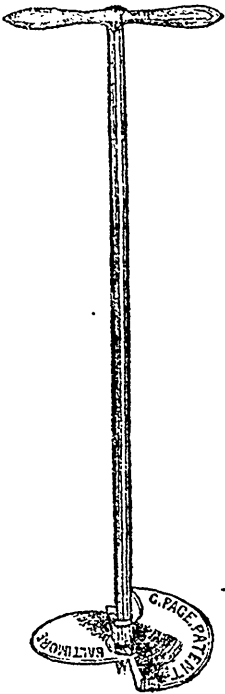
In Portugal, Spain and Italy it is the principal food of the people, and it is now extensively used in Ireland. It improves on acquaintance, as wherever it has been introduced the sale rapidly increases.

Indian corn flour therefore, if adopted in Great Britain, will tend to reduce the price of wheat flour materially; and hoping that the foregoing remarks will be of more use than Mr Caird's statistics or Mr. Sturge's alarming circulars, neither of whom have proposed any remedy for the present burthensome prices,

I remain, yours truly,

GEORGE GRIFFITH.

POST AUGUR.—DIGGING POST HOLES.



The post-and-rail, and post-and-board-fence, are, after all, about as economical and efficient as any within the reach of the ordinary farmer. If well made, they will last a generation. Good cedar posts may not last "for ever-and-ever," as the little boy said, and believed, "because his father had tried them many-a-time," but they will last long enough to warrant the expense of putting them in the ground.

We are not about to write an article on the best mode of making a fence—that we may do in a future number - but to inform our readers of an improved method of digging post-holes. The common mode of digging large holes that might serve as a grave for the digger, has been discarded by the knowing ones, wherever the land is not too stoney. The annexed cut represents a post-hole borer that can be operated by one man, and it will make a *better* hole, and quicker, than the spade. The hole is just large enough to receive the post, and will hold it much firmer than a large hole, recently filled with loose earth.

The post-auger is a cheap implement, and may be had at almost any general hardware store. The price in Toronto is from \$3 to \$4, according to size

MALLEABLE IRON.

The extensive introduction within the last two or three years, of articles, especially those of small size and irregular shape, manufactured from malleable iron, and their great superiority both as to durability and cheapness, over those forged by the blacksmith's hammer, will justify a short description of the process, and of the establishments from which Canada is mainly supplied.

The process of converting pig iron into malleable iron, so that it may be twisted and bent without fracture, was known and practised in England long before it was applied to a practical use in the United States. It is asserted by a leading New York journal, to which we are indebted for the following particulars, that an ingenious Yankee, named Seth Boyden, of Newark, N.J., is, if not the inventor, the first man who gave to the United States, the process of making malleable iron—that is of converting pig iron, cast in any form whatever, into wrought iron. "The advantage of this discovery" says the journal alluded to "is seen in the production of the smaller articles of hardware, such as are used in saddle and harness making, the intricate parts of gunlocks, telegraph insulators, and parts of a great variety of machinery, the reaping and mowing machines, cotton and woollen machinery, melodeons, fire-proof safes, &c. Before this discovery these articles were made by the slow process of ham-

mering them out of wrought iron; and, the labour being great and the product small, the cost of these articles was necessarily very high. But by this process the patterns are moulded in sand very rapidly, and with far greater accuracy than could be attained with the hammer and file. The melted iron is then run into these moulds. This cast-iron ware is now converted by Mr. Boyden's discovery into tough iron.

The history of Mr. Boyden's discovery is just this: He does not pretend to have made an original discovery, since it was some malleable iron castings imported from England by Mr. David Beach in 1825 which fired his mind with the immense advantages of the art, and a desire to discover it. To think with him is to do, and forthwith he began a series of experiments. In the course of one or two years he attained the desired result, and opened a foundry in Newark.

At that time a part of the secret of the business consisted in the supposed fact that the malleable castings could only be made from iron produced from the ore of the Sterling Mine in New York. The fact that the two foundries in Newark were the only ones in the country, and that the Sterling ore was the only ore which could be used in making the wares, induced some speculators who had purchased the Sterling mine also to purchase the Newark foundries and the secret discovered by Mr. Boyden. This company was named "the Boston Malleable Iron Company." Their supposed monopoly was broken up by the discovery that certain ores in Pennsylvania produced iron which could be converted into malleable as readily as the Sterling ore.

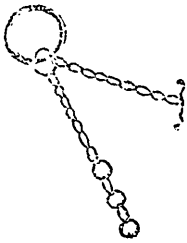
When the discovery was first made the malleable iron castings sold readily at from 30 to 75 cents per pound, but now the price ranges from 9 to 16 cents for a more perfect article. In Newark there are seven foundries for making malleable iron. These establishments sell their articles in an unfinished state, that is to the plating factories, or those who use them in manufacturing articles of which they are a part, for instance to the makers of patent safes, reapers, &c. The pig metal used is made principally from the Salisbury (Conn.) and Sterling ores, these furnishing not only a tough article but a smooth surface. In the first room of the foundry we found the moulders at work, forming the various articles in sand. The raw pig-iron is melted in an air or refining furnace, which removes from it all its impurities, and when thus refined is run directly into the moulds. The castings thus made are placed in a revolving cylinder, and by rubbing against each other are cleaned of the moulding sand. This is in a separate room, near the engine. From this place they are taken to the *annealing* room, where the annealers trim, select and pack them in cast iron boxes, the spaces between the castings being filled with an oxyd of iron. Each box is then tightly covered with an iron plate and carefully luted, *i. e.* sealed around with clay or some other substance, to keep the fire from reaching the castings. The boxes are then placed in the annealing furnace, which in its appearance somewhat resembles an ordinary heating furnace in a rolling-mill. When the boxes are arranged properly, the furnace is walled up tightly and the heat applied for about seven days, and the work is done. It seems to be a simple process, but if you will take a stirrup iron as it is cast from pig iron and break it as easily as a pipe stem, and then one which has been *annealed* and find it tough as a horse-nail, you will own that this simple process is one of very great value. It will be seen how much depends on having the right ores, and then on properly refining the iron. If these parts of the process are not carefully attended to, an imperfect result is secured.

In the fire-proof room of the Messrs. Erben are deposited two thousand patterns of articles manufactured into malleable iron castings: among them the spear used in taking whales, the boarding pikes, parts of guns and pistol locks; parts of various cotton, woollen, reaping and mowing machines; stirrups, hames, and all sorts of saddlery hardware; parts of stove and tin ware, parts of carriages, &c.—giving an imposing idea of the uses to which the discovery has already been applied. As to the value of the discovery, it may be inferred from the fact that it has reduced the prices of many articles one thousand per cent, beside producing a perfectly uniform article in a most endless quantity. The articles thus produced can be more easily and neatly finished, and they can be furnished at a price but a little above the value of the wrought iron, as in the old process it would go to the blacksmith to be forged with the hammer into the various articles needed. It is, in truth, a very valuable and interesting business.

In seven malleable iron foundries of Newark about two hundred hands are employed, who receive some \$70,000 in wages a year, and the annual sales are about \$375,000 a year.

ROSES.—According to Agassiz, no fossils of the rose have ever yet been discovered by geologists. He thinks the creation of the plant is coeval with that of man.

CATTLE-TIE.



This cut represents a very good Cattle-Tie that any blacksmith can make. It is, no doubt, more comfortable than the upright posts or stantions in common use. It will slip on the post as the animal gets up or down. The animal can also turn and lick itself when thus fastened, a fact of some importance. Such a chain will last an age. No good farmer will suffer his cattle to be exposed to the pinching, *starring* cold of a Canadian winter. We have inserted the above as a hint to some of our readers who may not yet be able to take out their degree of G. F.

CHICAGO AND ITS BEEF.

The act of Reciprocity, and the construction through Canada, of links of Railways, to connect the Eastern States with the Great West, give to the industrial pursuits of our neighbors, an interest in our eyes, which they never before possessed. Chicago is one of the wonders of the West. From a small town of 4479 inhabitants in 1840, it has grown to a large city of 75,000 inhabitants in 1854, with 17 Railways radiating from it like the spokes of a wheel, far over the surrounding prairies.

Chicago is not a manufacturing city, and its imports have hitherto exceeded its exports, and yet it is the most rapidly growing city in the United States, and business-invested capital is nowhere employed to greater profit. It is the principal emporium for the North West, and the amount of its Railway traffic is enormous. One branch of industry has grown up there within the last three or four years in which it bids fair to out rival all competing cities. We refer to the slaughtering and packing of Beef. For quality and skill in packing and preserving, it is said Chicago ranks far a head of Cincinnati in the Liverpool market.

Our readers will no doubt be interested, as we have been, with the following graphic description of the beef-packing establishments of Chicago, by one of the editors of the *N. Y. Tribune*:—

Having recently escaped from New York—where every succeeding European mail dinns us with the shock of war, and the demolition and reconstruction of an itc.—it seems to promise a great deal of pleasure here in the midst of these peaceful prairies—to devote half a day to the inspection of the process that transforms the hollow glands into the cargoes of barreled beef that sustain the fiery valor of these distant and-attled hosts. A walk of two miles southward, along the Rock Island railway track, and then a diagonal walk westward, of the same length, along a plank road laid down upon the prairie, and we arrive at the wile-beating village of Bridgeport—during the walk through the village we witnessed no less than three matrimonial rencounters—then a turn down a newly-made street, where the pedestrian sinks at every step to the knees in the softened loam of the prairie, and we have reached the packing-house. It is a new, substantially-built, square stone building, owned by the Messrs. Hough Brothers, two energetic, Western men with all the open hospitality of their country. The building fronts upon a creek, which communicates indirectly with the lake; and there is a spacious dock for the storage of their innumerable packed barrels, as they issue in one continuous stream from their house.

When September month begins to wane and cooler days are ushered in, the drovers begin to assemble together their fatted herds, and the roads leading to Chicago are suddenly alive with bellowing droves. We will select one herd from the many that we see in tardy movement around us, and watch its progress through the various stages until it is rolled on to the dock transformed into "Extra Mess Beef." We have alighted, then, upon a drove of some 300 head, raised, we will suppose, in La Salle County, and contracted, some time past, to the Messrs. Hough, at the rate of five dollars per hundred weight for the beef—the offal being given in. By much whooping and chasing, the mounted drovers have brought the bewildered herd to the strong brick wall that encloses the yard; the wide gate is swung open, the cattle thrust in, and there suffered to remain a while to collect their wandering senses.

The following morning their slaughter commences. Half a dozen noisy fellows, with poles in their hands, present themselves in the yard, and detaching about fifty from the herd, drive them into a closer yard. This is a narrow inclosure separated from the main yard by a gate, and communicating by means of sliding doors with four close pens, where the animals are ultimately roped for the slaughter. Having driven their cattle into the smaller yard, the men continue their pursuit, and further detail four or five of the slithering brutes into each of the four close pens. A door is now withdrawn from within, a powerful negro presents himself, and lassoes one of the cattle; two men then haul upon the windlass, and in spite of the most violent bovine resistance, they draw the struggling wretch down to the bull-ring. There is some peculiar dread of the negro, which renders the dangerous process of roping a work of comparative ease to him. But at the other extreme pen, four white men are attempting the same task, and it is absolutely unsafe for them to show themselves within reach of the animal's horns. The ax is applied, and the animal is blooded. To each pen there is a bed, as it is called—that is, a place to dress the bullock, and one is now lying prostrate upon each of the four beds.

Now the butchers take the cattle in hand; for these we have been witnessing at work are only laborers. These butchers are a select corps—each an Achilles in his peaceful way.—Accustomed to this wholesale mode of slaughter, where time is economized to the utmost, they have acquired a dexterity and a breadth of cut that would astonish some of our Fulton Market worthies. The cattle are poised on their backs, (pitched is the technical term,) and three butchers fall to work upon each. One man flays the head and decapitates the animal, and one strips each side; the haunches are then cut asunder, and the bullock is raised to his "first hoist." It is a treat to see these fellows work. They are great braggadocios, and numerous pints of whiskey are pending between the rival bands upon the number of cattle each can respectfully put up. Their work is of a repulsive character, but they evidently like it.

"The hand of little employment hath a daintier sense."

and Providence has wisely designed that, whatever his occupation, a man shall find a pleasure in it. They are working against time; very little talk is indulged in, and the fast workman keeps the less skillful traveling, in order to maintain pace with them. There is no drinking except of beer—and then at a clandestine hour, when the master's eye is turned—and the work goes on with excellent decorum.

The first hoist is worked off, and the animal is again raised until he is landed upon the balks. These are two parallel beams with polished surfaces, running longitudinally through the building. Two laborers swing the suspended carcass back out of the way of the beds, and the butchers follow it up to finish dressing it, while the negro and his white satellites prepare another bullock for each vacant bed. This process is repeated until the day's work is achieved, and 150 carcasses are suspended by their heels to stiffen until the following morning.

The next stage is in the cutting-room, which is on a level with the slaughter-house, and only separated from it by the forest of the sides of beef which intervene. Here the beef is weighed, cut, cured and barreled. Immense vats are sunk on each side the building, each capable of holding twenty carcasses of beef; and the pumps and machinery for the supply and withdrawal of the brine are fitted up underneath the building. When the day's work begins, a force of men, armed with knife and saw, make an attack upon the stiffened beef and reduce it into quarters as rapidly as they can ply their instruments. When cut down each carcass is weighed—the owner being generally present—and the beef is deposited upon two immense racks. The demolition of the quarters then begins. There are two qualities of mess beef—the extra and the prime. The extra is composed of the select cattle—the heaviest and the choicest—and it is reduced to component pieces with the knife and saw. It

is packed in tierces containing 304 lbs, having 38 pieces of 8 lbs. each to the tierce. This is chiefly packed for the East India market, and particular care is bestowed upon the preservation of it. The second quality—consisting of the “prime mess”—is made generally from a less choice quality, and is cut into pieces of no precise weight with a heavy cleaver. This beef is packed in barrels containing 200 lbs, the pieces not being enumerated, and is principally disposed of for the supply of merchant vessels.

As the cutters reduce the beef to pieces, porters are employed in removing it to the vats, where it is allowed to purify itself by a stay of one or more days in brine. When ready for the packer it is withdrawn from the vat and again removed in barrows to the scale. Here it is weighed off in drafts, and stowed compactly in barrels; a layer of dry salt is then spread over the head, and the barrel is taken hold of by the cooper and in a few moments headed up. A removal to the brine-yard, where the interstices of the contents are filled in with brine, and the barrel is finally rolled on to the dock, where it is ready for transportation. We remarked that great care was required in the cutting of the tierce-beef, since no variation is admissible in the number of pieces packed in: if the weight is deficient, the tierce would be condemned by the inspector, and if the weight overruns, the surplusage is a loss to the packers.

We were grieved, in walking through this immense “manufactory” of beef, to see the many hogheads going to waste which would rejoice so many of our needy community, could it only be transported to them. Outside of the slaughter-house we remarked a small ship-load of the livers and hearts of the cattle, thrown aside as valueless; the hogs were putting them to use certainly; but there are many industrious fellow-creatures in New York who would be tempted to dispute their meal with them. Inside the building we saw shanks and waste fragments enough to supply soup to the indigent for a whole season. If the laws regulating the interchange of commodities could be so improved as to facilitate the transport of them directly from the producer to the consumer, we might procure our necessaries at rates nearly approximating to western prices, and the chief cause of hunger in the cities be removed.

MANAGEMENT OF SHEEP.

On Saturday, the 3rd Nov., the members of the Reading Farmers’ Club met at their Reading Room. Mr. Hicks read the following very interesting and instructive paper: Having been requested by the committee in my turn to open this day’s discussion, and being fully persuaded of the great benefit we derive from the friendly interchange of opinion upon practical subjects connected with our business, I venture to appear before you, not so much, believe me, with the idea of offering instruction, as of learning something myself from the observations which I trust my opening remarks will call forth. I have therefore chosen a subject exceedingly simple in itself, but intimately connected with our well-doing as agriculturists, as forming one of our principal sources of yearly profit, but upon which a great diversity of opinion exists, and therefore I have thought it well worthy an hour’s discussion by the members of a farmers’ club. The value of the sheep as a domestic animal has been well known from the earliest ages, and we read in almost the first pages of Holy Writ that a man’s possessions or wealth were computed by the number of his flocks and herds, but it seems to have been principally valued on account of its fleece, and it is only at a very much later period that its true value as an article of food seems to have been fully appreciated; indeed, at the present time, on some parts of the continent, it is held in very low estimation; in some parts of Russia it is never eaten, and in Spain it is only used by the lowest orders. It does not appear that the sheep was much known in this country until after the invasion of the Romans, who established a woolen manufactory at Winchester, thereby offering, of course, a great inducement for the production of the raw material, and for a long course of years it continued the great emporium of the woolen trade. In later years, as the feudal system declined, the quantity of sylvan game decreased, and greater care was given to

the raising of the domestic animal, better laws were made for the protection of property, and the attention of the flockmaster was directed more to the carcass than the fleece. It has been proved by authentic documents that the number of sheep in the United Kingdom has more than trebled within the last 150 years, affording a conclusive proof of the rapid strides that have been made in agriculture within that period. How has this been managed? The quantity of ground under cultivation has been increased; lands before thought worthless have been brought into cultivation for the production of sheep-keep, when, after the introduction of the turnip crop, it was found that a regular supply of food could be produced for every season. The fact of the sheep living and thriving in climates and situations where other animals would scarcely exist, its cost being within the means of the smallest occupier of land, render it, if not the first, at least one of the most valuable animals on the farm. But I am somewhat running away from my subject, viz., the management of sheep. The two great points which present themselves to my notice, are the breed best adapted to this peculiar locality, and the speediest and most economical means of bringing the same to early maturity. To attempt to go into the merits of each separate breed would, I think, be quite unnecessary. It will be readily allowed that the one best calculated for our use is the Hampshire Down; for although the Sussex is undoubtedly a superior animal as far as regards the quality of its flesh, yet nothing can beat the former for the strength of its constitution, the quantity and quality of its wool, and the great weight to which it may be brought at a very early age. There are some men who prefer the cross-bred animal—the best I believe to be between the Hampshire Down and Cotswold; but having tried the two sorts side by side for two years consecutively, I must give a decided preference to the thorough-bred. I have always been of opinion that, in this branch of our business, quality will always beat quantity; and as I think it will be allowed that Down mutton will at all times command 6d. per stone above the others, the increase in weight not making up for the deficiency in price, the only way in which I should use the half-bred would be as fat lambs. The down has been much improved within the last few years, not by crossing, but by a judicious sorting of flocks; and to such perfection are they now arrived, that, upon seeing the beautiful specimens of rams exhibited at the late fairs for sale, one is almost tempted to exclaim—Can there be any further improvement? The next point for our consideration is the feeding. The old plan of keeping flocks until six-toothed is become quite obsolete; or at least such are only to be met with in parks, or on the farms of such as farm only for amusement. Since it has been found out that by extraordinary means the sheep may be brought to perfection at twelve months old, and even by ordinary means at twenty-four months, the system of early feeding has been universally adopted throughout the country. An old friend of mine used to say, when talking on this subject, in raising and feeding any animal, “Always remember never to allow them to lose their sucking flesh,” or, in other words, always keep them in a thriving condition. Remember, what is lost in one month takes two to regain; and here we who buy in our lambs in the fall have a great evil to contend against. The breeders, for the purpose of course of making as much profit as possible, at the same time to get credit for their stock, spare neither trouble nor expense, so that we find it extremely difficult to keep them up to the mark. To effect what I said just now, a regular succession of food is required; and not only that, but the quality of each should be superior to the one preceding; but here we have sometimes the season to contend with, and this year is an instance of it, in many places the turnips being superior to the swedes; such being the case with me, the plan I have adopted has been to purchase only a sufficient flock to feed off my best roots. It is a great mistake which many of us make in overstocking, obliging us, as in the last season, when the frost did so much damage to the late crops, to get rid at a disadvantage. The sheep being a ruminating animal, the great business of its existence is to procure its food and take its rest: during the latter period only it is gaining flesh. The greater opportunity therefore you give him in procuring the former, the sooner you will arrive at the result at which you aim. The great secret of

feeding, after all, is to give the animal the food it likes best at the proper times, and as much, and only as much, as it requires; and here the great benefit of the turnip cutter presents itself to our notice, enabling the shepherd to carry it out to the letter. — Where it is not used, a much larger quantity of turnips must be given than is necessary for their consumption, and as a matter of course, much must be left behind to be consumed by an inferior flock, exposed to all weathers, and consequently losing much of its feeding property, offering conclusive proof that although the system of trimming and cutting appears at first sight expensive, yet in the end it will be found the most economical plan. The same argument may be applied to the cutting of hay into chaff, as with care not a particle ought to be lost, and especially with hay of an indifferent quality; it helps to get quit of the mildew dust, which is highly detrimental to the health of the animal. It enables you to use a mixture of malt dust, of which sheep are particularly fond, and you thus are able to consume a part of your produce which otherwise would be almost useless. With regard to feeding stuffs, I certainly prefer linseed cake to all others, as being perfectly safe, not only producing flesh and fat, but it acts upon the system generally—acting upon the bowels and digestive organs (from whence all its ailments spring) in a slightly aperient form, and producing a natural and healthy flow of the blood. It is also of great importance to the flock-master to have some slight knowledge of the ailments to which the sheep is liable, to enable him to treat in its first stage anything of the kind that may occur; above all others, that which for some years past has been so detrimental to the interests of the farmer, but which is happily becoming less prevalent, viz., the lameness or foot-rot, seems to me to be less understood than any other. Of the many compositions which I have met with, I have never found anything to entirely remedy the evil. I think that the error which we fall into is, that we try to get rid of the effects without ascertaining the cause. If an animal affected with this complaint be thoroughly examined, it will be found in a high state of fever. This impressed me with the idea that before applying anything of a caustic nature to the part affected some aperient medicine should be used. I have therefore tried Glauber salts in small doses of three ounces, with very great success, having for the last two years had very little to complain of.”—*Mark Lane Express*, Nov. 26.

From the Globe.

CANADIAN PLOUGHS AT PARIS.

In the following note from Mr. McDougall, of the *Agriculturist*, we learn that one of the Canadian ploughs which ranked so high in the trial at Trappes, may be seen at the establishment of Messrs. McIntosh & Walton, of this city. Our agricultural readers will no doubt feel sufficient interest in the matter, to “call and examine for themselves.”

Millbank Farm, Yonge Street, Dec. 17th, 1855.

To the Editor of the Globe.

SIR,—You will probably remember introducing me, at Cobourg, to Mr. Bingham, of Norwichville, C. W., the inventor and proprietor of one of the Canadian ploughs, that attracted so much attention at the Paris Exhibition. Mr. Bingham's plough obtained the second prize at Cobourg (that of Mr. Medland, of Brampton, carrying off the first,) but as the competing ploughs were not tested *in the field*, the award will not have much weight with practical men: A man must walk between the plough-stilts, not for a few minutes, but for hours, before he can pronounce with confidence on the

merits of a plough. The difficulty is increased when the *relative* merits of several are to be decided on, which, to the eye, may appear equally well constructed. And even then, the opinion of the *team*, as expressed for them by the dynamometer, is necessary to a correct decision.

Mr. Bingham's plough was an object of considerable interest to several intelligent farmers from this part of the country, and as it seemed well adapted for our stiff soils, I advised Mr. Bingham to send specimens to Toronto for exhibition and trial. He has acted upon the suggestion, for two of his ploughs may now be seen at McIntosh & Walton's Implement establishment, corner of Yonge and Adelaide Streets. One is addressed to me for the purpose of trial, and as it is fitted with Mr. Bingham's ingenious screw clevis, (the other has only the common attachments,) I shall leave it for a few weeks with Messrs. M. & W., for the benefit of those farmers who may wish to examine it. I shall endeavor before spring to procure a dynamometer, and, as soon as the frost leaves the ground, subject Mr. B.'s plough to a fair test in the field. Possibly others may be tested at the same time, in which case notice will be given in the *Agriculturist*.

As you expressed much interest in Mr. B. and his invention, perhaps you will permit me to extract the following passage from an intelligent and discriminating notice of the trial of ploughs at Trappes, by Mons. Victor Borie, in the French "*Journal d'Agriculture Pratique*." After describing at some length the peculiarities and performances of the French, Belgian, English and other ploughs, (thirty having been entered for competition,) he concludes with the following in reference to Canada:—"The ploughing tests were brought to a close by a trial of two ploughs equally remarkable—to wit, the plough of Ransom & Simms, of Suffolk, England, and that of Bingham, of Norwich, Upper Canada. The first is entirely of wood and iron, like all the English ploughs, and the results which it produced seemed most satisfactory, but it appeared to require a little more draught than the Howard plough. Bingham's plough very much resembles the English plough; it is very fine and light in its build; the handles are longer than ordinary, which makes the plough much more easy to manage. The opinion of the French laborers and workmen who were there, appeared on the whole very favorable to this plough." I am, Yours, &c.,

WM. McDOUGALL.

THE FIRESIDE.

When the snow-flakes softly rustle
On the darkened window pane,
And the night-winds moan and murmur
In a wild and fitful strain—
Oh! how welcome is the cheerful,
Brightly burning, ruddy light,
Glowing from the evening fireside,
Glowing, sparkling, warm and bright!

How the mellow beams are dancing
On the ceiling, in the hall,
E'en within the heart's dark corners,
With a gentle glance they fall.
And in the clear and pleasant radiance,
As in the waves of gold it plays,
Melts the soul that's filled with sadness.
Lights the eye with radiant rays.

Loved ones meet around the fireside,
Through the dreary winter eve,
Whilst the storm without is wildest,
Tales of other days to weave,

Songs that to the heart are dearest,
Breathe upon the hallowed air,
Voices gay in mirth are mingled,
"Household words" are sweetest there.

How the aged and the weary
Look back to the happy hearth,
By whose merry light they sported,
Ere they tasted aught but mirth,
Though the glow has long been faded.
Brighter than of yore it burns,
When the spirit, worn with wandering
To that cherished vision turns.

Then-while falling snow-flakes rustle
On the darkened window-pane,
Let us gather round the fireside,
Heedless of the night wind's reign.
And when life's cold winter cometh,
'Mid the darkness and the storm,
We'll again in memory's chamber
Meet around the fireside warm.

EDITORIAL MISCELLANY.

Illustrated Annual Register of Rural Affairs, &c., for 1856. L. Tucker & Son, Albany. Price 25 cents.

We omitted to notice this useful little work in our December number. It is justly entitled to an early notice, and we regret the oversight. Like all the publications from the office of friend Tucker, the "Annual" is neatly printed, practical in its contents, and well worth the price asked for it. Besides an Almanac, it contains 100 pages of useful and interesting agricultural and horticultural matter, very fully and tastefully illustrated. We commend it to Canadian readers.

Rural Annual and Horticultural Directory. James Vick, Rochester, N. Y., 1856. Price 25 cents.

This is a very useful manual for the orchardist and fruit-grower. It contains directions for preparing the soil, planting, pruning, &c. with numerous engravings. Also, a list of fruits recommended by the Am. Pomological, and several State Societies. We intend to draw upon its pages in future numbers for our horticultural department.

Transactions of the N. Y. State Agricultural Society, 1854.

We have to acknowledge the receipt, from the excellent Secretary of the N. Y. State Agricultural Society, B. P. Johnson, Esq., of the fourteenth volume of its "Transactions." It contains, as usual, matter interesting and useful to the tiller of the soil wherever he may be located. We shall make free use of the volume in future numbers, and in the meantime, beg to thank Col. Johnson for his attention.

New York Horticulturist Review, C. Reagles, Editor, monthly, \$2 per annum.

From a hasty examination of the December number of this magazine, (cannot the publishers send us Nos. 1 and 2?) we are disposed to think it a valuable addition to the horticultural press. It is well printed, on excellent paper, and very fully illustrated. We notice a few gross typographical errors in the number before us, which ought not to be allowed in a work so tastefully got up in other respects as this.

HAY CAPS.—We have received from G. W. Baker, Esq., of Ottawa, a copy of a letter by Mr. Edward Clark, of Massachusetts, describing the method of making and using canvass hay caps, with a request to insert it in the *Agriculturist*. We shall endeavour to find room for it in our next issue.

SEEDLING POTATOES.—The Rev. C. E. Goodrich of Utica, N. Y. from whom we obtained last spring, upwards of 30 varieties of seedling potatoes, has very politely sent a detailed statement of their quality, yield, hardiness, &c. &c. as evidenced by the past season's culture. The quantity of each sort sent to us was too small to enable us to judge decisively, as to their respective merits, but on comparing notes we find those varieties which did well in the valley of the Mohawk, also promise to be worthy of cultivation in Canada. We shall plant 10 or 12 of the most promising varieties next season, and will after another year's trial be better able to speak of their merits.

We regret to learn that Mr. Goodrich's health has been very indifferent since he wrote to us in the spring. As a close observer of its habits and peculiarities, and as a practical experimenter upon the potatoe plant, he has no equal on this continent, and we hope he may be long spared to continue his investigations.

TO CORRESPONDENTS.—The communication of H. Moyle, Esq., and also an extract from that of Sheriff Treadwell, which have been given to the printer, are deferred for want of space. They will be equally interesting in the February number.

GOOD PRINTING.—We direct attention to the advertisement of Messrs. Farrell & Jacques, Printers, Designers, &c. The splendid show bill which we have sent over the country is from their press, and is a good specimen of their work.

ADVERTISEMENTS.—As we intend to devote a limited space to advertisements, those who first

apply will be first served. The *Agriculturist* has a larger circulation among the farmers of Canada, Nova Scotia and New Brunswick than any other journal, and is undoubtedly the best medium for advertisements intended for their eye. Terms,—6d. per line, each insertion.

AGENTS WANTED!—Local Agents for this paper are wanted to canvass every township in Upper Canada. The Eastern Townships L. C. and the Provinces of Nova Scotia and New Brunswick. Active young men who can furnish surety will find this a good opportunity to make \$2 or \$4 per day. Apply immediately to the publishers.

SHORT HORNS FOR SALE.—We can confidently recommend such persons as are in want of superior Durham Stock to Mr. Chapman's advertisement on another page. Mr. Chapman is a distinguished breeder and a thoroughly honorable minded man; he has on several occasions sold stock in this Province, which has given entire satisfaction.

PLEASE PAY UP.—We are under the necessity of again complaining that several Societies have not paid for the last volume. Whose fault is this? Our terms have always been in *advance*, but to meet the wishes of some Societies, we have allowed their accounts to stand over till after the receipt of the Government Grant. That *ought* to have been received months since, and we *ought* to have been paid.

TORONTO MARKETS.

December 29.

The supply of farmers' produce, during the last month, has been much smaller than that of the same month of previous years. To account for this deficiency, some say that the high prices that have been so freely paid for the last six months has brought out all the surplus produce within the vicinity of Toronto, and that unless the good sleighing that now prevails will cause the farmers further back in the country to bring out their produce, exorbitant prices, and even a scarcity, may be expected. The demand for all the products of the farm was never greater, there being large additions to the usual population of the city in consequence of the removal of the seat of government.

FLOUR.—Among wholesale dealers there is but little business going on, and probably there will be no buying until the opening of navigation. The price of flour by retail on the market, ranges from £8 to £8½, and farmer's flour sells readily at those figures.

WHEAT.—As is usual at this period of the year, there is a great dullness on the wheat market. The supply is exceedingly small, averaging about 500 bushels per day. The demand is mainly confined to city milling, but where good samples are offered, it is stored on vessels laid up, and is intended, if prices are favourable at the opening of the navigation, for export to New York or Boston. There is no competition on the market, and the price fluctuates but little. For the past two weeks, the usual price paid has varied from 8s. 9d. to 9s. per bushel.

OATS.—During the fall, upwards of 20,000 bushels of oats were imported from the States to this port. This, with a good supply from farmers, has kept prices down. Stocks now, however, are diminishing, and prices have an upward tendency. Sales on the market are made at 2s. 7d. a 2s. 10d. per bushel, and some prime lots have brought 3s.

HAY.—Good qualities of hay have been in poor supply, and prices remain high. There is a good supply of poorly-cured and inferior hay, which does not move off very rapidly. The price for the last ranges from \$25 to \$29, and for inferior, from \$18 to \$25.

POTATOES.—The last crop of potatoes, contrary to the general expectation, appears to have turned out very poorly; and nothing like the supply and quality of last year is now brought on to the market. Last spring, about 1,500 bushels were sent from this port to American cities; next spring we will have to import. The price paid on the market, ranges from 4s. to 5s. per bushel, and they are sometimes difficult to be bought at even the outside figure.

PORK.—There is a good supply of very fine pork. The demand, although limited to city consumption, is very great, and high figures continue to be paid. The price ranges from \$6½ to 8 per 100 lbs. \$8½ is sometimes realized for good hogs.

BUTTER continues scarce. For fresh rolls, 1s. 4d. a 1s. 7d. per lb. is freely paid; for tub butter, by retail, 1s. 3d. a 1s. 5d. per lb.