

Technical and Bibliographic Notes / Notes techniques et bibliographiques

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

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

Coloured covers/  
Couverture de couleur

Coloured pages/  
Pages de couleur

Covers damaged/  
Couverture endommagée

Pages damaged/  
Pages endommagées

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

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

Cover title missing/  
Le titre de couverture manque

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

Coloured maps/  
Cartes géographiques en couleur

Pages detached/  
Pages détachées

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

Showthrough/  
Transparence

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

Quality of print varies/  
Qualité inégale de l'impression

Bound with other material/  
Relié avec d'autres documents

Continuous pagination/  
Pagination continue

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

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

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

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

Title page of issue/  
Page de titre de la livraison

Caption of issue/  
Titre de départ de la livraison

Masthead/  
Générique (périodiques) de la livraison

Additional comments: /  
Commentaires supplémentaires:

Wrinkled pages may film slightly out of focus.

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

10X	12X	14X	16X	18X	20X	22X	24X	26X	28X	30X	32X
							✓				

FREE BY LAW.

# LOWER CANADA AGRICULTURIST

MANUFACTURING, COMMERCIAL, AND COLONIZATION INTELLIGENCER;

OFFICIAL SERIES OF THE AGRICULTURAL BOARD AND SOCIETIES

PUBLISHED UNDER THE DIRECTION OF

**M. J. PERRAULT,**

*Member of the Provincial Parliament for the County of Richelieu,  
Pupil of the Royal Agricultural College of Cirencester, Gloucestershire, England  
and of the Imperial Agricultural School of Grignon, Seine and Oise, France  
Member of the Imperial Zoological Society of Paris, &c.*

---

**MARCH 1864.**

---



SPARGERE COLLECTA,

OFFICE—TOUPIN'S BUILDINGS, PLACE D'ARMES,  
MONTREAL.

# AGRICULTURAL REVIEW.

MARCH.

**CONTENTS.**—**Agricultural Review.**—**Official Department.**—Tabular Form of the Agricultural organization of Lower Canada for 1864—Re-Election of the Members of the Board of Agriculture—Election of the Presidents, Vice-Presidents, Secretaries, and Directors of the County Agricultural Societies—**Editorial Department.**—Concentrated farming—Visit to an English farm—Why don't he do it?—A Canadian farm in Stanstead Plain—Some of our experiences and prospects—How is a man to learn farming?—**Farm Operations.**—Notes for the Month—Care of cows—Management of beavers—Care of swine—Exercise the horses—Early lambs—Fattening sheep—Apples for stock—Seed potatoes—Turnip seed—Hauling out manure—Laying out farms—Crops next season—Rotation of crops—The farmer's wood lot—The Imphee sugar cane—How land is impoverished and how improved—A compost heap in spring—About guano.—**Breeder's Department.**—Winter care of bees—On churning—Oxen for farm teams—On feeding horses—The discussion on cheese making at Rome—Cattle fastenings—Questions about poultry—The crack steeds of New York—Is it best to feed cattle two or three times a day?—**Engineering Department.**—Coal tar, or Tar paint—Sheen racks—Building stone fences—Hints to farmers about to build—Cutting and storing ice.—**Horticultural Department.**—Observations on orchards and fruit culture—Hot beds—Location and construction—The cultivation of the grape.—**Commercial Review.**—Montreal Markets.

## EDITORIAL DEPARTMENT.

### CONCENTRATED FARMING.

**Y**OUR readers are familiar with the arguments which have appeared in our columns during the past two or three years, relative to the comparative advantages of large and small farms. The result may be briefly summed up by saying that a farm is too large (if only twenty acres,) when there is not enough surplus capital to give it the very best management; and not too large, even if containing a thousand acres, if the owner is able to raise maximum crops, and to conduct every part as well as the most perfect small farm. The prevalent error is the attempt to spread over much land with little means. If every one could be satisfied that he may be an extensive farmer on but a few acres, there would be less running in debt for land, and less imperfect, weedy and superficial cultivation.

There are several advantages in raising heavy crops on a limited amount of land, and several disadvantages in raising the same amount on a more extended area. It is easier to obtain eighty bushels of corn from an acre of the best land, than the same amount from four acres of poor and badly cultivated ground—the plowing and general management of the good land being about as easy per acre as the other, or only one-fourth the expense per bushel. The distance of drawing manure, drawing in crops, driving cattle to pasture, and every other operation, are much lessened on the

small and well managed farm. On the whole, it is much more economical to buy land at double price that will produce double crops; or better to expend as much more as the cost of the land in underdraining and manuring, if, as frequently happens, the productive power of the soil may be doubled.

Farmers are often not aware of the amount which a moderate farm may be made to yield in the best condition and under the best management. We propose therefore, to take as an example fifty acres, allot it to different crops, assign to each an acreable product, not greater than the average amount obtained by the best farmers, and thus show what may be the result.

While the average corn crop is not over 40 bushels, there are many who obtain seventy and upwards as a yearly average. While wheat usually yields only fifteen or twenty bushels, such good farmers as John Johnston have obtained an average of thirty or more. While many landowners cut scarcely a ton of hay per acre, such men as Major Dickinson raise an average of three tons. If the hay crop is tripled, the amount of pasturage will be increased in like proportion. Many cultivators who attempt to raise carrots and other roots, often fail by planting late or on hard and cloddy ground, or by neglecting weeds, and when they succeed get only two or three hundred bushels per acre; others, by a good

previous preparation and by proper cultivation, confidently rely on at least eight hundred bushels per acre.

Now having promised these admitted facts, let us see what the fifty acres may be made to yield :

10 acres meadow, 30 tons.....	\$240
10 do pasture, 15 cattle five months, say \$3 per month.....	150
10 do wheat, 30 bushels per acre..	450
10 do corn, 70 bushels, at 75 cents, fodder \$3 per acre.....	555
2 do corn fodder in drills, five tons per acre.....	60
2 do carrots, 800 bushels per acre, 15 cents per bushel.....	240
1 acre ruta bagas, 600 bushels, 16 cents per bushel.....	96
5 acres winter apples, 200 bushels per acre, 25 cents per bushel.....	250
	\$2,041

Several other crops could have been added, giving greater variety, but the above will answer as a specimen of what may be raised. The market values of the products will vary with localities, as well as with the mode of marketing; for example, the corn as fed to animals by some farmers, would yield a less value, while with others the value would be considerably increased, as, for example, by the mode of manufacturing pork described by N. G. Morgan in the Illustrated Annual Register for the present year, by which he uniformly obtains a dollar a bushel when pork sells at five cents per pound. The improved condition of domestic animals, the increase in the richness of milk and butter, &c., caused by feeding carrots in connection with dry fodder, would doubtless give more value to these roots than stated above. Only five bushels per tree are estimated from the apple orchard, a much smaller amount than the average of the most productive sorts under the best management. The crop of carrots is large, but a larger yield has been obtained on an inverted, rich clover sod, manured well the previous autumn, allowed early the following spring, in connection with subsoiling, and started a fortnight before common corn planting. On the whole, we think it will be safe to estimate a product of \$2,000 for the fifty acres, arranged in such a mixed course as would be adapted to a good rotation. As already premised, the land must be in the very best condition to ac-

complish this result—well under-drained, full of vegetable matter from the roots of previous crops, well supplied with the manure from the animals which such crops would sustain, and the whole under energetic and seasonable management. It is obvious that the net profits of such a farm would be much greater than from the same amount of crops raised, as is commonly the case; on the 200 acres; those who have been accustomed to such products as the latter, will, of course, be incredulous, as to the amount which may thus be obtained; but as before stated, the thing has been already done, and exceeded in numerous instances.

And yet there are many land-owners in the most fertile districts, who would be quite unwilling to be pent up on a fifty-acre farm; forgetting that they could clear more than a thousand dollars every year from its surface. We know a small farmer, who occupies only eleven acres, and yet sells from it a yearly average of \$200, besides the amount consumed by his small family. One year he sold \$300 worth; this is a larger amount than we have indicated in the preceding estimate.

A large farm has some important advantages over a small one, especially in the facilities for using expensive farm machinery. But what we wish particularly to urge, is to farm as extensively as possible on the given number of acres occupied by the owner. For example, he would be the more extensive farmer who should raise \$4,000 from 100 acres, than he who should raise \$3,000 from 300 acres. The former is the kind of large farming we wish to see introduced, even if the owner possesses a domain of a thousand acres and upwards. It has many advantages; among which are, the less amount of travelling to go from one field to another: the shorter distance passed by teams in manuring, plowing, and drawing in crops; the comparative ease with which such a farm may be superintended, and, consequently, the greater perfection of that superintendence; and lastly, and by no means the least, the increased compactness of neighborhoods, virtually shortening public highways, and bringing all markets nearer to hand; for if the crops of a large region of country are doubled, the villages and towns, and all the facilities connected with them, will also be doubled, or to speak otherwise, all these facilities and conveniences will be brought within one-half the distance to every farmer.

1884

**AGRICULTURAL ORGANISATION**

**BOARD OF AGRICULTURE.**

- Members.—Hon. L. LEBELLIER, of Rivière Ouelle, Minister of Agriculture.  
 Mr. E. FOMROY, of Compton, landed agriculturist.  
 Mr. J. C. YACHE, of Quebec, Knight of the Légion d'Honneur.  
 Hon. U. TESSIER, of Quebec, Speaker of the Legislative Council.  
 Hon. J. TURCOTTE, of Three Rivers, member of the Legislative Assembly.  
 Rev. J. LANGEVIN, of Quebec, Professor of Agriculture.  
 Rev. M. PILOYTE, of Ste. Anne, Professor of Agriculture.  
 Mr. SMITH, of Rimouski, Professor of Agriculture.

- President.—Hon. L. V. STOYTE, of St. Hyacinthe, landed agriculturist, Judge for the District of St. Hyacinthe.  
 Vice-Pres.—Mr. O. E. CASGRAIN, of Val-de-la-Paix, landed agriculturist.  
 Secretary.—Mr. G. LECLERE, Montreal.  
 Members.—Hon. V. ARGHAMBAULT, of l'Assomption, landed agriculturist, member of the Legislative Council.  
 Mr. CAMPBELL, of St. Hilaire, landed agriculturist, Companion of the Order of the Bath.  
 Hon. P. CHAUVEAU, Superintendent of Education.

**AGRICULTURAL SOCIETIES.**

Societies.	Organized at	Presidents.	Vice-Presidents.	Secretary-Treasurers.	Board of Directors.
Argenteuil.....	St. Andrews.....	L. D. Byers.....	A. McDonald.....	H. Howard.....	C. Albright, G. A. Hooker, A. Burwash, W. Gordon, N. Fraser, A. McConnell, J. Logé.
Arthabaska.....	Arthabaskaville.....	A. Stein.....	J. Garneau.....	B. Thériault fils.....	E. Marcotte, P. Tierney, P. Stuart, S. Piché, E. Lafond, A. Paquin, J. Hods, J. Henderson, A. Brauchemin, L. Choquet, M. Ouhéret, J. Pierre, J. Caron, F. Leclère.
Bagot.....	St. Roch.....	A. Casavant.....	J. Geoffrion.....	P. S. Gendron.....	J. Meloche, J. M. Browning, L. Julien, J. Leclerc, J. Hébert, J. Hébert, T. Meloche.
Beauharnois.....	Beauharnois.....	J. B. Scott.....	J. Symons.....	F. H. Bisson.....	G. Lessard, J. Dumour, F. Fortier, G. B. Leduc, H. Hébert, J. Hébert, J. O. C. Arcand.
Bellechasse.....	St. Joseph (Beauce).....	Hon. E. Duchesnay.....	S. Verina.....	F. S. A. Bélangier.....	E. Goulet, D. Dumour, F. Fortier, G. B. Leduc, H. Hébert, J. Hébert, J. O. C. Arcand.
Berthier.....	St. Michel.....	O. G. Fortier.....	E. Forques.....	F. Forques.....	M. Brisette, E. Jousseau, H. Lambert, G. Leclerc, W. McPherson, W. Pipolan, A. Carcaud.
Bonaventure No. 1.....	Berthier.....	L. H. Ferland.....	R. N. Dezy.....	N. Doucet.....	W. McDonald, D. Kerr, C. Hamilton, J. G. Leclerc, W. McPherson, W. Pipolan, A. Carcaud.
Bonaventure No. 2.....	New Carlisle.....	Hon. P. Winter.....	R. N. Montgomery.....	Chs. Kelly.....	D. Fraser, P. Ingram, E. Busk, E. J. Campbell, S. Allison, J. N. Veigas, F. Cook.
Brome.....	Carleton.....	J. Meagher.....	J. Fraser.....	Stann & Meagher.....	L. A. Perkins, B. Hamilton, J. Williams, R. N. Mansfield, G. Boright, E. G. Ball.
Charlevoix No. 1.....	Knowlton, C. E.....	C. Stone.....	A. H. Chandler.....	Joe. Lefebvre.....	J. McLaren, F. Beville, J. Gobeil, O. Brassard, A. Lemieux, F. Harvey, A. Tremblay.
Charlevoix No. 2.....	Malabar.....	S. T. Reeve.....	C. Desnoes.....	E. Tremblay.....	F. H. Asselin, D. Dubé, T. Sicotte, A. Larive, N. Laporte, L. St. Germain, N. Darche.
Chamby.....	Bald St. Paul.....	D. Trambly.....	T. Fortin.....	S. Borin.....	F. David, L. Dubé, T. Sicotte, A. Larive, N. Laporte, L. St. Germain, N. Darche.
Châteauguay.....	St. Hubert.....	L. Benoit.....	A. Williams.....	L. Trudon.....	C. R. Lathèque, J. Grenier, F. Trudel, P. Labelle, P. X. Marchand, O. Montplaisir, G. Gervais.
Châteauguay and St-Georges.....	St. Geneviève Bas. J. Ross.....	J. J. Gibble.....	A. Massicotte.....	Rob. Trudel.....	C. Kelly, A. Gingras, N. Finlayson, J. Elliot, W. Carmichael, C. Beaudin, J. Sangar.
Compton.....	Ormstown.....	Ths. Gibble.....	J. McDougall.....	A. McCaehern.....	J. F. Barry, F. Savard, F. Langlois, N. Boucher, G. McKenzie, P. Larouche, L. Trambly.
Doux Montagnes.....	Chicoutimi.....	D. E. Price.....	L. Migner.....	Ths. Z. Cloutier.....	L. H. Woodward, B. Hitchcock, J. D. Moore, A. Rogers, C. A. Bailey, A. Hurd, W. Wright.
Dorchester.....	Cookshire.....	J. H. Pope.....	J. McClurey.....	W. Lezard.....	M. Labrosse, R. Walker, O. Beauchamp, M. Charbonneau, X. Charbonneau, A. Godmaire, J. Beztand.
Drummond No. 1.....	St. Donat.....	J. B. Droust.....	W. McCooch.....	D. Masson.....	J. Turgeon, J. Ruteau, L. Turgeon, A. Roy, F. Audet, E. Genest, A. Couture.
Drummond No. 2.....	St. Anselme.....	T. Audet.....	F. Baillargoon.....	F. F. Ruteau.....	V. Coche, J. Ralpin, A. Lesperance, J. Solvart, T. Badham, P. McCabe, M. Boisvert.
Gaspé No. 1.....	Drummondville.....	W. Sheppard.....	E. Renning.....	R. N. Watts.....	B. Reed, J. Atkinson, G. Evans, S. Lyster, W. Burrill, J. Trenholm, J. Royston.
Gaspé No. 2.....	Durban.....	G. S. H. Brown.....	J. Botwell.....	Chs. Botwell.....	J. M. Remond, M. Furlong, L. Couture, C. Couture, J. Lefestey, H. Mahon, J. D. Scott.
Hochelega.....	Perce.....	F. Savage.....	J. Baker.....	O. T. C. Mack.....	P. Bechervaise, A. Coffin, W. Aupet, B. Bechervaise, N. Marquand, A. McKay, G. Dumaresq.
Kingston.....	Gaspé Basin.....	J. Egan.....	F. Dumaresq.....	F. Egan.....	T. Irvine, F. Girard, J. Lanouette, L. Laporte, J. Drummond, L. Lapointe, J. Allen.
	Hochelega.....	Jas. Smith.....	F. Desardis.....	H. Brodie jun.....	J. McDermid, W. Broder, A. Oliver, D. McFarlane, J. White, F. Gardner, A. McGregor.
	Elgin.....	S. H. Seluyter.....	A. Anderson.....	P. McFarlane.....	

Morville	E. X. Poulin	Gen. Cartier	J. H. Price	J. Ouimet, J. B. Bouchard, F. Goyette, J. Benoit, A. Artois, E. Dumont, E. Roy
St. Laurent	G. U. Valois	J. Smith	N. M. Lecavallier	A. Sozerwille, A. Latour, V. Fodge, J. B. Labeau, J. Mebiche, E. Chaurrette, A. Saver
L'Industrie	L. Lavoisier	G. de Lanquadré	E. Desbault	C. Guilbalt, J. B. Gagnon, P. Trudeau, P. Contu, J. B. Geoffroy, E. Daly, F. Cormier
St. Anne Kam	Rev. F. Elodie	P. Desaint	J. Dussault	L. Lévesque, J. P. Gagnon, F. Pellerin, L. Miller, Y. Fiché, E. Dionne, A. Carrière
L'Aspirin	F. Dunn	N. Normandin	U. Lacroix	F. Veauvais, E. Dupuis, S. Cardinal, I. Provost, J. Peltan, B. Dupuis, G. Tilletmore
L'Assomption	F. P. Archambault	A. Deschamps	A. Archambault	C. Beaurvais, E. Lachapelle, Z. Martin, L. Lachapelle, A. Lavalée, P. Archambault, B. Rastette
L'Asie	P. J. Laqueux	A. Carrière	E. M. Gusey	A. Bourget, C. Lemieux, H. Gusey, J. Morin, E. Turcot, B. Lambert, J. B. Lemieux
St. Jean Fort Jail	A. Pelletier	L. Laviolette	E. N. Verrault	T. Brown, E. Stokes, J. Roy, S. Pripuez, L. Bois, L. Caron, J. Lyrouast
Leblanc	J. C. Joly	J. Béland	P. Packer	R. O'S. Bellamy, G. Casgrain, N. Guigraz, L. Lejeune, J. Tubor, O. Frenette, C. Derocher
Leblanc No. 1	S. Mouton	A. P. Larocque	S. Fontaine	D. Quinot, N. Gravel, L. Bellemare, A. Dupuis, X. Dumais, A. Gagne, L. D. Caron
Leblanc No. 2	St. Joseph Lotin	A. D. Larocque	E. Fontaine	D. Gagnon, C. D. Larocque, N. Jameson, B. Gagnon, X. Dumais, A. Gagne, L. D. Caron
Beauséjour	St. Joseph Lotin	J. G. Joly	J. Fontaine	L. Scahill, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 1	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 2	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 3	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 4	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 5	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 6	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 7	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 8	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 9	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 10	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 11	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 12	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 13	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 14	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 15	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 16	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 17	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 18	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 19	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 20	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 21	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 22	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 23	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 24	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 25	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 26	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 27	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 28	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 29	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 30	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 31	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 32	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 33	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 34	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 35	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 36	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 37	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 38	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 39	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 40	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 41	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 42	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 43	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 44	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 45	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 46	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 47	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 48	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 49	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway
Beauséjour No. 50	St. Joseph Lotin	J. G. Joly	J. Fontaine	F. Fontaine, W. Gallie, A. Dumas, L. Tablay, P. Verrault, J. O. Church, A. Rothway

OFFICIAL JOURNAL. M. J. PERRAULT, EDITOR OF THE LOWER CANADA AGRICULTURIST AND REVUE AGRICOLE,

Member of the Provincial Parliament for the County of Richelieu. Member of the Imperial Agricultural College of Cirencester, Gloucestershire, England, and of the Imperial Agricultural School of Grignon, Seine and Oise, France. Member of the Imperial Zoological Society of Paris, &c.

## VISIT TO AN ENGLISH FARM.

**N**OWING that all topics relating to agriculture are of interest to those that read your paper, perhaps a visit I made some time ago to a farm in Guildford, near Surrey, England, may possibly be worth sending to you.

One afternoon in July I left London for Guildford, near which place lies the farm I speak of. Arriving there, I took a "fly" to carry me to the house, which was about five five miles from the station. I had a delightful ride through roads lined with green hedges, with here and there tall trees with ivy climbing up them; passed through a quaint old English village, and every now and then by queer old fashioned farm houses; finally I reached the farm. The house was a fine, substantial looking building, with a neat carriage road leading to the door, and beautifully arranged flower beds in front. Placed here and there were old stumps of trees with flowers growing in and vines clambering around them—a beautiful and rustic ornament. I think the making of the old stumps, a "thing of beauty." Giving my letter of introduction, I met with a most cordial welcome. After a little rest I was asked if I could walk. I said yes, and soon found out that the English were walkers indeed. It was then about 3 P. M., and we walked almost all the time until nine—on the farm most of the time, through fields of barley, oats and wheat. I stopped in at an old fashioned tenant house belonging to the farm, one or two hundred years old, the floor paved with brick, and there was the old fire-place, with the seat in the corner. I could not help asking the old dame to let me sit in it, so that I might say I had sat in the chimney corner. Everything looked "as neat as a pin."

After reaching the house we had supper, and after supper prayers. All the servants belonging to the house and could come, came in to them. In how many houses in this country do you see the servants attend family worship? There, at that English homestead, morning and evening, I saw them come in and take their seats, and there they learned the lesson of "servants be obedient to them that are your masters."

I spent several days at the farm, and my kind host gave me all the information I could wish with regard to English agriculture, and his mode of carrying on the place. The figures I give will, I think, be approximate ones; he gave me the exact ones, I

believe. The farm was a hired one, it being cheaper to rent than to own. He employs about twenty men—wages about 60 cents a day; charges them for house-rent 24 to 36 cents per week. His farm comprised about 500 acres, for which he paid over \$3,000 a year rent. He uses about \$500 worth of guano, and from \$1,440 to \$1,920 worth of oilcake a year. In using guano he mixes it with an equal quantity of salt, it making it better to spread, owing to the salt becoming moist after being exposed to the air after some little time; being thus damp, the guano, after the mixing, is not liable to fly all over in using. He raises in the neighborhood of 36 bushels of wheat to the acre; 60 of oats, and of barley about 45. He had near 100 acres in ruta bagas, swedes, mangold wurzels and rape: 50 acres in barley; in wheat, 120; oats and beans near 80; grass, 100, and 100 in pasture.

He keeps about 100 head of Devons, besides other cattle. His Devons were beautiful animals; in speaking of them he said, if I remember rightly, that his father said, in buying Devons see that they could drink out of a wine glass. I think that the son had carried out his father's rule pretty well with regard to the ones I saw. He also had some fine full blooded South-Downs.

In laying tiles for drains he finds it of advantage for the main drains to take three of ordinary tiles and place them, two close together, and the third on top, making three passages for the water, thus ° °. Tiles cost him about \$3,12 per 100.

He keeps about 100 Sussex pigs; had about 30 horses, and all that I saw, with perhaps one or two exceptions, were as fine looking beasts as one would wish to see, mostly of the Belgian breed. He told me England did not produce horses enough for her own use, but imports from Belgium largely. His sheep were South Downs, with the exception of a few Welch ones for table use. His sales of mutton, beef and pork, amount to about £2,700 (\$12,960) a year, and he expects to make ten per cent. annually on his capital.

His rotation of crops is, first year wheat; after wheat harvest sow green crops, say rye; trefoil, and between first and second year very often peas. Second year, turnips, ruta bagas, swedes, mangold wurzels. Third year, barley, oats and wheat. Fourth year, grass, and sometimes peas and beans. His ruta bagas are grown, say 20 by 16

inches. In cultivating, a hoe with a narrow blade about nine inches long and near two inches wide, is used—a very useful tool in my estimation for root crops. In thinning out they cut out the plants the same as if they were weeds, and with the hoe I speak of, they weed and thin out very rapidly.—*Country Gentleman.*

WHY DON'T HE DO IT!



WHEN the farmer knows that the winter season is the time to prepare bar-posts and repair all kind of farming tools, Why don't he do it?

When a farmer knows that wagons and sleighs, and other carriages, will last a great deal longer when properly housed, Why don't he do it?

When a farmer knows that cows will do better on a less quantity of feed if properly stabled through the winter, Why don't he do it?

When a farmer sees the boards dropping from his barns and out-buildings, and knows that it would take only a few minutes to nail them on again, Why don't he do it?

When a farmer knows that a good part of his farm would be improved by plowing it in narrow lands—thus giving the water a chance to drain off—Why don't he do it?

When a farmer knows that most of his plow-land would be greatly improved by sowing clover, Why don't he do it?

When a farmer knows that it would be for his advantages to take the *Agriculturist*, Why don't he do it?

A CANADIAN FARM.

JUST south of, and within the limits of Stanstead Plain, is the summer residence of Carlos Pierce, Esq., recently of the firm of Pierce Brothers & Flanders, of Boston, who, after a successful career as a merchant, has retired, and purchased in his native town the "Kilborn," which he has extensively improved and beautified.

The residence is of the Gothic style, and painted in imitation of clay slate, and is just far enough from the main street, on an eminence well calculated to make it still more imposing; and from its tower an extensive view is embraced, commanding on the west the range of the Green Mountains and the waters of Lake Memphramagog, in the northern view, the eye stretches over one of the finest farming sections in Canada east, while the villages of Stan-

stead Plain, Rock Island, and Derby Line seem nestled within a stone's throw.

The residence is approached from the main street by a semi-circular carriage-way, paved and covered with gravel, and surrounding the ornamental grounds, along the front of which is a hewn granite wall facing the street, and in the centre of the grounds is a fountain that is to play at intervals in the summer season, the water from which falls into a hewn granite reservoir.

The farm is of a sandy loam, and consists of 375 acres, divided into mowing, tillage, pasture and woodland. The stock consists of 55 head of cattle, 41 of the horse kind, and 250 sheep.

Amongst the more noticeable animals is the entire horse called "Morgan Prince," bred by A. G. Pierce, Esq., together with some promising colts of his from mares by the old Steele Morgan, which lived to the great age of 37 years, and whose descendants possess desirable combinations and remarkably strong constitutions. We noticed also an English saddle-horse bred in Kentucky, of fine style and action.

The cattle are mostly Durham and their grades; amongst them is "Diana Gwynne," imported by Samuel Thorne, of New York, together with a heifer of hers, "Annie Gwynne," bred by the writer; also a fine Durham, cow, bred by Wilder Pierce, Esq.

Amongst others is a cow and two heifers of the Dutch breed, which have a good reputation for dairy purposes. Their color is black and white, often with white middles and black ends.

Of the 250 sheep, there are three distinct varieties or breeds; the coarse, middle, and fine wools. The coarsest wools consist of Leicesters selected from the best flocks in the eastern townships; the middle wools from the best Hampshire Downs in Canada West, four of which were especially noticed, whose average weight was something over 200 lbs. each.—There were some South Downs, which though not as large, showed fine breeding. The fine wools, or Spanish Merinoes were especially selected at high figures from the most noted flocks in New England, the males being from the world's prize flock of George Campbell, of West Westminster, Vt.

The farm buildings are well arranged, surrounding on all sides the yard, which is divided into four parts, each of which contains a trough of running water from a collection of springs upon the farm.



The horse-barn is well arranged, containing a trough of running water, with single, double and box-stalls. The walls are filled with tan and coiled with planed boards, rendering it very warm. The out-buildings are all painted a dark brown.

The manure, which is considered the farmer's bank, is all deposited in cellars and basements, and not allowed to leach and evaporate, thereby losing a very great proportion of its goodness. Mr. Pierce buys largely of such feed as will enrich his manure-heap; considering it much more profitable to buy feed and make it into meat, thereby getting the manure with comparatively small cost, than to buy fertilizers at high prices. With these facilities for making and saving manure, and one load so made and protected is worth two loads made from stock in poor condition, and manufactured from inferior material, especially after undergoing the process of leaching and evaporation consequent upon unprotected deposits: with such management for enriching the farm, it will, in a few years be literally like a garden. Success to my former schoolmate, with his model farm.

GEORGE BACHELDER.

Stanstead, Canada East, Jan. 15th, 1864.

#### SORGHUM—EXPERIENCES AND PROSPECTS.

JUST as I expected—Sorghum has become, or, at least, is fast becoming, one of the "chief absorbent topics" among the agriculturists of the Northwest. I thought it proper to let you and the readers of the FARMER know that we have been doing a little during the past season, in the way of raising and manufacturing sugar cane; also that we intend to do still more the coming season, if all is well; for the people in this vicinity are awakening to see the necessity and profit of growing this valuable crop.

Although it has been a very unfavorable season for cane raising still it has paid very well here; crops yielding from eighty to one hundred and fifty gallons per acre. There have been six or seven mills in operation within five miles of this place,—each one having all the work to do that it was capable of performing, for the term of four or five weeks; and this is only a beginning of what will be done in the future, if the seasons prove tolerably favorable.

The African cane has been the most profitable the past season, on account of its being two or three weeks earlier than the

Chinese. I prefer the Sorghum to the Imphee, when both are ripe. I think the flavor is better.—But the Imphee is more sure to ripen, consequently it is the safer kind to plant in this latitude, as a rule.

I have manufactured for myself and others a good article of syrup to the amount of 1,350 gallons. I was at work at it just one month. I used one of Skinner's Mendota mills—the same that I used last season. I used Brainard's evaporator for defecating, and the common Russian iron pan for finishing.

Should I do anything at this business another season, I shall do what I do on a larger scale, and, consequently, more expeditiously. I wish to say here, that I think I could put cane enough through my mill daily to make from 80 to 100 gallons of syrup. O. P. Dow in Wisconsin Farmer.

#### HOW IS A MAN TO LEARN FARMING?

JUST as he would acquire any other art or profession—by serving an apprenticeship to it. If agricultural education be not practical, neither is it profitable. Of course we do not call it useless—no addition to mental wealth is ever altogether useless—but it stops short of the point where, in ordinary language, it can be turned to use. What do you men go to Colleges of Agriculture for? It is that they may learn how to make a livelihood and income by farming. But if the education they receive be not practical, it will not enable them to reach this end. The student of agriculture may have acquired a knowledge of the general principles involved in his profession, but, until he has learned the art, his knowledge cannot guide aright. And a graduate who has not added practical knowledge to his science, will only bring his diploma to contempt. These, it may be said, are mere assertions; but examples in abundance of the inefficiency of mere general and scientific knowledge can be cited in illustration of their accuracy.

No one is less likely than the present writer to contend for a regard to agriculture exclusively as a money-making routine of operations. Let us admit it cordially and gratefully as "the art of all the sciences," affording, in its intelligent prosecution, scope for the exercise and enjoyment of the whole nature of man. The farm is no mere field for dull routine; it is the platform on which the best minds of the day are successfully employing their highest energies. We must not, however, forget that agricul-

ture is a routine of operations; and unless a man knows how each is to be performed, he is not an agriculturist. Instruction in the details of farm practice is thus an essential part of agricultural education; and unless our agricultural colleges take jealous and especial care of this, the agricultural degree which they confer upon their finished students will prove agriculturally, worthless.—*London Gardener's Chron.*

The above is the language of sound prac-

tical common sense—the very best kind of sense that we know anything about. Mere science, of itself, without ample illustration of its applicability in practice, while it would not be valueless, would, nevertheless, be of comparatively little worth to the student of Agriculture. And, therefore, it is that we insist upon the importance to our proposed Agricultural College of a varied, well-stocked, and thoroughly managed Farm Model and Experimental.

## FARM OPERATIONS.

### NOTES FOR THE MONTH.



**REARY** winter now waves the scepter of dominion all over the country. The green fields and forests are divested of their wonted verdure and beauty; the babbling brooks and the murmuring cascades are bound in icy fetters, and the broad landscapes, once so beautiful and picturesque, outstretching beneath the winding sheet of drift snow, even now lie beautiful in death. The songs of cheerful warblers, and the music of the groves, have been exchanged for the shrill melody of the harp-strings of old Boreas. The bleating flocks and lowing herds, which only a few months since cropped the green grass in the pastures, and basked in the cheerful sunbeams, are now snugly ensconced in their winter retreats, and receive their daily food from the hands of their keepers.

The cares of March are numerous; and as pinching cold and pelting storms prevail, every thing must be attended to in good time, or a penalty for negligence will be the result.

#### Care of cows.

Perhaps some one or more of them may be coming in this month. Every such animal should receive special attention at this critical period, and should be provided with a separate box-stall, well littered, where she will be comfortable and quiet during the period of parturition. A little timely care of a young and tender cow, may not only save the life of a valuable calf, but the life of the cow. Every animal needs a good allowance of food during this cold month. If their allowance *must* be diminished at all, better let it be done next April than now.

#### Management of Bees.

The feed of bullocks and heifers which

are designed for early beef next spring, should be increased a few pounds per day during this month. Do not require them to eat too much straw during this month, or they will begin to grow poor before we are aware of it. Let each animal have a liberal daily allowance, and keep them full and plump during this cold month, or they will draw upon the fat and flesh which has already been secreted for future use. It is far better to keep a bullock on cornmeal and hay, than to allow him to subsist on fat and flesh. One or the other must be done in cold weather.

#### Care of Swine.

Is the sleeping apartment of the piggery warm and dry, and well littered with good straw; or is it spacious and airy, and containing but a little worn-out straw for bedding? If the apartment is spacious, let one corner be partitioned off with a few boards, leaving just room enough in the most protected corner for them to enter, and then keep it well filled with an abundance of dry straw. Swine would spend most of the time in quiet sleep in such a piggery, and would improve in condition on a given quantity of food, on which they would grow poor if they were allowed to roam over the fields or to run the highways.

Let the swill pail be kept in the kitchen, where it will receive all the warm dish water and slops; and then mingle a few pounds of meal with it, instead of feeding whole grain.

It is bad economy, when grain commands, such high prices, to feed whole grain to any animals, and especially to swine, as they do not thoroughly digest more than half of it, especially if it be well dried. The closer swine can be kept, during cold weather, the better it will be for them, if they are only kept dry and warm.

**Water for animals.**

At this season of the year, in many localities springs and streams of water are very low, and sometimes they will be quite dry. Every animal, from chickens to the horses, should have free access to good water at all times, if it is practicable. It is bad policy to require cattle or sheep to go forty or a hundred rods to drink, as they frequently suffer from thirst, and then suffer from having drank too much cold water. And, more than this, they lose a good proportion of their droppings out of the manure yard.

**Exercise the Horses.**

During this cold and unpleasant month, when the roads are blockaded with snow, horses will not get sufficient exercise, unless they are turned out for an hour or two every day. When they are confined in the stable, day after day, their legs become swollen and their health impaired. Turn out one at a time, for an hour or two, when there is danger that they will kick each other.

**Early Lambs.**

Although March is not the season for lambs to be dropped, still a good number will be dropped before warm weather comes on. Therefore, such ewes as will yean soon, should be separated from large flocks, and have access to a dry and warm shed, where the lambs will not perish, should they be dropped when the weather is cold and stormy.

In these times, when wool and mutton command such a good price, it is good economy to save every lamb. A few hours work, with a few boards, may often save several dollars worth of sheep.

**Fattening sheep.**

Whether bloody war rages or quiet peace prevails, there will be a good demand for mutton next May and June. Therefore, let a few of the best wethers and dry ewes be separated from the flock, where they can receive extra attention. One pound of grain each per day, with as much good straw, a little hay and some cornstalks, as they will eat, will make them excellent mutton, after they have fed on early grass for ten or twelve days. If this item of business has not been commenced already, now is the time to begin, for next month it will be too late.

**Apples for stock.**

Let the apples be picked over, and the poor ones fed out. They will save nearly their own weight of grain, if they be fed occasionally, and a few to every animal.

Apples are excellent food for all kinds of stock, and especially for milch cows, and if they be sweet, they are better still.

**Seed Potatoes.**

Let the potatoes be overhauled and the very best and fairest of them reserved for seed. When small potatoes are planted, for a few years in succession, there will be nothing but small ones. We have learned this by "happy experience." The present will be a good time to procure good seed from various parts of the country before the best are fed out or used up in the family.

**Turnip Seed.**

Where turnips are grown, let a few of the very best varieties be laid aside in a keg of dry sand, for the purpose of being transplanted for seed, next spring. If it is not done now, the best ones may be fed out; and when operations in the garden commence, good turnips for seed may come up minus. As Gen. Kossuth said: "It is far better to take old time by the hair—meaning the forelock—than by the hind leg."

**Hauling out manure.**

I have observed, during the past year, in my rambles through the country, that many of our best farmers haul their barnyard manure on to distant fields, in the winter, on sleighs when teams have but little to do; and instead of dropping it in small heaps, it is spread evenly over the whole surface of the ground, as it is thrown from the sleigh. The coarse manure is spread on such fields as will be planted with Indian corn; and the compost or fine manure is spread where a crop of spring wheat will be raised.

This job will give a good lift towards getting the crop of Indian corn planted in good time next May; and, more than this, farmers are beginning to perceive that this is the most scientific way to apply their barnyard manure.

**Laying out Farms.**

If the farm has not already been laid out in fields of about an equal size, now will be the most convenient period to do it. Make a light pole 16½ feet long, with feet and inches marked on one side, and chains and links on the other side; and then lay off the farm into fields as nearly of a given size as will be convenient. This will be a very important step towards commencing a renovating system of farming. Then procure a large sheet of paper, or paste two or three sheets together, and plot the farm on paper and number every field, and note its size in acres or rods.

**Crops for next season.**

On those grain farms where a rotation of crops has not been adopted in years past, it would be good policy to turn the thoughts for a short time towards this important subject.

Have oats, Indian corn, and barley been the principal products for a number of years past? Let some other crop be grown the next season. If the soil is at all clean and friable, it would be good policy to sow flax, or something else which has not been raised on such fields, which will return a remunerating crop, without injuring the soil for a crop of cereal grain.


**Rotation of crops.**

Every farmer in the grain growing regions, should decide upon some good rotation of crops, which he has the assurance will be adapted to his soil and climate. And during the long evenings of March, when there is much leisure; the subject should be thoroughly investigated, and some plan adopted for future action.

When a farmer has some large fields and some small ones, and raises every kind of grain without any good system of rotation, the labors of the field are not uniform from year to year. He cannot apply his manure so advantageously as he could were his field of a uniform size; and more than this, he will not be able to keep a uniform number of animals, because during some years there will not be grass and hay enough, and other years there will not be stock enough to consume it. But a rotation of crops secures great uniformity in everything.

S. EDWARDS TODD.

**THE FARMER'S WOOD-LOT.**

 HIS being the season of the year when farmers generally are cutting, or preparing to cut, their year's supply of firewood, a few suggestions will not be out of place.

Supposing a farmer requires ten cords of wood a year to supply his family fires and depends entirely upon his wood-lot for it, his wood-lot should consist of about fifteen acres. Taking into consideration the amount of fire-wood he will annually pick up from other sources, like trimmings and old trees from the orchard, old fencing suff, &c., we think that fifteen acres will be found ample for almost any farmer, while a less amount will supply a large proportion of them.

If, then, a farmer has a wood-lot of a size just about sufficient to furnish his fires, he


should go about the work of cutting his wood in a systematic manner, so as to make the most of his supply. Let him commence on one side of the lot—say on the southerly side, if convenient, and cut clean as he goes. The young shoots will then receive the sun, and will grow rapidly and evenly. Supposing his lot to furnish thirty cords of wood to the acre, it will take him forty five years to go over the whole, and he may then go back to the first one cut, and again cut thirty cords to the acre. This is, we think, a very moderate statement, because ordinary land wood will grow thirty cords to the acre in about thirty years. We have in our mind a piece of fourteen acres which was cleared, sowed to rye, and then pastured a year or two, and in twenty-seven years, from the first clearing, it was again cut over, when yielded at least thirty cords to the acre. The growth was oak, chestnut, and maple.

But few of our farmers seem to be aware how rapidly young wood will grow, under favorable circumstances; and as there is an increasing scarcity of wood, in New England especially, we have thought it best to call attention to the importance of pursuing some well defined plan, so that the supply may be equal to the ordinary demand.

We hardly need add that a wood-lot needs to be looked over occasionally, and sometimes to be thinned out more or less. Our farmer readers already know this, and only need to be reminded of the importance of keeping a sharp eye upon their family wood-lot.—*Plowman.*

**THE IMPHEE SUGAR CANE.**

*Its successful Culture in New York—Sprouting the Seed—Harvesting—Expressing, Boiling and Clarifying the Syrup—Product per Acre.*

 WE have tried the sugar cane. It has proved a success, making a syrup equal to sugar for nearly all culinary purposes. In times like these, when high prices for all the necessaries of life rule the day, it behooves each one to look about, and see if possible wherein he may retrench his expenses. Sugar has become one of the necessaries of life—sugar is high. Time was long ago when "real boughten sugar" was only used for special occasions. Now however, the case is altered; scarcely a meal is served up throughout our whole land, among rich or poor, without sugar

entering as a component part. Now each farmer can raise his own sugar as easily as he can raise an equal breadth of corn or potatoes, and with a profit of at least three times as great. The variety raised here was the Imphee. The Sorgho was tried here several years since—also last season, with not very favorable results. The Imphee is rather a smaller variety, although far richer in saccharine juices. Mr. G. W. Dickerson, who has a mill here, experimented with the two kinds. A load of the Sorgho gave but one-half the quantity of syrup as was obtained from an equal quantity of the other variety. A great drawback upon cane planting here, has been its tardiness in germinating; consequently its lateness in ripening, and liability to hard freezes before ripening sufficiently to cut up. Sugar cane need not however be perfectly ripe to make syrup, although the more fully the cane is matured the better the quality and greater the quantity. Now to cause the cane seed to germinate and grow quickly, procure the seed a week or so before wishing to plant, and sow it something as you would onion seed. Place the seed, with about an equal quantity of plaster, in a small bag, and immerse it in boiling water, allowing it to remain five or ten minutes; then place the bag by a stove or in some warm locality, allowing it to remain until the sprouts are from one-half to an inch in length. This will occur in from one to two weeks. No inconvenience will be occasioned by the sprouts when planting, as they are of a tough leathery texture, not easily broken. The young plants, when the seed is treated in this manner, will appear above ground in from three to six days, when planted without germinating, about four times as long. A friend informed me to-day that his cane seed planted dry, was three weeks in coming up. The advantage in germinating the seed is obvious. The plant, when it first appears, is very small, much resembling some grasses.

If intending to plant, procure seed in time to have it sprouted about the middle of May. Select a piece of ground which would give a good yield of corn, the richer the better. Plow and prepare the same as for corn. Mark but one way, having the rows three and a half feet apart. Drop the seed in hills about eighteen or twenty inches apart, and cover not very deeply. As soon as it is two or three inches in height, go through it with a cultivator, and dress out nicely with the hoc. From this time until

stripping of the leaves, give it the same care as you would corn. Care should be taken at the first hoeing, as much depends upon giving it a good start. Suckers will start up about each plant; these should be broken off if you wish to raise an extra quality of cane.

The leaves are stripped off very expeditiously with a common hay-fork, by striking the tines of the fork quickly from the top of the cane downward. When cut up and the tops cut off, your cane is ready for the mill. A quick way of taking off the tops is to lay a large heap of the cane with ends overlapping a piece of plank, when a few blows with an axe will do the work.

The mill used here was one of Hedges', made in Ohio, the cost of which is about \$30. Such a mill answers for a score or more of farmers. The apparatus used for making the syrup was, in lieu of a better one, two wooden vats bottomed with sheet-iron, the same as used in making maple syrup. The owner of the mill intends next season to get an evaporator.

The mode of reducing the green rank juice of the cane as it comes from the mill, to a good palatable syrup is as follows: Fill the vats about two-thirds full. As soon as it fairly boils, begin skimming off the sediment which rises to the top; continue this at intervals as long as it rises. The flavor of the syrup much depends upon this process. When about the proper consistency for use, to cleanse it, for about 15 gallons take one quart of sweet milk and one table spoonful of saleratus, dissolved in water; cool the syrup and pour in; this causes all particles of cane and other matter to rise to the surface. This should be skimmed off as quickly as possible. When a proper thickness is attained, and the syrup cooled, it is ready for use.

By following the above directions any farmer may produce an article which will supplant sugar to a great extent in his culinary department. When used in making cake, coffee, preserves, and sauces, it can hardly be distinguished from the best of sugar. When first made it has, to some, a rather disagreeable taste; this soon leaves it, however.

I have seen it stated in several papers that it was impossible to ripen seed here at the North. That idea however has been proved false, for we have a large quantity of fully ripened seed. I am confident that any person by sprouting his seed and planting early, can ripen his seed every year.

The yield here per acre was from 120 to 180 gallons.—E. A. KING in *C. Gent.*

**HOW GRASS LAND IS IMPOVERISHED, AND HOW IMPROVED.**

**B**UT very few farmers, comparatively speaking, realize or get any correct idea of the amount of fertilizers, which is removed from their meadows, in every ton of hay which they make.

Chemists tell us that in a ton of good hay, there are one hundred and fifty pounds of mineral matter, and twenty-five pounds of nitrogen, which is equivalent to forty-six and a half pounds of ammonia, which is of great value in promoting the growth of grass or of any other crop.

This mineral matter alluded to, is composed of forty-three pounds of potash, twenty-five pounds of lime, and eight and a half pounds of phosphoric acid, besides several other ingredients not enumerated.

Now, as these elements become scarce in the soil, the quantity of a crop will be diminished, unless special care be exercised to return to the soil an equivalent for the amount that has been carried away in the hay.

The question naturally arises then, *how* can this be done in the most economical manner, so as to maintain the fertility of the soil?

There are several ways of doing it. But the farmer needs to understand the most *economical* way of performing a task so important and desirable. One of these ways is, to supply the waste by scattering ashes, lime, bone dust and gypsum, over the meadow, after every crop of hay has been removed. In this manner a meadow may be made to yield a heavy crop of grass every season for a very long time. The ashes will furnish the necessary potash, as that ingredient promotes the growth of grass very much, as may be proved by observing the rank and luxuriant growth of timothy or clover, in the bed of a log heap, or where brush has been burned. A top dressing of bones and lime will supply the other ingredients that have been removed in the hay.

Another way of maintaining the fertility of grass land is, by the application of guano or superphosphates, which contain all the elements of fertility, which are necessary to secure a heavy crop of grass. These two ways are rather expensive modes of maintaining the fertility of grass land, but when the grass is all removed from the farm, either in a green state or in hay, one or the

other must be resorted to, unless the proprietor has access to peat, marl, or to stable manure.

Another way of maintaining the fertility of grass land is, by barn-yard manure and home-made compost. This is the most economical, and in fact the true way, for farmers in general to keep their meadows and pastures in a good state of productiveness. By saving with care all the manure that can be made from animals, while they are consuming a ton of hay, by mingling a little muck with the manure, and by feeding some grain and oil meal, and applying the manure judiciously, the quantity of grass per acre may be increased a little from year to year, for years to come.

**A COMPOST HEAP IN SPRING.**

**A**LLOW me to tell my RURAL brethren how to have on hand every spring an abundant and valuable compost heap. Most farmers think a compost heap is an appurtenance belonging only to fancy book men. But every farmer should have one. First, place in some out-of-the-way place, not too near the house, (but where your neighbors can see it, and ask what you have there, for they will be sure to follow your example,) five or six loads of common horse, or cow, or sheep manure, over a space twenty feet in diameter. Cover the same with as many loads of sand, from the nearest sand bank, and the thing is fairly started. If you wish to use the night-soil from the privy, the work must be done next spring for the year after, and the night soil placed between the manure and sand. In fact, a good compost heap should be allowed one year for decay and amalgamation. Now, I am writing not especially for men of leisure, but for *farmers* who have something to do beside to pitch a compost heap over three or four times. A foundation formed as above, may then become, the ready receptacle of the accumulations of the hog pen and hen roost. Coarse feathers of fowls, bones, tainted meats,—if the farmer shall be so unfortunate as to have any—or the carcasses of dead animals, chopped fine and buried, with abundance of lime and unleached ashes,—which, by the way, is the best manner to prevent their becoming nuisances. Instead of digging an underground drain for soap suds, old brine, &c., let them be spread upon the heap. This done, fifty dollars worth of manure can be made as well as to pay that amount to

the dear family physician for curing the fevers produced by abominable sink-holes about the house. If any ashes are to be thrown away, put them in the heap instead of throwing them about the door, to be tracked back into the house. If compost is needed for immediate use, go to the sand pit and fill the wagon box one-third full of sand, then one inch in depth of leached ashes, three inches in depth of hen or well-rotted manure, and then fill up the box with fine-chip manure or other rich mould from the woods, or any other place where it can be obtained, and you have a good article.

M. L. COE.

REMARKS.—There is one thing suggested by the above to which we wish to call attention. It is the importance of saving night soil—of using it, incorporating it with other manures, mixing it, and deodorizing it with charcoal. The loss of night soil is one of the greatest manurial wastes on the farm.

#### ABOUT GUANO.

FARMERS often inquire: "What is guano, and where is it obtained?"

Guano is the droppings of sea fowls, which live and flourish on islands which are on the coasts of Peru, in South America, and on the coast of Africa, which islands are uninhabited by any race of the human family. Vast numbers of these fowls have passed the nights in certain places, for ages past; and in those places, immense quantities of their droppings have accumulated. And, as those climates are not subject to heavy rains, such as we experience here, which would waste most of these droppings, they soon become a dry mass, much like a heap of the droppings of our domestic fowls in a hennery.

Ships sail to these islands, and the sailors dig up this guano, and load their ships with it; and it is brought to the United States,

and sold in barrels, and in sacks as a fertilizer, and is forwarded to all parts of the country.

THE VALUE OF GUANO.—As guano consists of ammonia, ammoniacal salts, of alkali and earthy phosphates, which are excellent fertilizers, the value of this kind of manure will depend almost entirely, on the state of its decomposition, if it be in an advance state of decomposition it has lost a good portion of its ammonia; and, therefore, it will promote the growth of plants but very little. On the contrary, when the pure guano can be obtained, before it has been decomposed to its great injury, or before it has been adulterated with worthless materials, which will exert only a mechanical influence on the growth of plants, its value in maturing and fructifying plants is superior to almost any other kind of manure.

Pure unadulterated guano contains a great amount of grain-producing or fruit-forming material, which makes this kind of fertilizer so excellent for producing a superior crop of cereal grain, or table vegetable. But, there is so much cheating in this, as well as in very other kind of manure found in the market, that we dare not advise farmers to purchase it. So with pourette, superphosphate of lime, and night soil. If a genuine article could always be obtained, it would be advisable to purchase all that could be used advantageously in producing better crops, provided that everything in the line of manure has been wisely husbanded on the farm, first. But when a man allows his manure on the farm to go to waste, and depends on foreign fertilizers, for the purpose of increasing his crops, we set down that system of farm management as one that will make farmers poor, and make poor farmers; and that will impoverish the soil, and in the end, ruin the agriculture of the country.

#### BREEDERS' DEPARTMENT.

##### WINTER CARE OF BEES.

ONEY bees should be kept as quiet as possible in the winter season. If the hives are left out upon their stands, care should be taken to keep the bees from sallying out on pleasant, sunny days, when the ground is covered with snow, especially with that which has lately fallen, and which is soft. A

crusted snow is not so injurious to the bees.


If the entrances of hives are kept darkened by placing boards before them, the bees will not come out except when the weather is quite warm. The bee-keeper should be prepared for all emergencies. In some cases, it will be well to bank up the hives with snow, which can be done with safety, and if so left all winter, the bees will have suf-

ficient ventilation, the air passing down between the hives and the snow.

If there is not enough snow to bank up around hives, a few shovelfuls placed at the entrances, will keep the bees in while it lasts.

The bees may be fastened in their hives, by closing the passage-ways with a slide or otherwise, but the results are often injurious, causing the bees to gather in large numbers around the entrances, where they frequently become smothered in their efforts to escape.—*Rural American*.

ON CHURNING.

 TALENTED Frenchman once wrote a pamphlet upon the proper manner of blowing out a candle; and I suppose the reader will consider his book and the heading of this article to be parallel cases, and exclaim, "Why, everybody knows how to churn." But I think a careful examination will show that everybody does not know how to churn, or rather to produce butter from cream, or we should have less growling from the "gudewife" because the butter would not "come." All who have had any experience in the matter know the apparently perverse nature of butter; at times it will come (that is, separate from buttermilk) in a few minutes, and sometimes will not come at all. This and many other curious facts may be made clear by a little careful investigation into the matter, which, we propose to make.


The butter exists in the cream in the form of minute globules surrounded by a thin film of casein, and to obtain the butter we must first break this film. This may be done in two ways, either by agitating it, or by heating it. There are several conditions which influence the time required for separating the butter by churning; and if these are thoroughly understood and complied with, there will be little or no trouble in getting butter to come. The main and most important condition is the temperature of the cream when it enters the churn; there seems to a certain medium established, and and it seems to make but little difference whether the temperature of the cream is above or below it, there will still be the same trouble in breaking the casein which envelops the globules of butter. The cream when poured into the churn should not have a higher temperature than 55° nor a lower one than 53°; when put in at this temperature, it will rise from five to ten degrees during the operation of churning.

Another important condition which does much to influence the time required for separating the butter is the state of the cream when it is put into the churn; if sweet it will require much longer than if sour, —and it is an established fact that before butter can be made the cream must be sour, and if it does not reach this state before it goes into churn, it must and will afterward, or no butter will be obtained. Some of those who always take the premium at our county fairs, always churn sweet cream to obtain it, and I have often had this thrown in my teeth when advocating the above doctrine, but that does not controvert my argument, for before the butter separates it does get sour.

A thermometer hanging in the room where the cream is kept will indicate the temperature of the cream at the time, and this may be either raised or lowered to about 54° after it goes into the churn, by adding cold or hot water, as the case may require, while the churn is in motion.

The time occupied in churning has a great effect upon butter, and also upon the temperature of the cream in the churn; if the cream is at 55° when put into the churn, very fast churning will raise it too high, and soft, light colored butter will be the result, especially in warm weather; in cold weather the motion should be faster, in order to keep up the proper temperature. I have known entire churnings to be thrown into the hog tub because one or two of these necessary conditions were not complied with. Even when the churn fails to separate the butter, we have one unfailing agent left in the form of heat, which never fails to burst the films of casein, but will not produce an article fit to be called butter—but it can be put to uses known to every good housekeeper. Some are in the practice of churning the whole milk; in this case it should have a temperature of at least 65° before going into the churn.—*Germantown Telegraph*.

OXEN FOR FARM TEAMS.

 S there is a large and increasing demand for army horses, and as this demand is pretty sure to continue, if not increase, as long as the war lasts, it having been stated in Gen. Halleck's recent report, that the cavalry in the army of the Potomac averages a remount once in two months—that is, that horses only last two months on an average in that



service; and as this is making, and must continue to make horses scarce and high, it would seem that not only duty and patriotism, but their interest would indicate that all farmers that can, should substitute oxen in the place of horses for farm teams. Consequently it may not be amiss to offer some facts and suggestions in regard to the advantages of oxen as farm teams.

There are comparatively few farms on which one or more yoke of oxen cannot be kept to good advantage. But the farmers that may find it an especial advantage to keep oxen are, first, those that are just commencing, or are farming on a small farm, more or less in debt, and second, the larger farmer that finds it necessary to keep more than one team.

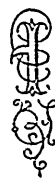
First, in relation to the small farmer. He buys a yoke of oxen for what one good horse will cost, and most likely gets a yoke in the bargain; so that with the expense of a few shillings for a chain, he is ready to hitch on to anything and go to work. Then the principal part of the work being in spring, he can, by giving them through the summer, and pumpkins and roots in or a little grass in the fall, and perhaps the fore part of the winter, make them sell for beef for from \$25 to \$50 more than he paid for them. This course may be followed on all farms where a yoke of oxen can do the work, and in numerous instances—many more than most farmers are aware of—the turning point between success and failure, may be found in the choice of a team to begin with. That is, if the money that it costs to buy and rig out a span of horses for business, and generally for riding round in more or less style, over and above the cost of oxen, had been paid on the debt on the farm, instead of having been paid for perishable property, it would have made a great difference in the final results, if not all the difference between success and failure. And lest this should be taken as a mere opinion, I may be allowed to state that I am satisfied it has been verified in many instances that have come under my observation, as well as in my own personal experience; having succeeded on a small, poor farm, where almost every one prophesied my failure, and where I am satisfied that had I tried to buy and keep a good horse team from the commencement, success at the best would have been much more difficult, if not impossible.

I need not give a detailed account of the

many ways and times that a yoke of oxen will be found useful, handy, or convenient; all farmers understand these things. But my principal reason for urging farmers that have use for more than one team, to keep a yoke of oxen is, that by following the course I am going to recommend, they may have the use of a team at a cheaper rate than in any other way. Nor am I about to recommend some new but plausible theory that has never been tried, as the course here proposed has been pursued to a considerable extent in this section.

Those having use for more than one team, who have kept and used oxen to the best advantage, have generally bought in the fall or fore part of winter, when oxen are generally the cheapest, often being in rather low condition, and the owners are anxious to sell to raise money they are frequently bought for from \$20 to \$50 less than they would sell for in the spring, if in fair condition. They can be kept thriving through the winter, if fed good corn-stalks and a good allowance of roots, or a moderate one of grain, or if fed hay, with less roots or grain, and plenty of good hay and more grain in the spring, will put them in fine condition for spring work—doing which they should be well fed if worked hard. And as in most parts of the country, spring work and breaking up summer fallow in June, constitute the principal part of the heavy work for the season, by giving them good pasture through the season, and pumpkins, roots, &c., in the fall, they will be in good condition to feed in the winter, if they will not sell for beef before winter commences—as has been the case in many instances in this vicinity—at a very satisfactory advance on the cost. By following this course, and selecting oxen that are good feeders, it need cost but very little if any more to make a yoke of oxen very fair beef, than it would to keep a span of horses in good condition, and thus giving a profit of from \$25 to \$50, and sometimes even doubling the money on the oxen, while the horses are wearing out.

#### ON FEEDING HORSES.

 HAVE often thought of offering you some of my ideas of the best way to feed horses, because, in my reading of agricultural works, I often see ideas advanced which I think are wrong. I shall now confine myself more particularly to what is often said regarding cutting fodder. I have no

disposition to deny that great economy is to be found in the process of cutting fodder but when so found, it must be when that fodder is fed to horned cattle or sheep, or to idle horses, if to horses at all; and when for the sake of economy, it is desired to feed up rough, or coarse, or damaged feed. In all these above named objects, I readily admit the pro, ricty and great profit of cutting and wetting feed; but not so in feeding working or road horses. What I want to get at, is the way that some people have of riding a hobby to death, and when it is shown that a certain method is good and valuable in certain cases, a disposition to *pitch in*, as the saying is, and go it blind. Every man should compare theory with his experience and common sense, and move sensibly in all things. The idea of cutting and wetting everything fed to a working horse, which many men adopt and follow rigidly, is not good sinse, to say the least and not extremely absurd.

If any man, scientific and practical, as his profession may be, can show me any sound reason why I should take good sweet hay, and cut it up and wet it before giving it to a young sound horse, I for one would be happy to see it, and so would others who think before they do a thing. I would like to know why I should take the trouble to chew a horse's food for him. Nature has provided him with a far better machine for that purpose, than any Yankee ever invented. If we propose to give a horse the full benefit of his food, he must be allowed to prepare it for his stomach in his own way. But some have said that that would require too much time, but if you cut and wet his food he can swallow it quicker. Well, if the eating quick is all that is desired, a machine could be got up something like a huge sausage stuffer, which would fill the stomach in a minute with the prepared food; but who would propose such a thing seriously?

The fact is, that when a horse is at work, either in team or on the road, his middle day feed should always be very light, if fed at all. It is very questionable whether any midday feed is good for a horse, if he is required to work immediately after it; but I must not argue that point now. Look at the facts as nature, that admirable workman, has made them. There is no food prepared for horses by nature, which can be swallowed without thorough mastication, not even the tenderest grass with the dew upon it. Every quad-

ruped is provided with ample means to masticate its food, and none more especially so than the horse. Mastication is facilitated by a flow of saliva, whose moistening property and peculiar office, is an absolute necessity for the proper digestion of food. For brevity, I assume that these are undeniable facts. Now, if we cut and wet food to just about such a state as would be required before a horse could swallow it, and place such food before a hungry and perhaps a greedy horse, what else can we expect but that he would gobble it down without chewing? He will do it, and by our ingenuity we have contrived to defeat nature in some of its most important functions, and the gain we endeavoured to make is more than lost. The object in feeding a horse is not to make him eat, but to do him good by giving him strength. Now how shall we do that? Let us see. Let us look at the matter in a plain common sense light.

If you have a horse which is worth anything, or capable of earning his own living and you want to keep him so, provide him with the best food your farm or market affords, and that will prove the cheapest. Not a cent was ever gained by forcing a good horse by hunger, to eat damaged or otherwise unpalatable food. Provide good food and give him time to eat it; and here is my main point—*let him eat all his food dry*, whether it be hay, oats, or ground feed. It is only in that way that he will eat his food as nature intended he should, masticating it thoroughly. Giving him his drink at some other time. The hog is the only animal that eats and drinks at the same time, (except a man. Strange, is it not, that man, the noblest of God's works, can act so much like one of the lowest brutes in some respects?) A man may claim that he has a right to thus assimilate his habits to those of a quadruped, but I claim that he has no right to force such an intelligent animal as the horse, to adopt the habits of so vile a brute as the one referred to. However this may be, if this should come under the notice of any one who doubts the utility of eating food dry, and he is himself troubled by indigestion, let him eat his meals awhile without drinking a drop at table, and he will not doubt it any longer.

But I must bring this already too long letter to a close, and will only add that I am interested in feeding a good many horses and have made it no small part of my study.

I have not cut or wet any feed for my horses for several years, and they work every day, eating their food entirely dry, whether hay, oats, or ground feed is given them, and if any man can show me a stable of better stock, or in a better or healthier condition, or more economically fed by any process, I should be happy to see them or hear about them. BUFFALO.

#### THE DISCUSSION ON CHEESE MAKING AT ROME.

**T**HE process of cheese manufacture has been discussed at considerable length. A few of the remarks and ideas elicited at a late meeting we give, and would be glad to report them in detail did space allow.

Mr. Jesse Williams of Rome, termed the father of the cheese factory system, responded to a call, and said the best thing he had seen published on the subject, was from the pen of Mr. A. Bartlett, of Ohio, who was present, and he presumed would be willing to talk on the subject to the Convention.

Mr. Bartlett responded that in the article referred to, he had given Mr. William's own practice as nearly as he could. He was very ignorant of the whole subject of cheese-making. A few years since he thought he knew something about it, but lately he had availed himself of every means possible to acquire information on the subject, and he found now he did not know as much as he did five years ago, or in other words, the more he learned about it, the more he saw to be learned. It was not a thing to be learned in a moment, but time and persevering effort were necessary. We were as yet deficient in facts. No one could tell what proportion of milk was solid matter. He was satisfied that all the chemical analyses of milk were incorrect, and we could not tell whether we ought to obtain ten, twelve or fifteen per cent. in cheese of the weight of milk. Some claimed we should obtain fifteen per cent. He generally obtained about ten per cent. in dry cheese; sometimes a little more. Milk, it was well known, was composed of three substances, butter, casein, and milk sugar. The two former should be incorporated in the cheese—the latter not. There were important questions yet to be determined, as—What proportion of milk is cheese? Is any portion of the cheese milk-sugar? What proportion should be water?

Mr. Bartlett said, in reply to various questions: A chief cause of waste was ignorance in regard to the process of manufacture. Milk could be handled so as to throw away from two to ten per cent., and yet good judges say it has been done right. There were two kinds of waste, one of curd and one of butter. The curd passes off with the whey. The butter is contained in little sacks which become mechanically entangled in the curd, and disturbance of the curd tends to set them free and allow them to pass off. Any process of manufacture which divides into minute particles wastes both the curd and butter; so long as the globules of butter remain unbroken they can be mixed with milk. The cream should be mixed with the milk cold, as heating bursts the globules. After the rennet is put in, the milk should be stirred until it thickens, in order to properly entangle the butter globules. The less agitation after coagulation the better, and the process of dividing the coagulated milk should be as quick as possible—should not to be over five minutes. Blocks, one-fourth of an inch square, was fine enough. There was more waste caused by breaking the curd than in any other way. He did not think it possible to make good cheese from milk newly drawn from the cow. Milk that had been drawn two miles was in a better state for manufacturing than milk just newly drawn from the cow. While the animal heat is in the milk it is injured but little for cheese by agitation.

Several members of the Convention expressed a wish to hear Mr. Bartlett repeat the details of his process of manufacture. Having consented, he said.

As soon as the milk was received at night and drawn into a vat, a steam of cold water should be admitted to cool it if the weather is warm; agitate while cooling. When cooled below 70 degrees, leave it. In the morning first mix the cream with the milk, then add the morning's milk. Apply heat until the temperature is raised to about 82 degrees—in cool weather higher. Now add the coloring matter, and then the rennet in sufficient quantity to produce coagulation in from 40 to 60 minutes. The milk is now kept agitated until coagulation commences; then left quiet. When the curd is sufficiently fixed, divide as quickly and with as little agitation as possible; as soon as this is done add 6 to 8 degrees of heat; after working the curd a while at this temperature, let it stand and settle;

and remove portions of the whey; now break up the curd carefully with the hands. Then add heat to 96 or 98 degrees, work the curd at this temperature until it will not pack together. Should it still pack together, raise the temperature a little, seldom never higher than 100 degrees. Cover up, and examine once in a while to see if the curd is done. When done dip it on to the draining-sink, and salt. A common rule is two and seven-tenths pounds of salt to hundred of cured or solid cheese. After adding the salt to the curd, remove it to the pressing-room and dip it into the hoops, and press gently at first; usually let it stand a few minutes before applying any pressure. Would not apply very great pressure till after the cheese was turned. When fit to handle, take it from the press, turn and bandage, return to the press again, and apply strong pressure until the next day. He rubbed the cheese over with whey oil when taken from the press, and continued to turn and rub them every day until they are well cured. Should they show signs of dryness, another coat of oil was given them.

He prepared the rennets by soaking in water with a plenty of salt added. Considered it absolutely necessary that the calf should be five days old—ten days is better—should have full meals regularly until 16 to 18 hours before being killed. Take the rennet out, turn and salt it, then turn it back and salt it. Lay it in a pickle till thoroughly pickled; then dry it and keep it dry.

We have detailed more of Mr. Bartlett's remarks than any other gentleman, because he appears to know what he is talking about, as well as to be a man of excellent practical sense and experience—also because he occupied more time of the convention than any one else, owing, I suppose, to the severe catechising which he had to undergo. His suggestions are worthy the attention of all manufacturers who heard him speak. It was well observed that the art of cheese making could not be reduced to a set of rules. Good judgment, observation and practice, were always necessary to success in this business.

#### CATTLE FASTENING.

**H**AVE noticed several articles in the COUNTRY GENTLEMAN discussing which of the several ways of fastening cattle in the stalls is the best, consulting at the same time the convenience of the herdsman and the ease of the cattle

Of course all the different modes have their advocates, and each kind of fastening has its good and bad points. None are more convenient for the herdsman, or more easily worked, than the stanchions each side of the neck of the animal, fastened with a latch at the top. With this kind, and a raised floor four feet ten inches wide, with just descent enough to let the urine pass off, while the excrements will mostly fall on the offset, cows can be kept quite clean. With ropes or chains cows will crowd forward the length of their tethers to eat; then back up and lie down in their droppings, which, to the milkman, is not very desirable, although it gives ease to the cows.

In tying young cattle by their horns the rope will make an indentation, which will disfigure the growing horn. S. E. Southland, of Jamestown, N. Y., had a patent cattle fastener at the State Fair at Utica, which appeared to obviate the difficulty attending the present stanchions with latches. There are stanchions each side of the neck of the animal, with a latch at the top hanging on a pivot, which allows them to swing forward eight inches when the animal rises, and an oscillating motion right and left of six inches each way at the bottom, which had the appearance of relieving cattle very much when compared with unyielding stanchions. The expense of making them must be more than twice as much as permanent ones, which may prevent their early adoption.

HIRAM WALKER.

#### QUESTIONS ABOUT POULTRY.

**C**ORRESPONDENT asks: "What, in your judgment, is the most profitable poultry for all purposes, and which of all carry off the palm for eggs?"

Like questions on the best breeds of swine, cattle, &c., there is a disparity of opinion among breeders. For family uses merely, some breeds of fowls would be rated "best," when for eggs and pou try for market, other breeds might be preferred. A fowl that lays an egg as large as that of a duck or turkey, would not be so profitable, if their eggs are sold by the dozen or hundred, as all eggs are, as a breed that lays smaller eggs; but for family use, they are as valuable as those of smaller breeds, because the extra size is not lost.

A profitable breed of fowls, wanted particularly to sell in the market, should mature early, and fatten rapidly, and be of medium size. The Asiatic breeds do not

answer this description, being generally too slow in maturing.

The Dorking fowl has been represented to answer the above description; but their tenderness and liability to disease have been an obstacle to their general use; and people rely more on our common breeds, with a strain of Asiatic blood in them, to give them size, than on any of the pure breeds.

For eggs alone, it is probable that the Black Spanish breed equals any other in existence. The Bolton Greys, or Creoles, and Black Polands, are also excellent layers.

In this vicinity the Brahma fowl is highly esteemed by all who have bred them. We refer to the pure "Brahma Pootra" fowl, descended from those said to have been imported from the Brahma Pootra valley in India, a splendid large white fowl, with dark neck hackles, and green tail feathers. They are exceedingly hardy, and their chicks are sure to live, with any reasonable treatment, and the pullets being heavy and fat, are not affected by cold, winter weather, and lay right along, cold or warm, from Jan. 1st to Dec. 31st of each year.

The "Shanghai," "Cochin China," "Chittagong," and other Asiatic breeds, have mostly "run out," and to-day scarcely a fowl can be found, answering to the descriptions given by breeders of them ten years ago.

We notice that in the premium lists of some of our Agricultural Fairs, all Asiatic fowls are classed under the term "*Shanghai*." We, however, do not consider that classification correct, and adhere to original names.

Our correspondent also asks: "How about George Smith's Red Caps?"

George Smith, of R. I., wrote to Dr. J. C. Bennett, the noted fowl fancier of 1852 and onward, that he had imported a pair of fowls from England, which he called "English Red Caps," and we inserted the correspondence, with cuts of his fowls, in our "Domestic Poultry Book," published in 1852. But like several other reputed "distinct breeds," these fowls soon degenerated, and were soon lost in the thousand and one crosses of the times.—*Rural American*.

#### THE CRACK STEEDS OF NEW YORK.



VISIT to the private stables of New York, and an examination of the "trotting celebrities" of the great city, furnishes to the lover of superior horse-flesh entertainment both pleasant and profitable, and at least gratifies one's desire

of seeing some of the most wonderful specimens of the race in America.

It is a well-settled fact that certain anatomical formations are, as a general thing, sure marks of constitution and endurance, as well as of speed in the trotter. Yet among these horses we find those whose anatomy is directly opposite, while the undeniable record of their several performances places them upon equal merit. A long arm and short cannon, are always considered of the greatest importance in a trotter; yet we find one of the fastest, almost a thorough-bred, with great length below the knee and hock, a long back, and of loose texture, with a general formation denoting a sad want of lasting qualities.

The stables of Frank Baker, Com. Vanderbilt, and Mr. Bonner, contain the most noted animals, and to these I will confine my remarks. In Mr. Baker's stable we find Old Ethan Allen, so universally known throughout the country that nothing need be said of him, except that his best days are over, and imperfection is the result of his long series of wonderful performances, which won for him the admiration of the American people. Honest Allen, formerly known as Young Ethan, and said to be a son of Ethan, now about ten years old, is in many respects like his sire, though not generally so fine a horse. His head is not as clean, having an extremely large jaw; his nostril is not so fully developed, while in crest and shoulders, back and hip, he is very much like his sire. His muscles are not as finely developed, while in bone he is much larger. His disposition is directly the opposite, being a lazy roadster, his great speed being a matter of compulsion. He has, however, a very superior gait, and is admitted to be the fastest horse of the pair. He is said to have made a mile in less than 2.25. The pair have trotted together in the *thirties*.

Plutarch and mate, a pair of close-made chestnuts, weighing about 900 lbs. each, are fair specimens of about half-blood Morgans; show good development of muscle, fine, clean limbs, and good general compactness. They are strong across the loin, and have undoubtedly great bottom. They have trotted, double, in 2.41.

The Waltermire horse is a fine specimen of compactness, constitution, and large muscular development, as found in the much-esteemed Morgan; his weight is about 950 lbs, and although a horse of age and hard labor, is clean and smooth. He has

a full chestnut eye, a countenance showing energy with gentleness and intelligence, retreating shoulder, a short, strong back, with heavy quarters, and clean, cordy legs. He is, in my opinion, one of the best of the stable. He is yet good for 2.37, and has a fine gait for the road.

Here is also Panic, a horse of large size, and good finish, of dark bay color, 15½ hands high, and in weight full 1000 lbs. He is a clean, sinewy, nervous, horse, and a beautiful trotter; has made 2.27 in harness, and it is thought can do better. There is also at this stable the Alley colt, a rangy and loose-textured horse.—rather partaking of the character of the Morrills,—that is said to be promising as to speed, and also a young, gray mare of superior power, but yet comparatively green.

At the stable of Com. Vanderbilt, we find, first, the noted pair Post-Boy and Plough-Boy, both of bay color, but unlike in all other respects. Post-Boy appears to be nearly thorough-bred. The clean, intelligent head of the racer is here, with slim, light neck, withers extremely high and sharp, with very deep chest; the back is long and the croup short; the arm small, but of good texture, and the cannon exceedingly long; hocks high, or at too great distance from the foot, bone exceedingly light. One would take him for a runner rather than a trotter. He is evidently a horse of great ambition, but frail constitution, and requires nursing after work. His mate, Plough-Boy, is much more weighty, and is a strong, compact, hardy horse. His legs are very bony, his quarters muscular, and his whole formation denotes great strength and endurance. His head is that of the French horse, with a large jawl, heavy neck, very retreating shoulder, and broad chest; withers much lower than those of Post-Boy; back wonderfully strong, with great length of hip. He has one imperfection, a curb, but in other respects is sound. Com. Vanderbilt, as I am informed, has refused \$50,000 for the pair. They have trotted together in 2.28.

In the stable are St. Lawrence Maid and Lady Norway, formerly known as Boston Girl, oth good Morgans, of dark bay color, and of great strength and endurance. The pair can trot and repeat, and are good roadsters; time, double, 2.34. Here, also, is Rockingham, the grey gelding, which made the mile with the running horse Socks in 2.21. This horse is of large size, and shows considerable Morgan blood, being of exceed-

ingly good texture. He is the pet of the owner, and is valued at an enormous sum.

Mr. Bonner is the owner of the celebrated pair Lady Palmer and Flatbush, which have shown in a road waggon, driven by the owner, a 2.12 gait, and trotting the first quarter of a second mile, in 33 s. The stable contains at present Flatbush (Palmer being in the country for the winter), Lady Woodruff, Peerless, the celebrated horse Lantern, and the Queen of Canada. These horses are of different breeds. Lady Woodruff is large, overgrown, very coarse, and of loose texture; is like a truck-horse, except that she might be rejected on account of ill looks. She is said to be very fast; but her weight must break her down. She is in foal to a horse called Hambletonian.

Peerless is a young grey mare, part thorough-bred, got by American Star, and was formerly driven as a hack-horse in the city of New York; but is at present claimed to be the fastest green horse in the country, having made a mile in 2.25½ in harness. She has the limbs of the thorough-bred, but with strong back and loins.

The Queen of Canada is a low-built French mare, of great speed for a short distance, and is the one that beat the stallion Live-Oak for a large sum of money.

Flatbush is a bay mare of about 900 lbs. weight, and is in all respects a good one; being clean, compact, sinewy and muscular, with a head showing great determination and intelligence. She is in disposition very snappish and nervous; but in harness shows no other gait than a trot. This mare and mate are without doubt the fastest pair in the country.

A careful examination of these horses in connection with their respective performances, convinces me that the Morgan blood of New England is the most desirable for speed combined with endurance. It is also a stock that produces the roadster with the troster.—H. W. GREENE, in Boston Cultivator.

#### IS IT BEST TO FEED CATTLE TWO OR THREE TIMES A DAY.



E are in favor of three times per day for several reasons. First—It lessens the time from one meal to the other, and less quantity is required, so that none will be likely to be trodden under foot. Second, every farmer should see his stock of cattle at

least three times each day, or have them seen. Third—the animal thus fed will rest more of its time, and not having to worry about hungry, or half hungry, will keep in better condition.

We know from observation that these are facts. A poor widow of our acquaintance used to surprise us by the uniform good condition in which she kept two cows on a very meagre supply of hay. We found by watching her closely that they got a little very often; her cows were always ready to eat, yet never very hungry.

We worked one winter for a farmer who

had the name of keeping his cattle badly. We found them in good condition; they had not wasted ten pounds of hay per head. The secret was, they were fed a quantity five times daily at regular intervals.

By far the most rapid growth we ever saw made in swine, was produced for six years in succession, by Mr. Peter Rhoda, of Hornby, N. Y., who fed light at six, nine, twelve, three, six and nine again, reaching plus 400 net pork in nine to ten months.

From these facts we urge that it is best to feed three times daily.

## ENGINEERING DEPARTMENT.

### COAL TAR OR TAR PAINT.

**B**UT very few people appreciate the value of this substance as a preservative of wood and iron, when it is used as a paint. It possessed wonderful antiseptic properties, and there is no kind of oil paint that will preserve wood or iron from decay, when it is exposed to the influences of the weather, equal to coal tar.

It is the refuse of gas works, and can always be obtained, where gas is made, at about \$1 per barrel. It is less durable when it is exposed to sunshine than when it is always in the shade, or in wet and damp places.

This peculiarity makes it one of the most valuable substances that can be used for painting the ends of fence posts that are in the ground. No other substance is equal to it.

Gas companies, who were accustomed to use iron pipe, are now using wooden pipes, which have been saturated in coal tar, and there is no doubt that such wooden pipes will last for one hundred years.

### SHEEP RACKS.

**O**NE of our correspondents inquired a few weeks since, for a plan of a sheep-rack. We cut the following description of one from the *Country Gentleman* as it seems to be simple, cheap, and easily constructed:

The corner posts are about three feet high, and are made of 3 by 3 inch scantling, one piece twelve feet long, making the floor. Inch boards are nailed on these posts, the top board being five or six inches wide, the bottom one about ten; the length of the rack may be about twelve feet, width

two feet. On the horizontal boards are nailed shorter verticals strips, each five or six inches wide, and leaving spaces six inches wide, through which the sheep thrust their heads in eating. Boards are laid in the bottom on cross pieces, which connect the lower edges of the lower horizontal side board. These may be narrow strips with open spaces between them. The rack is now complete, hay being thrown in at the top.

The lumber requires for this rack—one piece of 3 by 3 scantling twelve feet long; two inch boards, ten inches wide and twelve feet long, two five inches wide and twelve feet long, two five inches wide and two feet long, four end boards, five and ten inches wide respectively, and twenty-five feet of slats; fifteen feet of bottom boards complete the materials—the whole of these would be about ninety feet, and would cost seventy-five cents to a dollar and a half in different localities. Any farmer of fair ingenuity would make one in half a day—costing not to exceed two dollars for the whole—and paying for itself every month while in use, in the amount it saved.

### BUILDING STONE FENCES.

**A**New Hampshire correspondent of the *Genesee Farmer* writes as follows on this subject.

“A stone fence built upon a light, porous soil, if laid with tolerable skill, will stand for a long time; but to construct one that will stand upon a wet, springy tract of land, especially if it is sloping is far more difficult. The action of the frost will gradually loosen the foundation, and, when the ground becomes soft in spring, the stones are crowded out of place, and in a

few years the fence is in ruins. When the line of direction is east and west, fences are injured most by frost, for the ground upon the south side is thawed earlier in spring.

"These difficulties, however, may be overcome. If the proposed fence is to be on a loamy soil that is not very wet, it will be sufficient to make a small ridge or embankment, say four feet wide and one foot high, to build the wall upon; but if the land is spongy, dig a ditch three or four feet wide and deep enough to remain uninjured by the frost; fill it with small stones, or partly fill and cover, and then your fence will have a foundation which can not be shaken.

"The foundation well prepared, the next thing is to have the fence well laid. Only such stones should be used as will be firm and afford a good surface to build upon. They should be so laid as to secure these results, and endeavors should also be made to have each principal stone, in all except the lower course, rest upon two below it. It requires no little skill to build a stone fence well, but by following these rules one is not likely to go far out of the way; and when it is once made it is very durable."

Another correspondent in Oneida county, N. Y., writes as follows, adding that stone walls constructed according to this method in the most frosty sections of Wales have stood for centuries:

"Plow four furrows six or eight inches deep and ten inches wide, take all the sods, or turfs, and lay them on one side—also all the loose dirt that is easily taken up with a shovel and lay it on the same side with the turfs, both to be on the opposite side from the stones for the wall; then commence setting stones on the sides of the trench large enough to rise about three or four inches above the outside surface; then fill in with small stones until within two or three inches of the top of the border stones; then throw on a few shovelfulls of fine dirt, passing the shovel over it to make it level; then commence laying on the border stones, being careful to have them tip a little toward the center; then commence again with the small stones and dirt as above described. When the dirt is used up, cut the turfs at suitable lengths and lay lengthways of the wall, bringing the edge of the turfs close up to the edge of the border stones, filling the middle space with small stones. In this way there will be about two tiers of dirt and two of turfs—if more, all the better.

"It will be seen that this wall will be

about forty inches on the bottom and twelve inches across the top, when raised about four feet in high. If there is no stone handy large enough to reach across the top, continue on as before until the top is well rounded off."

HINTS TO FARMERS ABOUT TO BUILD.

44 **T**IME IS MONEY." A farmer ought to think of this before he locates his barn a half mile from his dwelling, or even an eight of a mile. We know a well-to-do farmer, who built his barns forty rods from his house,—at least twenty rods further off than there was any call for. Twenty rods is one-sixteenth of a mile. He and his men went to the barn at least four times daily, on an average. In going and returning, they would travel one half mile each, or both, one mile daily, which might have been saved by a judicious location of his barn. One mile a day is three hundred and sixty-five a year. In thirty years it would amount to nearly eleven thousand miles of travel; enough to perform a journey to Europe and back, and overland to California.

A large farmer builds a new house. He locates his pantry so that the good wife, to set the table, has to pass through a long hall, at least sixteen and one half feet further than necessary had he used good judgment in locating his kitchen and pantry. The good woman and her girl went into that pantry at least twenty times daily,—making at least forty rods of extra steps daily, or even forty-five miles yearly. This tax was upon one already overburdened with labor and cares.

Farmers, think twice before you build; yes think a good many times. Do not build in a hurry, to repent of your leisure. Take plenty of time to thoroughly digest all your plans. Study to make everything convenient, both for yourself and household. A little difference, in locating your buildings, or rooms, may make a large saving in doing the work of the farm, or the household. A difference of a few steps is a small matter, if it only occurred but once; but when they have to be taken several times daily, for years it becomes an important matter.

L. L. FAIRCHILD.

Rolling Prairie, Wis., 1864.

Draw your manure to distant fields while the ground is covered with snow.



## CUTTING AND STORING ICE.



GREENABLY to promise, I send you an account of i e-cutting on what I believe to be the most improv'd method—no pains being spared to leave it in the best possible condition.

Most dealers use the inclined plane as an elevator; though they may be made in different ways, some store the ice in blocks 44 inches square; others in those 22 inches square; others in those 22 by 44 inches; but all use the same kind of tools.

The following is the method of storing ice practised by Jeremiah Russell, Esq., at Fresh Pond, Cambridge.

1st. If there is any snow on the ice, it is to be scraped off, clearing sheets about 300 feet in width, with scrapers made for the purpose. If snow comes before the ice is strong enough to support it, it is wet by means of holes cut in the ice, which, after saturation, freezes, and makes what is called snow ice, which must be taken off. This is done with a snow-plane.

First, lay a straight line with board and hand-groove; then use the swing-guide marker, marking parallel lines 22 inches apart, which is followed by a plane running as deep as marked, generally  $2\frac{1}{2}$  inches, and the chips are then scraped off.

When thick enough to cut, two right lines a again laid (with board and hand-groove,) one at right angles with the other, and marked with the marker in blocks 22 inches square. Then in every second line, each way, the 6 and 8 inch cutter is drawn, cutting two-thirds through the ice, and also the 10 and 12-inch cutters, when necessary. Then caulk deep lines where they intersect, wherever it is to be sawed or broken off with the caulking-bar, to prevent water running through the seams, and freezing. Saw strips from 25 to 50 feet in length and 2, 4, or 6 deep lines in width, as may be convenient for floating. The ice is floated near to the elevator, where it is split in deep lines, with the pond-bar; floated to the elevator or inclined plane, with endless chain, on which it is passed under a plane, planing to a thickness and leaving two ribs on top to prevent cementing together. It then passes under brooms, which sweep all clean, thereby leaving it in the best possible condition for the trade. It is passed from the chain to the houses on slides. When filled, cover with meadow hay. When taken out, each block is hand-grooved and split into 4 blocks of 22 inches square, and put into cars for shipping.

J. D. BARKER.

Cambridge, Feb. 1st. 1864.

## HORTICULTURAL DEPARTMENT.

## OBSERVATIONS ON ORCHARDS AND FRUIT CULTURE.



FROM experimental knowledge I make the following remarks: In the first place, success in fruit-raising very much depends upon the location of an orchard. I have found a cold, sandy subsail, to produce large barren trees that required the best of cultivation to get a little fruit. Trees planted upon high ground, over clay or clay graved subsoil do much better; but an orchard planted upon strong, rich rocky land, produces the longest-lived and most productive trees, requiring the least labor to obtain an equal amount of fruit. But without care and watchfulness, orchard on any kind of soil will disappoint us.

I have one three on the slope of a hill inclining to the south, the subsoil a clay gravel. It was transplanted about sixty years ago, and has been a constant bearer every second year except one, for nearly 50

years. The bearing year was the even year till the blossoms were killed by a severe frost which change the bearing season to the odd year, and it has continued to produce every odd year from 20 to 40 bushels of apples for the last 30 years. From the roots of this tree I have dug up the sprouts or suckers and transplanted them, for the sake of continuing the variety and they now contiturt the best part of my orchard. I have always been taught by tradition that sprouts were excrescences, short-lived, and not worth transplanting; but why should not a sprout be as promising as the scion grafted into the tree? If the roots of the suckers derive from the earth the nourishment the scion does from the stock, why should it not prove as good a tree? Let experience answer the question. If we must be tied down to tradition and theories, we must remain in the dark till doomsday.

Till within a few years there was no branch of farming less understood or worse

managed than fruit-raising. In the country, since I can remember, when a man had planted his orchard he supposed his work was done, and if he was so fortunate as to prevent his own or his neighbor's cattle spoiling his trees, he was a lucky man. The idea of mulching, manuring, or cultivating an orchard for the benefit of the fruit, was hardly thought of, and unless to get some other crop was seldom resorted to. Under that system of management, where the soil was suitable, crops of inferior apples were obtained, occasionally, for a few years, and premature decay followed, as a dispensation of Providence for the sin of ignorance. But as time progressed, the farmers in the neighborhood of cities grafted their trees and cultivated their orchards, and the example, like other fashions, began to extend into the country, till good winter apples, as well as other articles, are now introduced almost universally.

For more than half a century I have been marking observations upon the progress of my own and neighbors' fruit trees in different towns and on different kinds of soil. Those of us who have been at the expense of transferring trees from the richest nurseries, on account of their beauty and rapid growth, and planting them in a different kind of soil, have sometimes been so unfortunate as to see their fine trees perish, either by winter killing, bark-bursting, or blight. Within the last 35 years my neighbors, at different times, have selected the most thrifty and beautiful trees from rich nurseries and transplanted them upon inferior soil, and have seen an utter failure in their expectations of a fine orchard. In almost every instance, apple trees, pear and cherry trees taken from rich nurseries and transplanted in this vicinity, have disappeared from the land, save a few half-dead, stunted apple trees.

I think we have been persuaded into an erroneous course in regard to selecting our nursery trees. We are generally advised to select the most thrifty, vigorous, and of course the most beautiful tree to form our orchards. After experimenting, I have uniformly found those apple trees succeed best which were "illigimate" if I may use the expression or those that accidentally sprung up in my own fields or pasture-grounds, which being transplanted, have made the most hardy and productive trees on my farm. I have not known a tree of them to bark-burst or winter kill, while those from nurseries have had all the dis-

eases incident to fruit trees. Forced growth is premature decay and death. The past fall, from some cause or causes, our apple and pear were uncommonly large and free from scars and worm-holes, which circumstance goes to confirm ideas previously entertained in regard to fruit-raising. In the first place, the great abundance of rain was sufficient to supply the thirsty grass will moisture and allow the roots of the trees a grudging pittance which it could not imbibe itself. The custom of seeding down orchards to grass is a bad one; a crop of apples fit for market, will not grow for any length of time in an orchard that annually produces a crop of hay. Let him who doubts the assertion, examine in summer, the ground under his fruit trees, which has been fed down by cattle or produced a crop of hay, and he will be convinced that there is no economy in his attempt to produce a double crop. On land suitable for an orchard, if the site is sloping, especially, he will generally find by penetrating through the surface of the closely-compacted grass roots, from six inches to two or three feet of soil as dry as ashes. This explains the reason why apple crops on grass land depreciate from year to year, and how they stand in need of their share of the rain that falls. Another cause of fair fruit may have been feeding of the windfalls in previous years to cattle and pigs; but I consider the main cause of our fair fruit, was manuring and preventing the grass from molesting and robbing the trees of their share of nutriment.—S. BROWN in *Boston Cultivator*.

#### HOT BEDS.



As the season is approaching for the use of hot beds, a few words about the best mode of making them will not be out of place. We have no idea of saying any thing new, but hope to say something that may be useful.

A hot bed should be located in a spot that is well sheltered on the north and west, and open to the south and east. If shelter is not already provided by a fence, wall, shrubbery, or something of the kind, a cheap temporary fence may be erected of rough boards, straw mats, or in some other way that the reader's ingenuity may suggest. This shelter or protection is needed chiefly to prevent an undue radiation of heat from the glass, and the entrance of a strong, cold current of air when the sashes are lifted for ventilation. This ra-

diation is not only hurtful to the plants by causing sudden and extreme changes of temperature, but, if allowed to proceed too far, will cause the heat of the bed to "run out." Let the shelter, therefore, be as thorough as possible. Six feet would be none too high for the fence; but three feet would be much better than none.

The location should not only be well sheltered, but it should be dry. If the material of the bed becomes unduly wet, fermentation will cease, and with it the heat. Manure will no more ferment when it is too wet than when it is too dry.

Hot-beds are sometimes made on the surface, and sometimes in pits. We shall describe the formation of both, though we give a decided preference to those made in pits. But first of all let us get ready the frame, which should be made of well seasoned pine, from an inch to an inch and a half thick. Six feet we have found to be a convenient width from top to bottom. The length must be determined by the reader's wants; we would not advise less than two sashes in length, even for a very small place. The height at the back may be from 18 to 20 inches; the front three inches less. If boards are scarce, the back may be 12 inches high, and the front 9. If the frame is of any considerable length, it should be strengthened by cross bars, three inches by one. It is quite usual to make the frame of rough boards; but it is neater, and in the end cheaper, to plane and tongue them, and give them two or three coats of stone paint. The inside should be white, but the outside may be of any color that suits the taste.

The sashes will be about three feet and a half wide; the exact width will be determined by the size of the glass. The largest glass that we use is eight by ten. The sash frame should be made of stuff not less than one and a half inches thick. The sides of the frame may be an inch and a half or two inches wide, the top piece two inches wide, and the bottom piece two and a half or three inches. The glass should be bedded in aquaria cement, and the laps should not exceed an eighth of an inch. Some sort of cover will be needed. Straw mats are the best and cheapest that can be got conveniently. In frames that are started very early, for forcing cucumbers, &c., some additional covering will be needed, especially on very cold nights; and this will be afforded by boards, or by doors made on purpose:

Having prepared the frame, let us now turn our attention to the materials for forming the bed. For this purpose we can use manure, or leaves, or manure and leaves combined. Manure alone gives the strongest heat, leaves the most durable. Where a moderate but long-continued heat is desirable, leaves alone should be used. For general purposes, it is an excellent plan to add from a third to a half of leaves to the manure. Oak leaves alone have been recommended for this purpose; but you need not trouble yourself on this point, but go into the woods and gather any leaves you can find; we have found them all good.

If the bed is to be made entirely of leaves, proceed as follows: Pat down a layer about a foot thick; and beat or trample the leaves firmly together. If they are dry they must be moistened, but not soddened. Put on layer after layer in the same way, and be sure to pack the leaves together, otherwise fermentation will hardly take place. - The heap should, if possible, be made under a shed; otherwise it should be covered with boards or straw mats. In about a week the heap should be turned, the leaves being well packed together, as before. In three or four days more the bed may be made.

Mark out on the spot selected a space two feet wider and longer than the frame. On this place the leaves in layers, beating them well together with the fork. Continue in this way till the bed is about four feet thick, finishing the top off evenly. Then put on the frame and sashes. The straw mats must be put on every afternoon just before the sun goes down; and this must be continued until there is no longer any danger from frost. That part of the bed of leaves on the outside of the frame must be covered with coarse litter, lay, or straw. The litter should lay well up against the frame.

In the course of a day or two the heat will begin to rise, and when this takes place is the time to put in the mould. This may be any light garden mould, but it must not be wet or muddy. The heap of mould should be prepared beforehand; a good plan being to lay it aside under cover in the fall. Put in from six to eight inches of mould, spread it evenly, and avoid any unnecessary exposure of the frame. When done, close up the frame tight. In a couple of days the soil will be nicely warmed through. It will be necessary, when the

sun is out bright, to open the upper end of the sash a little to let off the surplus heat; but less ventilation is needed with leaves than manure.

It is usual to sow the seed as soon as the soil is properly warmed; but in that case you get a very annoying crop of weeds. If not belated, we generally refrain from sowing the seed for a few days, during which time all the weed seed within an inch or so of the surface come up. We then take a sharp trowel or pushing hoe, and run it half an inch beneath the surface, cutting off all the weeds. In doing this, you should be careful to disturb the soil beneath as little as possible; for if you turn up a fresh surface, you will only insure another crop of weeds. If carefully done, comparatively few weeds will come up, much time and labor will be thus saved.

Let us next give our attention to a bed above ground, formed of manure and leaves, the latter constituting from a third to a half of the heap. The manure should be recent or green, long and short mixed together, excluding, however, every thing like corn stalks. Put down a layer of leaves and another of manure, beating it moderately firm with the fork. Continue this till the heap is completed, as directed for the first heap. The leaves should be a little moist, but this is not so important as in the first case, since the leaves will get moistened by the manure. If the heap is not formed under cover, it should be protected by boards. In a few days the heap will begin to ferment. At the end of a week it should be turned; and in doing this the leaves should be thoroughly mixed with the manure. Fermentation will now begin almost immediately. This should be allowed to go on for two or three days, when the heap should be turned again. By turning the heap two or three times, the heat is rendered more uniform and lasting. We have made tolerably good beds by laying the manure in a heap for a week, and then putting it directly in the beds, mixing it well at the time of doing so; but the heat has been unequal. The first plan is much the best.

The manure heap being ready, mark off the bed as before, and then spread the manure in layers about a foot thick, beating each layer moderately firm with the back of the fork. The bed should be about three feet thick. A bed made later may be thinner. As soon as the bed is formed the frame and sashes should be put on. We

may as well say that a lazy man should not be set to make an early hot-bed. Put some coarse litter around the frame on the outside so that it comes well up to the top. In this condition let the bed remain for a few days. The heat will not be so strong in such a bed as in one made entirely of manure; but it will be stronger than in that made of leaves, and will consequently need a little more ventilation until the heat becomes moderate and regular. If steam accumulates, it must be let off by raising the sash a little higher at the top; but care must be taken to let the sash down before the temperature has been too much reduced. At night the bed must be covered up snugly. At the end of two or three days the mould may be put in, as directed for the first bed. If the bed has settled unequally, it must be made even.

When the bed is made entirely of manure, the heap is prepared in the manner last described. The whole process of making the bed, indeed, is just the same. The heat, however, is usually more violent at first, and ventilation needs to be looked after carefully for a few days to prevent fire-fanging. Attention must be given chiefly to letting off the hot steam. If the heat is too great, it may be lessened by making holes in the bed with a hoe handle or a stick. When the violence of the heat has subsided, the mould may be put in as before directed. Persons who are used to making hot-beds often put in the mould as soon as the bed is formed; but, on the whole, it is better for the novice not to do so.

We shall next describe the method of making hot-beds in pits. We have already expressed a preference for these. The bed is easier to make, requires less material, retains its heat longer, and, on the whole, is less troublesome to attend to. The location should be a dry one. The pit may be a simple excavation; but it will be better, in many places, to make it a permanent fixture, and build the walls of brick. This may be done in two ways. First, build a wall three feet deep, the top being flush with the ground line, or an inch or two above it. On this set a frame fifteen inches high at the back and twelve inches in front. The other and better way is to continue the wall a foot above ground, and let the sashes rest on the top of it. To prevent the sashes from sagging, it will be necessary to put cross bars in the pit. The walls will be all the better for being built hollow

These pits may be heated with manure, or leaves, or both combined, and their preparation will be that already described. When filling in, make the manure somewhat firm with the handle of the fork, but do not pack it hard by trampling on it. If leaves alone are used, a little more pains must be taken to make them firm. The directions already given for the mould apply here, and it is therefore unnecessary to repeat them. From six inches to a foot should be left between the surface of the mould and the glass. A permanent pit will be found a very useful adjunct to any place. Besides affording convenient means for forcing, it will often be found useful for storage, and half-hardy plants might very well be kept in a part of it during the winter.

#### CULTIVATION OF THE GRAPE.

##### Soil.

**T**HE best soil for the grape is a warm deep, dry, clayey loam. It also flourishes well in sandy loam, and gravelly soils. I have seen good crops of large and well ripened fruit grown in heavy, dry clay.

The fruit of all varieties is less subject to mildew, ripens earlier and is much better in quality grown on dry soil, than on wet or even moist soils. On wet land the tendency of the vine is to make wood. It makes long, large, spongy, immature canes, unable to endure our hard winters. Such vines bear but moderately at best, generally mildew, and never ripen their fruit, while in the same locality, vines grown on dry, warm soil, make but a moderate growth of short-jointed, well ripened wood, that stand the winter well, load heavily with fruit, seldom mildew, and fully ripen a large crop of delicious grapes; beside it is not half the work to trim and tend the vines.

If these are facts, they prove to all the necessity of selecting warm, dry soils, and well protected locations, free from frosts, in which to plant the vine for market.

##### Preparing the Soil.

The easiest, cheapest and best method of preparing the land to plant, is to plow a furrow from ten to twelve inches deep, and follow after with the subsoil plow, breaking up the subsoil from eight to ten inches deeper. The cross plow in like manner, and you have the soil thoroughly pulverized 20 inches deep. If the land is naturally rich, it needs no manure for the Isabella or

Diana. They will make wood enough without it, and produce more and better fruit. The Delaware will bear higher culture, and may be manured.

##### How to Plant.

When the ground is prepared in this way, the best way to plant the vines is to dig the holes broad enough to straighten out the roots, and deep enough to plant them of the same depth they stood in the nursery, and then fill the holes nicely with top soil. The ground should be well tilled with the cultivator and hoe through the summer, keeping the soil loose, mellow and free from weeds, and the vines will all live and make a satisfactory growth.

##### How many to the Acre.

The proper number to plant to the acre depends upon the manner of trellising. If they are to be staked, the vines are generally planted from four to six feet apart each way. If planted four feet apart, it will take 2,722 vines to plant an acre. If planted six feet apart it requires 1,209 vines to the acre. If for post and wire trellis, they are generally planted twelve feet apart each way. This will take 302 vines to plant an acre.

I am fully satisfied from my observation and experience, that all strong-growing varieties, like the Isabella and Diana, should never be planted nearer than twelve feet, and then trained on post and wire trellis, six feet high, giving to each vine 72 feet square surface.

##### Trellis versus Stakes.

This is the neatest way of training all varieties, and by far the best and cheapest.

The difference in the cost of vines and stakes to plant an acre, of trimming, training, and tying up the vines, of cultivating and hoeing, will amount in the end to three or four times as much as the vines, and posts and wire for planting and trellising an acre and its after care. The following figures, giving the cost of each method, more than proves this statement:

It takes 2,722 stakes to stake an acre of grapes, planted four feet apart each way, which will cost at least  $2\frac{1}{2}$  cents each. This will make the cost for stakes \$68.05. The cost of 2,722 Isabella vines to plant the acre at the low price of five cents each, is \$136.10—making the whole cost for vines and stakes, \$204.15. But if planted to Delawares—the only variety that should ever be trained on stakes—the cost would be more than \$600 to the acre. The expense of stakes and Isabella vines to plant

an acre six feet apart each way, would be \$90.72—with Delawares \$393.40.

The costs of posts and wire for building the cheapest and best trellis, all things considered, that I have yet seen, was kindly furnished by my friend Oliver S. Chapin, Esq., of East Bloomfield, who has  $7\frac{3}{4}$  acres trellised in the manner I shall describe hereafter. He purchased his wire in May, 1861. It will cost more now. It took 201 pounds of number 9 wire, which cost delivered, \$4.92 per 100; and 100 pounds of number 12 wire, which cost \$5.22 per 100, and 157 pounds of number 18 wire, which cost \$6.76 per 100. This makes the expense of wire to trellis an acre \$25.03. Cost of 75 cedar posts 10 feet long and from 7 to 8 inches through, at  $12\frac{1}{2}$  cts. each, \$8.38. Also 70 stakes to rest the top wire on, 6 feet long, at  $2\frac{1}{2}$  cents each, \$1.75, which makes the cost of material to build the trellis \$35.16. Add to this the cost of 302 Isabella vines at 5c. each, \$15.10, and it makes the whole expense for planting and trellising one acre \$50.26; which is \$40.46 less than the stakes and vines for an acre planted 6 feet apart, and \$153.89 less than those planted 4 feet apart. If planted to Delawares, the expense in the first case is \$267.64 less, and in the other \$758.89 less.

This difference in the cost of the two ways of planting, makes it very evident, that unless there can be a much larger and better crop of fruit grown to the acre on stakes, 4 or 6 feet apart, than on trellises 12 feet apart, trellising is by far the best method of the two. Facts I believe will fully warrant me in saying, that generally, larger and better crops are grown on trellises than on stakes.

Mr. Chapin's crop last fall averaged a little over 10,170 pounds actual weight to the acre. The bunches and berries were large, compact and fully ripened. I saw some of them in December, in the picking boxes, just as they were picked from the vines. These had not shrivelled a particle, were as full and as perfect as on the day they were picked, and were the best Isabellas I ever tasted. Now, gentlemen, have any of you ever seen or heard of so large a crop of perfect, well ripened fruit being grown upon stakes, at any distance apart? Only think, five tuns to the acre!—which sold for \$414.38 net profit, with an outlay of only \$50.26 for trellis and vines!

No. 9 wire measures 18 feet to the pound. No. 12, 36 feet to the pound; thus dou-

bling its length with the increase of every three numbers in size. So that any one can calculate the number of pounds wanted to trellis any given piece of ground.

#### How to Make Trellis.

Mr. Chapin's trellises, before referred to were made as follows:—The large posts are set 48 feet apart, through the field, or between every fourth vine, at least  $3\frac{1}{2}$  feet deep, as the strain upon them in high wind is great. The two end posts should be set 4 feet deep, and be of large size, and well braced, to prevent their giving any to the great strain of the wires upon them. After the posts are set nicely in line, in the rows, take a coil of number 12 wire, of first quality, well annealed and wind one end of the wire twice or more round the end post, one foot above the ground, and fasten it securely. Then unroll the coil through the field, and cut the wire long enough to wind round the last post, and fasten after it is tightened up. This is for the lower wire of the trellis. Go through the field in like manner. Then take a coil of No. 9 wire and wind the end five or six times round the end post 6 feet above the ground, and then uncoil through the field as before, and cut it long enough to wind 5 or 6 times round the end post, after being tightened up. This is for the upper wire in the trellis. The wire is laid in this way to all the trellises in the field. Notches are to be cut in all the centre posts, with a very wide set saw, one foot and 6 feet above the ground, for the lower and upper wires. The next thing to be done is to draw up the wires very tightly, and place them in the notches in the centre posts. It requires a good deal of power to do it, say 2 000 pounds draw to each wire to make it sufficiently tight.

Mr. Chapin does it with a lever ingeniously contrived, though simple, a vice and two chains. The lever is about 12 feet long, with a nib of iron 3 feet from the further end, to place against the centre of the post to keep it from slipping, with 3 hooks in the lever, on each side of the nib, about one foot apart. The vice is a small one, with a ring at the end, to hold the chains. The chains are large, straight linked, trace chains, 10 feet long. The vice is screwed tight on to the wire, the length of the chains from the post. The lever is placed against the back side of the end post, and the further end of the lever is swung round towards the wire, and one of the chains is hooked on to the further hook in

the lever. Then the front end of the lever is carried round towards the wire, this draws up the wire 3 or 4 feet towards the post. Then hook the other chain on one of the hooks in the lever on the other side of the post, and carry the lever back again, this gives three feet slack to the first chain, and draws up the wire 3 feet more; hook up the first chain again tightly, and swing the lever round toward the vice again, and hook up the second chain, and so on until the wire is sufficiently tight. The end of the wire is then wound round the end post say five or six times, and fastened; all the wires are drawn up in like manner. This machine does the work quickly and easily, and will draw the wires on a trellis 100 rods long sufficiently tight.

A stake six feet long with a notch in the top, is set on the ground between each of the posts, and the upper wire put in the notch; this keeps the upper wire six feet above the ground, its entire length. Next take the number 18 wire and run it from the lower to the upper wire, once in 2 feet, the whole length of the trellis. These upright wires are to tie the vines to in training them. Mr. Chapin says he finds by experience, that it would be better, and cheaper in the end, to place the upright wires only one foot apart, so as to have one to train the bearing wood to, and one to train the vine to for the next year's fruiting. This keeps the new canes, each year, separate and between the bearingwood. This will increase the expense of the trellis \$10.61 an acre, making the whole cost of the trellis \$45.77. Instead of these upright wires, two more No. 12 wires can be placed equi-distance between the upper and lower wires. Making the cost of the trellis in this form \$34.90 an acre. This is \$10.76 cheaper than the other form of trellis. Experience will determine which of the two ways is the better one. Mr. Chapin is fully satisfied, from his experience, that his manner is by far the best, and in the end much the cheapest. His plan certainly involves much less labor in tying up the vines, trimming training and laying them down in the fall, and putting them up in the spring.

#### Laying down the Vines.

To lay them down, the top wire is unwound from the end posts, and taken from the notches in the centre posts, but not from the stakes this swings the upper wire, upright wires and vines, over to the ground the whole length of the trellis. The weight

of the wires hold down the vines. The lower wire, and base vines remain on the trellis. The vines should be well trimmed before they are laid down. In this way it is but little work to lay them down or to put them up in the spring. The other form of trellis cannot be laid down in this way. They are taken from the trellis at the time of trimming, in the the fall, and laid down on the ground, and ends covered with dirt, or boards, and then tied again to the wires in the spring.

#### Culture.

The year the vines are set out, the land should be planted with some low crop, if planted at all, and well tilled through the summer. But one vine should be allowed to grow from each root. This vine receiving the whole force of the root, will be large and strong in the fall. The last of November, it should be cut back to about *one foot above the ground, the height of the lower wire on the trellis, that is to be.* The joints will be very short on the vine near its base, and the buds very close to each other, so that the buds will be nearly opposite to each other, a foot above the ground, from which the horizontal vines will grow the next year.

The vines should be covered with dirt at the time of shortening and uncovered in the spring. The trellis should be built in the spring of the second year, before the vines make much growth. But two buds should be allowed to grow, and those from as near the lower wire as possible. All below should be rubbed off through the summer.

#### Modes of Training.

These two vines are trained each way on the lower wire, and tied to it, from time to time, as they increase in length. After reaching 6 feet, the distance given to each vine on the trellis, it should be turned up, and trained to one of the upright wires. All the laterals should be pinched off beyond the second leaf. If the land is in good condition, and well tilled, and vines well cared for, the canes will be as large as a man's finger in the fall, and the vines able to mature a moderate crop of fruit the next year. The last of November these vines should be cut back to the lower wire, and the vines left on the trellis for the winter.

In the spring of the third year, one or more vines will start from each of the joints in the base vines. Enough of these should

be allowed to grow to fill the trellis, say one foot apart, and all the rest rubbed off. These are tied from time to time to the upright wires through the summer, and the laterals pinched off beyond the second leaf. From two or four bunches of fruit will set on each of these upright vines; but two of the best should be allowed to grow. The rest should be pinched off when in blossom. The laterals should be pinched off at the same time; this causes the fruit to set full, and makes the bunches large and compact. The ground must be well tilled, and every thing done at the right time through the summer. This will insure a small crop of about six pounds of superb fruit to each vine.

#### When to Pick.

If Isabellas, be sure to let them hang on the vine till fully ripe, which will be toward the last of October. Pick them when dry and lay them in boxes holding about one bushel each, made of lath open on the bottom and sides. These boxes are placed in a safe, dry place, where the air can freely circulate through the fruit. As soon as the stems are dry; they are ready for market. They should then be looked over, packed in paper boxes, and shipped to market as before described. Fruit grown, picked and packed in this way, will always command the highest price in market, and pay the grower a great profit.

#### Pruning for Next Year's Crop.

The last of November the vines are pruned for the next year's crop. To do this properly, every other upright is cut back to one bud above the base vine; and the others at the top wire of the trellis, if strong enough; if not, shorten in proportion to their size, and cut all the laterals close to the uprights. These are the bearing canes for next year's crop. The trellis and vines should be laid down, and put up in the spring, as before described.

#### First Pruning the Fourth year.

The first pruning the fourth year should be at the time the fruit is in bloom. Then all the laterals should be pinched off, at the third leaf beyond the further bunch of fruit. One vine only must be allowed to grow from each of the spurs on the base vine. All the others should be rubbed off. The fruit must be thinned to two bunches on each lateral. This will make all the fruit the vine should be allowed to bear this year. These new canes for next year's planting must be tied up to the upright wires from time to time, till they reach the top of the trellis, and the

laterals shortened, as before described. The laterals on the bearing canes may want shortening once or twice more during the summer, if inclined to make too much growth.

#### To get Well-Ripened Fruit.

Two things must always be well considered, and nicely adjusted, to insure a good crop of well-ripened fruit. The first is, to leave just as much fruit on the vines as they will develop to large, compact bunches, fully ripened. The other is, to so trim the vines, and at the proper time, as to fully set the fruit, make the bunches and berries large, and fully ripen the whole crop. If too much fruit is left on the vines, and they are too closely trimmed, the fruit cannot fully mature, because there is not foliage enough left on the vines to ripen it. On the other hand, if the vines are not trimmed at all, the berries mostly drop off, leaving the bunches small, and loose, and but little fruit on the vines, and that quite poor and uneven. I have grown, and have seen in other grounds, the best fruit on vines trimmed as here described.

The crop this year will amount to from 15 to 20 pounds to the vine, or from 4,000 to 6,000 pounds to the acre. In trimming the vines this fall, the bearing canes must be cut back to near the base vines, and the new canes, for bearing next year, at the top of the trellis, and all the laterals close, and the vines laid down for the winter, as before.

The trimming, and renewal for bearing wood, should be the same for the fifth year and each year thereafter, as described for the fourth year. The fifth year the vines will be in full bearing, and will produce, if rightly tilled, thinned and pruned, from 7,000 to 10,000 pounds of large, handsome, well-ripened fruit to the acre, worth to the grower from \$300 to \$1,200, according to variety and demand.

#### Garden Culture and Fertilizers.

"With a good situation, the secret and success with garden crops lies in the richness of its soil, and in its depth and fine tilth, the last being far oftener wanting than the former. What is true of garden is true also of its fertilizers: they must be triturated, fine, easily digestible. Masses of unbroken farm-yard material are no more suited to the delicate organization of garden plants than the roasted side of bacon is suited to a child's diet.—*Mitchell.*



**GREAT WESTERN NURSERIES TOLEDO, OHIO.**

We have a very large quantity of the following trees: apple, dwarf pear, orange quince, and nectarine. Also, gooseberries, blackberries, grapes, currants, and strawberries.

Evergreens of various sizes, several times replanted; roses and hardy ornamental shrubs. All of which will be sold at very low prices.


Catalogues and trade list mailed to applicants. **REITER & MADDOCKS,**  
Toledo, Ohio.

The editor of the L. C. Agriculturist begs to inform the agricultural societies and the agriculturists wishing for standard fruit and ornamental trees that he has accepted the agency of the celebrated Reiter and Maddocks nurseries, so as to facilitate the importation of their valuable stocks, which he is prepared to deliver in Montreal at the following prices, provided orders are sent previous to the opening of navigation:

FRUIT TREES.		Per 100
Apples, 3 to 5 feet.....		\$7 50
Pears.....		18 00
Plums, or peach.....		18 00
Quince, 2 to 3 feet.....		20 00
Gooseberries.....		12 00
Blackberries.....		9 00
Raspberries.....		7 00
Currants.....		6 00
Fraspberries.....		1 50
Native grapes.....		6 00
" Concord.....		20 00
" Delaware.....		50 00
" Diana.....		35 00
Asparagus.....		12 00
Rhubarb.....		12 00
Evergreens.		
Cedar, red 2 feet.....		\$18 00
Fir.....		18 00
Pines, 3 feet.....		25 00
Spruce.....		7 50
Deciduous ornamental trees.		
Ash, 12 to 15 feet.....		\$18 00
Weeping ash.....		35 00


Mountain ash, 8 to 10 feet.....	35 00
Acacias, 12 to 15 feet.....	18 00
Catalpa, 4 to 6 feet.....	14 00
Horse chestnut, 7 to 8 feet.....	30 00
Maple silver, 10 to 12 feet.....	18 00
Weeping willow.....	12 00

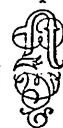
**THE EXPORTATION OF LIVE STOCK FROM THE UNITED STATES PROHIBITED.**

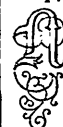
 NOTICE is hereby given that this department has been officially informed that the orders issued in 1863, by the Treasury and War Departments of the United States, prohibiting the exportation of munitions of war, extend to live stock, the exportation of which to Canada is thereby prohibited, and that those orders will be henceforth enforced by the United States authorities on the Canadian Frontier. By command.

R. S. M. BOUCHETTE.

**CROWN LANDS.**

 NOTICE is hereby given that the township of Broughton, county of Beauce, and the township of Thetford, in the county of Megantic, have been added to the agency of John Hume, Esquire, at Leeds, to whom all application to purchase and payments on account of Public Lands in those townships are to be hereafter made.

 NOTICE is hereby given that the townships of Templeton, Portland, Bowman and Bigelow, in the county of Ottawa, have been added to the Agency of Robert Farley, Esq., of Chelsea, township of Hull, and the townships of Buckingham and Derry, east and west, to the agency of G. W. Cannon, Esq., of Thurso, township of Lochaber.

 NOTICE is hereby given that in accordance with an order in Council, dated 19th November, 1863, all deposits of public moneys, throughout the province, on and after the first January, 1864, must be made in the Bank of Montreal or its agencies.

**COMMERCIAL REVIEW.**

**MONTREAL MARKETS.**

Potash, per cwt., .....	\$6.10 to 6.15	Wheat, U.C. White, per 60 lbs., ..	\$.90 to 1.02
Pearlash, " .....	6.85 to 6.90	"    U.C. Red, " ..	0.90 to 0.91
Flour, Fine, per 196 lbs.....	4.00 to 4.10	Peas, per 66 lbs.,.....	0.70 to 0.71
No. 2 Superfine,.....	4.20 to 4.25	Indian Corn, per 56 lbs.,.....	0.55 to 0.56
No. 1 " .....	4.30 to 4.40	Barley, per 50 lbs.,.....	0.80 to 0.85
Fancy " .....	4.50 to 4.70	Oats, per 40 lbs.,.....	0.47 to 0.50
Extra " .....	5.20 to 5.30	Butter, per lb.,.....	0.15 to 0.16
S. Extra Superfine .....	0.00 to 0.00	Cheese, per lb.,.....	0.08 to 0.08½