

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

Includes supplementary material/
Comprend du matériel supplémentaire

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

Only edition available/
Seule édition disponible

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.

Pages wholly or partially obscured by errata slips, tissues, etc., have been refilmed to ensure the best possible image/
Les pages totalement ou partiellement obscurcies par un feuillet d'errata, une pelure, etc., ont été filmées à nouveau de façon à obtenir la meilleure image possible.

Additional comments:/
Commentaires supplémentaires:

Continuous pagination.

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

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

Canadian Agriculturist,

OR

JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE
OF UPPER CANADA.

VOL. XIII.

TORONTO, MARCH 16, 1861.

No. 6.

The Culture of the Vetch.

The vetch, or tare, (*Vicia Sativa*) constitutes in several European countries one of the most valuable and extensively cultivated of the guminous forage-plants. It is annual, indigestible and hardy, and comprises several varieties, all of which possess properties more or less adapted to the wants of the farmer. We have received several enquiries respecting this class of plants, and its adaptation to the climate and raising of Canada.

Several varieties are cultivated in Germany and other European countries, but in the British Islands, where this crop extensively prevails, the winter and spring varieties only are much sought after. These two are precisely of the same species, and do not even constitute botanical varieties; and their different habits have been acquired from the practice of sowing one in the fall and the other in the spring. From the different habits they have acquired, it is of the greatest importance, even in the moderate climate of England, that they should be sown at the periods to which they are respectively adapted; for if the spring variety be sown in the fall, the early winter frosts would injure or destroy it. Much caution is required in this respect, as it is impossible to distinguish between the two kinds of seed from external appearance. In this country the winter variety would have, in the fall, no chance whatever; for in case the farmer should protect it through the coldest

months of winter, the severe night frosts which always occur after the snow is gone, would be sure to destroy it. The spring variety, therefore, is the only one adapted to the climate of Canada.

We are not, perhaps, in possession of sufficient information to say absolutely that the cultivation of the spring vetch could be profitably carried on as a general crop, to any great extent, in this Province. The vetch naturally does best in a warm and moist spring, and the sooner it can be got to cover and shade the ground the better; and the crop will always more or less depend on the vigour of its early growth. A cold, dry spring is consequently very unsuitable. From the little we have seen and heard of the cultivation of the tare, when properly treated, we are inclined to form a favourable opinion; certainly the matter is well worth a fair trial, and we shall be happy to hear from such of our readers as have had practical experience in it. In the meanwhile, we offer the remarks that follow.

A rich clay loam is the best adapted to the culture of the vetch; although it will succeed either on lighter or heavier lands, if liberally treated. It is best to manure the ground in the fall, and plough it in a good depth, carefully furrowing the land to keep it dry, which will be found highly advantageous in spring; when it should receive another ploughing and harrowing, to obtain a good tilth for the seed bed. The spring ploughing may be dispensed with

if the operation has been well performed in the fall, and a heavy cultivator substituted; but a new prepared seed bed is of primary importance. It is also of importance to sow the tares as soon as the state of the land and weather will admit; say in this climate about the middle of April; but this operation cannot be regulated by the day of the month. Late sown tares, however, will seldom succeed, unless the soil be in excellent order, and the season prove particularly favourable. If sown broadcast for forage, $2\frac{1}{2}$ to 3 bushels per acre will be required; if for seed, a less quantity will suffice. If the seed be small, and the ground rich, and in good tilth, the quantity may be diminished; but in crops of this sort it is the best policy to sow plenty of seed. The plants should be sufficiently thick to cover the ground, and thus prevent the growth of weeds, which are often very troublesome among these kinds of crops, when too thin; and they should not be attempted but upon land that is comparatively rich and clean.

If the season should prove moist, and the before mentioned conditions observed, the crop will come to cut before clover is ready, and a second mowing may be obtained; and, sometimes, even after that another slight growth may be obtained, in time to be ploughed in for winter wheat, for which in heavy lands tares are an excellent preparation. In this way abundance of forage may be obtained for siling stock during the summer months, naked fallow dispensed with, the land manured and kept free from weeds, and well prepared for our staple article—fall wheat. Tares make excellent hay, but being so very succulent the operation of saving is somewhat difficult and tedious, except in dry, hot weather. They should be cut when coming into pod, and if left a little later they will make excellent winter fodder for sheep. Unless they are left for seed, this crop takes comparatively little from the soil, and returns to it if properly managed, much that is valuable; being, in this respect, very different to most other spring crops.

All the animals of the farm are fond of this legume, either in its green or dried state, and all thrive upon it in an eminent degree. Hogs may be entirely fattened upon it. It is suited to milch cows, causing them to give more butter

than most kinds of food; and it is extensively used for horses. In addition to their value as green forage, tares, when well made into hay, are regularly relished by all kinds of the domesticated animals, particularly sheep; and are, therefore, well worthy to receive a fair and extensive trial in this country, as a rotating and ameliorating crop, assisting the farmer to sustain his live stock through the greater portion of the year in a thriving and healthy condition.

The Past, Present, and Future of British Agriculture.

The above subject was introduced at the first meeting of the London Farmers' Club, February 11th, by Mr. Alderman Mechi, whose paper evinces his usual industry and zeal in the cause of Agricultural improvement. We think that this paper will be interesting and suggestive to most of our readers, and shall therefore give portions of it in succeeding numbers of this Journal. Mr. Mechi's style will not admit of abridgement, even were that desirable. We do not know where to look for so much valuable and interesting information on the history and progress of British Agriculture, upon which our own is mainly founded, as is contained in this cleverly compiled essay:—

B.C. to A.D. 450.—If this country were without towns, cities, or roads, trade, commerce, or manufactures, and if the population were, consequently, solely agricultural, it would evidently be unnecessary to produce more corn or meat than would supply their own families, their lords, warriors, governors, clergy, and dependants. Pasture, wood, and waste would abound; and, as there would be no use for money, the proprietors of land would receive for their almost worthless acres, personal services or a portion of the produce. Such was, in fact, the condition of Britain when, 55 years B.C., the Romans under Julius Cæsar landed in Kent, and ultimately conquered nearly the whole of South and Mid Britain, which they colonized and partially civilized, giving to the natives municipal institutions—a pretty good proof that in South and Mid Britain we were not so savage and barbarous a race as has been by some represented. It is true that the North Britons were more fierce, barbarous, and warlike than those of the South; and that our cannie friends over the border were then, as now, determined to come South in search of the "loaves and fishes;" for, in spite of high walls and fortresses, the Romans con-

only partially check the inroads of the Picts and Scots. The Britons of that remote period were evidently agriculturists, having herds and flocks; and also, in Southern districts, growing corn, the roofs of their wooden houses being thatched with straw. They also made hay, for the wheels of their war-chariots had scythes blades attached to them; and having chariots, they must have understood making wheels. Although we have no authentic records before the time of the Romans there is sufficient evidence to show that Britain had for many centuries carried on a trade with the Phœnicians, who coveted the produce of her mines; and, in fact, the Belgians had partially colonised the South-eastern coast. No doubt the agriculturists of that day had their Webbs, Bakewells, and Collings; but they had no oilcake, turnips, or clover, to carry them through the winter. Having no Manchester manufacturers as their customers or suppliers, the ancient Britons depended principally upon nature for their clothing, in the shape of furs and skins obtained by their skill as hunters in the extensive forests and copices, or from the skins of their sheep and goats. Probably their nobles or Druids in the Southern Districts were clad with felted cloth. They grew woad, and used it for staining their bodies. The Britons appear to have been a noble and finely developed race, as might naturally be expected from their happy climate and fertile soil; and it can be no flattery to our British women to say that their personal charms and virtues have, from the earliest recorded period, exercised a most salutary influence on our race and welfare, for we find every powerful nation, from the Romans to the Normans, intermarrying with our British women; and we have no record of the introduction of foreign women into this happy country. Strangely enough I might quote my own case in proof of my argument, for my father was a Roman, and my grandfather a Saxon—my mother and grandmother being both English. One thousand five hundred years ago, Britain had possessed for more than three centuries nearly the whole of the Roman civilization, such as personal security—and, after payment of Roman taxes, security of property—arts and letters, elegant and commodious buildings, and roads to which no roads they have had since can bear comparison, except our present railways. It is easy to imagine that under such circumstances, and with the instruction and encouragement imparted by Roman civilization, British Agriculture improved and flourished, and not only supplied its own inhabitants, but exported corn to Rome. The Romans were compelled by their domestic troubles finally to abandon Britain, A.D. 449.

449 to 1066.—Now commenced the Dark or Middle Age. The Picts and Scots ravaged the South country, and the divided Britons, unable to cope with their fierce and barbarous enemies,

called to their aid the Saxons. These wild, warlike, and pagan people liked the country so well that they speedily sent for their countrymen, and eventually became masters of Britain; having, however, to sustain frequent and bloody wars with the piratical Danes, who occasionally overran portions of the country. Agriculture thus fared badly for several centuries, and we can easily believe Adam Smith, who says, "When the German and Scythian nations overran the Western provinces of the Roman empire, the confusions which followed so great a revolution lasted for several centuries. The rapine and violence which the barbarians exercised against the ancient inhabitants interrupted the commerce between the towns and the country. The towns were deserted, and the country left uncultivated; and the western provinces of Europe, which had enjoyed a considerable degree of opulence under the Roman empire, sank into the lowest state of poverty and barbarism. During the continuance of those confusions, the chiefs and principal leaders of those nations acquired or usurped to themselves the greater part of the lands of those countries. A great part of them was uncultivated; but no part of them, whether cultivated or uncultivated, was left without a proprietor. All of them were engrossed, and the greater part by a few great proprietors. This original engrossing of uncultivated lands, though a great, might have been but a transitory evil. They might soon have been divided again and broke into small parcels, either by succession or by alienation. The law of primogeniture hindered them from being divided by succession; the introduction of entails prevented their being broken into small parcels by alienation. But when land was considered as the means, not of subsistence merely, but of power and protection, it was thought better that it should descend undivided to one. In those disorderly times, every great landlord was a sort of petty prince. His tenants were his subjects. He was their judge; and in some respects their legislator in peace, and their leader in war. He made war according to his own discretion—frequently against his neighbors, and sometimes against his sovereign." When, however, they became, by admixture of race, Anglo-Saxons and christianized, a great improvement gradually took place. They no longer sold their wives and daughters as slaves, and they appear to have been possessed of the most of the usual live stock and implements of ancient agriculture. Murrain and famine alternately diminished their live stock and population, much as it does now in ignorant and pagan nations; and one-fifth of their herds perished every winter from exposure and want of food. The wool of the sheep was valued at two-fifths of the price of the whole sheep.

A.D. 866.—In King Ethelred's time the following prices were fixed by law: A man or

slave 20s., horse 30s., mare or colt 20s., ass or mule 12s., cow 5s., ox 6s., swine 1s. 3d., sheep 1s., goat 2d. The lands belonging to the Church were, generally, the best cultivated. The monks themselves engaged in the labours of the field as a means of support. Then, as now, the superior education, and consequent intelligence, of our clergy enabled them to improve agriculture.

1066 to 1400.—In the eleventh century William the Norman conquered England, and the foreign knights and others who accompanied him, or who afterwards settled here, made many improvements in horticulture and agriculture. They were, however, great game preservers, and their forest laws for its preservation were severe in the extreme. They delighted in the chase, planted the New Forest, and converted many extensive tracts of country into woodland as shelter for their game. Their ruined castles abound in Essex and Suffolk. Within three miles of Tiptree Hall is a fine specimen of their architecture, called Layer Marney tower—the adjoining church containing effigies of the Layer Marney family. As a rule they selected good land. The population was now estimated at about two millions. The drainage of the fens of Cambridge and Lincolnshire were commenced at this period, A.D. 1220. Our Scotch friends were considered behind us in farming. Essex was one vast forest, and stood foremost in Domesday Book for its number of pigs, which there found their food under oak and beech trees—the number was 92,991—Hertfordshire having only 30,705. A great many goats were kept as stock; and, even now, very old men tell me of the fierce she-goats which rushed out upon them, some eighty years since, when Tiptree Heath was a wild and wooded waste. Lords of the manor had considerable privileges. They monopolized all the water mills; their tenants were compelled to send their corn to be ground. The Lord of the manor monopolized also the privileges of baking his tenant's bread at the common "furne." Windmills were not known in England until about 1150. The shoeing of horses with iron is not supposed to have been used before the Conquest. Horses were rarely used in agriculture. As there is much discussion now about wearing beards, it may be interesting to know that our laity all wore beards until the Norman Conquest; so I suppose the Normans cropped as well as conquered us. They were, themselves, close shaved or croppen, for the spies reported to King Harold that they had whole regiments of priests, inferring from the practice of our then clergy that close cropping and priestcraft were synonymous; our agriculturists will, therefore, be justified by precedent in discarding their razors. Landowners were not without their troubles; for in the reign of Edward II. (1307,) the estate of the elder Spenser, in Suffolk, was ravaged by his enemies, who carried off 28,000

sheep, 1,000 oxen and heifers, 1,200 cows with their calves for two years, 500 cart horses, and 3,000 hogs. In 1317 harvest was all gathered by the 1st September, and wheat fell to one-twelfth of the price at which it had been sold a few weeks previously. The fluctuations in the price of corn seem to have been much greater formerly than of late years. In 1202 and 1223 it was 12s. per quarter, 1237 3s. 4d., 1243 and 1244 2s., 1246 16s., 1257 2s., 1258 20s., 1270 9s., and also £6 8s., 1286 2s. 8d. and also 16s. Considering the high value of money at those periods, it is easy to imagine what suffering, starvation and disease must have followed the years of scarcity. Such enormous fluctuations could only arise from a concurrence of other evils with an unpropitious season, such as invasion, civil war and rebellion, from which, thank God, we are now exempt; and we ought highly to prize the blessings of good government and good laws, well administered, which we now enjoy. Much of our progress is founded on a conviction that life, and property, and liberty, are secure in this happy country. Farmers are no longer called villains and churls, subject at any moment to do military or other service, at the command of their lords; nor have they to guard their flocks and property against the thousands of robbers and murderers who formerly infested this country. The proportion of pasture land to arable gradually decreased, but was still as twenty to one. The steward of the manor (Hawsted, in Suffolk) kept the manorial and farm stock accounts in *Latin*. This would now puzzle some of our modern stewards.

A.D. 1400 to 1480.—During this period our flock-masters must have improved the quality of their wool, "the cheap and principal commodity of the realm," for it was highly esteemed abroad, and the demand exceeded the supply. I presume the mutton was also improved, so that the animals were better fed, for in former times sheep were kept for their wool only. "Villains" were gradually emancipated, and became free labourers, and a new class of cultivators arose, paying money rents. At the Hawstead Manor Farm, Suffolk (Sir T. Culham's) the produce of sixty-one acres of wheat for three years was two hundred and ten quarters, above nine bushels per acre, and, as the price was low, this was no doubt a good crop, and certainly the farming would be quite equal to or above the average. The quantity of seed sown was two and a-half bushels, so that the return was barely four to one. The produce of the different grains at that period, on that farm, was—wheat 8 bushels, barley 12, peas 12, and oats 6—a very small return for the quantity of seed sown, and something like what is now grown in many foreign countries that supply our market. In the thirteenth century much arable land was laid down to pasture, on account of the high price of wool, and also because of the scarcity of labour. The

lains having been made free labourers, be-
 nk themselves to handicrafts and manufac-
 res. Land appears to have been let still at
 cap rates, say 4d. to 8d. an acre, and it must
 re been of a fair average quality, as it was on
 r Thomas Cullum's estate, in Suffolk; in fact,
 1400, the Abbot of Bury, Suffolk, let eighteen
 s of pasture, on a lease of eighty years, for
 d. per acre. Landlords reserved to them-
 res the right of immediate re-entry if the
 ts were not punctually paid. As to wages at
 t time, a bailiff received 25s. a year, besides
 at and drink, and 5s. a year for clothing. A
 ef hind, carter, or shepherd, 20s., and for
 thing, 4s.; a woman-servant, 10s., with 4s.
 clothing; a commou labourer, 15s., and 3s.
 for clothing; and he seems to have been left
 provide his own diet. In harvest, wages were
 her, say 4d. with meat and drink, or 6d. if he
 rided for himself; a reaper or carter 3d. with,
 5d. without, provisions; a woman, 2½d. with
 4d. without. These wages were fixed by
 tute, but still labourers became scarce. Cot-
 old wool was in great demand by the Flem-
 Venetians, and others, for the manufacture
 fine cloths; and it is said that Cotteswold
 p, being sent to Spain, produced—as a re-
 I presume, by a cross—the celebrated Meri-
 We had not at that time learned the art of
 ing up our fine wool at home; we were at
 period, exporters of grain to foreign parts,
 a law was passed to compel boroughs, towns,
 to provide a standard bushel measure. The
 of coal became now more general. How
 y this sounds to us, who know that last year
 consumption of the twenty-one miles circle
 d London was 5,000,000 tons, of which
 4,000 tons came by rail.

OS to 1608.—During this period a large ad-
 e was made on our agricultural condition.
 ers passed from wooden trenchers and
 en spoons to pewter, and even in some ca-
 s silver. Their straw pallet was exchanged
 feather bed, and their rents were doubled.
 softer sex also found their condition amel-
 ed. All this took place concurrently with,
 s a corollary to, our progress in manufac-
 and commerce.

Comfort for the British Landowner.—Adam
 says, in his "Wealth of nations:" "Every
 vement in the circumstances of society
 ether directly or indirectly, to raise the
 ent of land; to increase the real wealth of
 dlord—his power of purchasing the la-
 or the produce of the labour, of other peo-
 The extension of improvement and culti-
 tends to raise it directly. The landlord's
 of the produce necessarily increases with
 crease of the produce. That rise in the
 ace of those parts of the rude produce of
 hich is first the effect of extended improve-
 and cultivation, and afterwards the cause
 being still further extended (the rise in

the price of cattle, for example), tends, too, to
 raise the rent of land directly, and in a still
 greater proportion. The real value of the land-
 lord's share—his real command of the labour of
 other people—not only rises with the real value
 of the produce, but the proportion of his share
 to the whole produce rises with it. All those
 improvements in the productive powers of labour
 which tend directly to reduce the rent-price of
 manufacturers, tend directly to raise the real
 rent of land. Every increase in the real wealth
 of society, every increase in the quantity of use-
 ful labour employed within it, tends indirectly to
 raise the real rent of land. The contrary cir-
 cumstances—the neglect of cultivation and im-
 provement, the fall in the real price of any part
 of the rude produce of the land, the rise in the
 real price of manufactures, from the decay of
 manufacturing art and industry, the declension
 of the real wealth of society—all tend, on the
 other hand, to lower the real rent of land, to re-
 duce the real wealth of the landlord, to diminish
 his power of purchasing either the labour or the
 produce of the labour of other people.

(To be continued.)

Salt as Manure, Green Crops as Manure. &c., &c.

EDITOR OF THE AGRICULTURIST.—Can you or
 any of your correspondents answer the follow-
 ing questions:

Has common salt been tried as a top dressing
 to wheat in Canada? If so, in what quantity
 per acre and with what result?

Has its specific action been ascertained? I
 observe Mr. Hind, in his prize essay on the
 midge, seems to think that it acts beneficially
 by fixing the ammonia of the atmosphere. Is
 this a sufficient reason for the great increase of
 five bushels of wheat per acre which he mentions
 as having been produced by the application of
 one bushel and a half of salt to five acres of land?
 See page 125 of Essay.

Is there any more convenient crop than buck-
 wheat for green manuring? I sowed a few acres of
 it the middle of July, under the impression that it
 would be ready to plough down after the harvest.
 The plant, however, grew so rank that I could
 find no one able to devise a method to turn it
 under; and after exhausting every suggestion, I
 had to mow and lead it into the fold yard. Are
 there fast growing grasses that would answer the
 purpose?

What would be the best mixture of clover and
 grass seeds to sow with a grain crop for the pur-
 pose of being depastured the following year
 only?

Where can I get a two-horse cultivator, simple
 in construction, and one that a blacksmith could
 mend in case of accident, and at such a price
 that a person having a hundred acre farm could

buy? I think if a page of your journal was set apart to delineate and describe good and really useful implements adapted to the use of the million it would be a boon. I find nothing more difficult to obtain than information where such things are to be had.

Would it be inconsistent with your arrangements to give your readers a more detailed account of Dr. Voelcker's investigations into the preparation, management, and application of manures, a brief notice of which you took in one of your late numbers. It would appear from what you stated then that a great misapprehension exists among those who are considered good practical farmers as to the mode of applying manure. If Dr. Voelcker has found the true law it cannot be too generally promulgated, and let us be done with empiricism as soon as possible; surely the trite observation that the agricultural mind moves very slowly seems to find corroboration, if it be the case, notwithstanding that the art of culture has been practiced since the days when Adam delved till the present time, we are not yet acquainted with the proper method of putting on the muck. I am, &c.,

CALEDON.

REMARKS.

The great benefits of salt to agriculture anticipated several years ago in England, by the sanguine imagination of Mr. Parkes, the author of "The Chemical Catechism," subsequent experience has not confirmed. The action of salt as applied to cultivated crops is very variable, and by no means to be depended on, except in particular seasons, soils, &c. It is found generally, particularly when applied with lime, to brighten and stiffen the straw, cause the ear to fill with clean, plump grain, and to expedite the progress of the crop towards maturity. Whether the whole of the increase of the wheat to which our correspondent alludes, is to be attributed to the salt applied, may fairly admit of a question. It may, however, in some degree, fix ammonia and arrest the progress of mildew and rust. Salt may be used advantageously in this country in composts and farm yard manure. We are not aware whether our farmers use it as a top-dressing for wheat; if so, some, perhaps, will have the goodness to inform us of the results.

The reason our correspondent did not succeed with the buckwheat appears simply to have been that he allowed it to get too great a growth before ploughing it under. Buckwheat answers well for this purpose, especially on light lands; other plants may be used, such as oats,

millet, Indian corn, &c. There is no crop answers better to plough under for improving land than clover, although of course it can be employed with the same readiness as a summer crop.

As to mixture of grass seeds, there is so few sown in this country besides timothy and clover that we have scarcely any results to report. We think our correspondent might try orchard grass along with timothy and clover and a few white and alciter clover. A notice of "Orchard or Rough Cock's foot grass will be found in *Agriculturist* of 1860, page 250. It is of rapid growth, and produces a great deal of pasture and also of fog or aftermath. It requires to be cropped down pretty close, or it becomes coarse and rank in growth.

Of two-horse cultivators, there were but two exhibitors at the last Provincial Exhibition. Those who took prizes were Messrs. S. Ebb Markham; George Robinson, Markham; J. McLaren, Lowville. The other manufacturers reside in nearly every quarter of the Province. We do not doubt that our correspondent can procure such an implement as he requires for some of them, at a reasonable price, say \$120. We shall be happy to insert notices and descriptions of useful implements if the manufacturers will send them to us.

We shall endeavour to comply with our correspondent's wishes in regard to Dr. Voelcker's investigations into the principles of manuring in a future number.

[The above letter and remarks were accidentally omitted from our last number.]

Characteristics of "Fife" Spring Wheat.

From the Country Gentleman and Cultivator.

This variety of what has been grown extensively the last three seasons in the west northwest, and proves to be so valuable, I think every wheat cultivator in the United States, or may be, interested in knowing something more about its habits and qualities, than yet come under the public notice; at least as far as I am aware, from considerable agricultural reading. Though to some, its name may imply, this wheat is not of Scotch origin, it does not get its name from the county of Fife, from the name of its originator, Mr. David of Otonabee, C. W., who saved a few roots

ter variety that he obtained from Dan'zic, Scotland, I believe, and subsequently cultivated the produce as a *spring* wheat." I will after thirty years experience in wheat culture that I have seen no variety of spring wheat that contained so many useful qualities, and therefore so widely adaptable, as the Canada Club in Wisconsin. It is very hardy, and therefore less liable to rust or mildew and other diseases than other known varieties. It is later than the Canada Club, and does not ripen off so early; it therefore is more conveniently and economically harvested, particularly as it has the great advantage of shelling or beating out with less difficulty the crop, even when dead ripe, and is comparatively free from loss, therefore, in rolling, reaping, or other harvesting routine. It was a few inches taller than Club; about as heavy, which is quite strong in the straw, and consequently stands up well, not lodging except in very rich situations.

The Fife wheat threshes easy enough, and is less cut or broken by the horse machines than the Club or Rio Grande. Indeed, my Fife was broken in threshing, while the Club was, to a considerable extent; and the Rio Grande, in this respect, more so it seems. This shows the softness of the Fife to be comparatively and literally compact and very firm, or when dry, even when which I infer must give it better keeping qualities than those of more tender varieties.

Two years ago, before it was generally

known, and when, therefore, its merits were not well understood, its broad and hardy qualities led the millers to look well to their grinding apparatus, as they found it required edge and grit, and more than common power to flour it well. Hence they gave it a gritty reputation. But the Club failed so fast the last few years on the Wisconsin prairies (which by the by, are to within two miles of my house, as fine as any in the U. S.) that Fife rapidly superceded it; so that now there are probably three acres of Fife to one of Club raised. Now, therefore, the Fife variety is well known, particularly in this State and adjacent wheat districts. Its quality, though not changed, is now much better appreciated. Instead of there being more grit in it than in the long known Club, it now turns out that its flour is equally good as the flour of Club itself, in which it approaches therefore, to within twenty-five or thirty per cent. per barrel, in quality and value to the flour of winter wheat. Our better informed producers, now, therefore, sell Fife and Club at the same prices, and these usually rate only five or six cents a bushel less than winter wheat commands, or rather formerly sold for; I say formerly, for I have not seen a field of winter wheat this year.

I know of many instances, too, in which Fife has yielded three to five bushels per acre more than Club, both this season and last. In all this I am saying nothing in depreciation of the good old Club, where this has shown no symptoms of decline. But in Wisconsin, Club has extensively exhibited a declining tendency in a variety of particulars, which, as they may not have befallen it elsewhere, I need not detail. On the whole, Fife wheat—in consistency with its recent origin from a fall variety—comes so near in hardness, productiveness, and other economical qualities to winter wheat, that in localities where the latter is precarious or uncertain, in any considerable degree, I should prefer to replace it with spring Fife; the difference in the value of produce being much less in such circumstances, than the anxieties and losses incident to a precarious crop. Last year the Fife with me yielded 26 bushels per acre; this year thirty-six. This year, is not a criterion; however, the season having been so unusually good for wheat. But I have no doubt I can make the Fife yield twenty-four or five bushels per acre one year with another, and I need therefore say no more in recommendation of a sort so evidently nearly right. J. W. CLARKE..

his account of the origin of the Fife wheat does not agree with a statement published in the *Genl.*, vol. 13, p. 237, by Mr. GEORGE W. CLARKE, a neighbor of Mr. Fife's at Otonabee. Mr. CLARKE says: About the year 1842, Mr. DAVID FIFE, of the town of Bee, C. W., procured through a friend in Scotland, a quantity of wheat which was obtained from a cargo direct from India. As it came to hand just before spring time, and not knowing whether it was a spring variety, Mr. Fife concluded to sow a part of it that spring, and wait for the result. It proved to be fall wheat, as it ripened, except three ears, which grew naturally from a single grain; these were saved, and although sowed the next year in very unfavorable circumstances, being sown late, and in a shady place, it proved at that time to be entirely free from rust, when all the wheat in the neighborhood was badly rusted. A sample of this was carefully preserved, and from it sprung the variety of wheat known as the Canada Club and the Northern States, by the names of Fife, Scotch and Glasgow. The facts occurred in my immediate neighborhood, and being intimately acquainted not only with the introducer, but with the circumstances, I can vouch for the correctness of the above statement, and if necessary produce incontrovertible proof."

known; and when, therefore, its merits were not well understood, its broad and hardy qualities led the millers to look well to their grinding apparatus, as they found it required edge and grit, and more than common power to flour it well. Hence they gave it a gritty reputation. But the Club failed so fast the last few years on the Wisconsin prairies (which by the by, are to within two miles of my house, as fine as any in the U. S.) that Fife rapidly superceded it; so that now there are probably three acres of Fife to one of Club raised. Now, therefore, the Fife variety is well known, particularly in this State and adjacent wheat districts. Its quality, though not changed, is now much better appreciated. Instead of there being more grit in it than in the long known Club, it now turns out that its flour is equally good as the flour of Club itself, in which it approaches therefore, to within twenty-five or thirty per cent. per barrel, in quality and value to the flour of winter wheat. Our better informed producers, now, therefore, sell Fife and Club at the same prices, and these usually rate only five or six cents a bushel less than winter wheat commands, or rather formerly sold for; I say formerly, for I have not seen a field of winter wheat this year.

I know of many instances, too, in which Fife has yielded three to five bushels per acre more than Club, both this season and last. In all this I am saying nothing in depreciation of the good old Club, where this has shown no symptoms of decline. But in Wisconsin, Club has extensively exhibited a declining tendency in a variety of particulars, which, as they may not have befallen it elsewhere, I need not detail.

On the whole, Fife wheat—in consistency with its recent origin from a fall variety—comes so near in hardness, productiveness, and other economical qualities to winter wheat, that in localities where the latter is precarious or uncertain, in any considerable degree, I should prefer to replace it with spring Fife; the difference in the value of produce being much less in such circumstances, than the anxieties and losses incident to a precarious crop. Last year the Fife with me yielded 26 bushels per acre; this year thirty-six. This year, is not a criterion; however, the season having been so unusually good for wheat. But I have no doubt I can make the Fife yield twenty-four or five bushels per acre one year with another, and I need therefore say no more in recommendation of a sort so evidently nearly right. J. W. CLARKE..

Marquette, Wis., Oct. 16.

Manure.

EDITOR CANADIAN AGRICULTURIST,—No doubt you rejoice that this [word] manure is beginning to be looked upon by farmers as of a talismanic character. Its importance is beginning to be

fully estimated in political circles; the Kingston *Daily News* devotes an occasional article to the subject, and why not? Has not Zoroaster said that "the fairest fruit of man is to till the ground."

While admitting the value of superphosphates and guanos, let us see how far our own manurial resources may be developed before we set about importation. The manufacture of potash in many parts of Canada, has led to the formation of large mounds of leached ashes. In an area of three miles I have counted 22 heaps, containing more than 22,000 bushels. These valued at one cent a bushel, would be worth \$220; but they are worth to the farmer five cents a bushel, making the lot worth \$1100. It is a fact, that Americans have manufactured potash from the leached ashes sold by manufacturers on this side; they have paid for them four cents a bushel by the cargo put them in a dry place, mixed them with lime to decompose any insoluble matters found in combination with the potash—for instance the silicate—and then manufactured potash. These leached ashes were then sold to farmers at from one to three cents a bushel. Unleached house ashes made from maple and beech contain to the bushel about 4 lbs. pure potash, manufactured in the ordinary way, and I am sure that full 50 per cent more of alkali is obtained from them when incorporated with soil; the application of well saved wood ashes will be found to fulfill all that is done by salt, while they are cheaper. Leached ashes, if previously spread under cover to evaporate from them the large amount of water they contain, would be found better than muck as an absorbent for manure pits. It would pay farmers to draw them in winter time from a considerable distance; and in localities where a good clearance has been effected we would advise them to resist the importunities of the ash-gatherer, and put their ashes on fields intended for spring wheat some time before sowing.

Another source of manure to which attention has not been directed in Upper Canada, is our fisheries. Large quantities of white fish and herring are annually caught on the Bay Quinte, the Lake-shore of Prince Edward, and on Lake Erie. What becomes of the offal? What is done with the immense hauls of suckers that disgust the fishermen in search of better fish? Now, guano is nothing more than fish—less so much of it as has been assimilated by birds; and if we may obtain in a cheap form nearer home all the elements of guano, no necessity exists for its import. Mr. Sterry Hunt, in an article published in Nos. 9 and 10, vol. II., of the Lower Canada *Farmers' Journal* called attention to the importance of manufacturing a portable manure from the refuse of the fisheries in the Lower St. Lawrence. Two French gentlemen have erected a large establishment on the coast of Newfoundland, for the manufacture of a

manure from the refuse of the fisheries, the value of which Mr. Hunt estimates at \$40 a ton. Will some of your readers who reside near the lake fishery give his information and thoughts on the subject.

By the way, Mr. Editor, in No. 1 of the present volume, you gave an extract from the *Working Farmer* on the value of carrots, in which it is said that a large portion of the inorganic constituents find their way back to the soil in a progressed form, i. e., when the carrots are fed upon the farm; and that this progression induces a consequent progression of the organic matters of the soil itself. Do you indorse this theory of the progression of primaries first promulgated by Prof. Mapey's superphosphatic speculation notoriety. If there be any truth in the theory let its data be known in agriculture we want facts, not assumptions. I have read somewhere of humate of lime. Leibig denies the formation of such a salt.

J.R.

Camden East, March, 1861.

Irish Agriculture.

If there be one thing more than another which this age prides itself, it is the attention to the daily practical wants of mankind, and providing of new sources of industry for the increasing wants of an accumulating population by the discovery and cultivation of new fields of industry. And assuredly it may well boast triumphs like these; for they are but the fulfilment of the great religious duty of labor—*laborare est orare*.

Nowhere is the application of practical knowledge to the daily wants of life more imperatively demanded than in this country, placed, until recently, on the outer confines of civilization, a semi-barbarous and simple state, its population subsisting, not on industry directed by science and skill, but on the simplest forms of pastoral labor. But invaded and surrounded by an advancing civilization, the people of this country could not always exist in a pastoral state, and the last dozen years must have warned them often painfully, that Providence demanded higher exercise of industry than milking and digging potatoes. There never existed a nation who were taught this lesson in a more memorable manner than the Irish. Yet it is even now only awakening to an elementary sense of our duties and necessities. We follow "the old rate," with the proverbial tenacity of the Celtic character. But we must also give some little time or other the "Paddy" life of the country. That is not the life which men were made. They are made to be together in close society, and not in selfish isolation, and thus their true state is best promoted by skilled industry.

Now, of all forms of skilled industry,

It exercises itself on any "raw-material," and brings it from the raw to the finished manufactured state, is that form or "mission" of industry which creates most wealth, gives more extended employment, and confers most individual happiness. Except in one northern corner of the country, it has never been practically known to the Irish people. They have heard of it, they have seen and enjoyed some of its wonderful fruits, but they have been utter strangers to its value as a source of wealth, progress, and individual independence and happiness. Except around Belfast, the people are still engaged in the simple, pastoral, and semi-barbarous habits of milking cows and digging potatoes.

But this simple form of industry must give us ultimately. It is not sufficient to meet men's wants, nor does it promote civilization. Butter, meat, potatoes, corn—though valuable products of the soil—are yet not "raw-materials," which admit of being passed through a variety of stages and operations, employing many hands and diffusing much individual prosperity. Their product is simple, we may almost say rude; still, on these sources of industry alone Ireland still dependant.

There is hidden in her soil a mine of gold, richer than any Australian gold-field, and that is the capacity of her soil to produce flax, a plant inferior to silk in its value as a "raw-material" for the exercise of human industry. If we had but knew the value of this simple and useful plant, she would leave to other regions to supply her under the provisions of free-trade, and the common necessities of life, and apply herself to supplying the world with linen fabrics. Instead of a landscape of potato gardens narrow and barbarous state of society, the eye would be delighted with the prospect of fields waving a flaxen harvest, destined to cover the beds and couches of the civilized world with the finest fabrics, and give daily occupation and employment to millions of civilized men.—Cork Reporter.

They are as follows: pot and pearl ashes, staves, pipes, and West India squared timber, saw logs, cord wood, poultry, mutton, and lastly bees. Our township of Raleigh, in Kent, is one of the smallest in the west; when the marshy plains are deducted from its full area, containing only about 662 families, and yet the amount of the above eight articles will show as follows:

Pot and pearl ashes, 145 barrels, at \$35 00 per bbl.....	\$5,075 00
Staves of both kinds, average in five years.....	7,000 00
Square timber, mostly white oak, average in five years.....	4,000 00
Saw-logs 23,000 pieces, averaging \$1 25.....	2,875 00
Cord-wood, 2,500 cords at \$1 25 per cord.....	3,125 00
Poultry—geese, ducks, chickens, eggs, and feathers.....	6,620 00
Mutton—1,200 sheep and lambs, sold or eaten at \$3 00 each	3,600 00
Bees—225 hives, swarms, and honey \$5 00 each.....	1,125 00

Total annual income.....\$33 420 00

I have consulted with some of the most experienced and most thorough farmers of the township, likewise the enumerators, and arrived at the above totals as the lowest ones possible, each one being in some seasons far below the real productions. Now let us take the ten townships of our country at the same rate, (and they average that or more) we shall have a total for the country of \$334,200 worth of bush and farm industry in one county not exhibited. Multiply this by 30,* the number of Counties in Upper Canada, some of which produce at least twice as much as Kent, and we have the neat little sum of ten millions and twenty-six thousand dollars. So that now I hope you will agree with me that the industrial resources of our poor country are not fully or fairly represented by the census of 1861.

Yours, &c.,

A SUBSCRIBER.

Raleigh, Kent, March, 1861.

Census—Agricultural Products of Canada.

TO THE CANADIAN AGRICULTURIST.—I suppose that the census of Canada for 1861, is now returned, and will soon be returned, and laid open to public inspection, to show the British public what amount of population we possess—what wealth we possess—and how we gain a living generally; I am sorry to say, that they will be led sadly astray, as to the industrial resources of Western Canada, as I will presently show you. In the enumeration of means of subsistence, there are many important items not mentioned, that is, those for which no columns are provided.

LAND DRAINAGE AND IRRIGATION—There are many thousands of acres of deep-drained agricultural land in different parts of Great Britain, where the outfalls of the drains are at sufficient elevation, and in suitable places, to allow of the water drawn off being used for purposes of irrigation. Lands, to be deep drained, may also be laid out so as to work the subsoil water of

* There are 42 counties in Upper Canada.—31 counties and unions of counties for judicial purposes. Ed.]

the upper portions over the surface and through the soil of lower lying districts. No available depth of drain yields pure water, and it has long been proved by analysis that water from a manured field contains soluble salts of any manures used; it must evidently be an advantage to pass such water over and through other lands. We throw out the hints for what they may be worth; we think deep draining and irrigation may work together with advantage.—*Builder.*

LIQUID MANURE.—Prof. Sprengel, the celebrated German chemist, asserts that each cow produces annually 18,000 pounds urine, which contains of solid matter 900 pounds. This solid matter is fully equal to the best guano, weight for weight, so that the liquid manure of every cow kept on a farm for one year, is worth, when applied to the crops, more than \$20 annually, and so in proportion to all the rest of the domestic animals. It may be said that in no other department of rural economy does the American farmer lose so much by neglect, as in the management of solid and liquid manures.

HAY REQUIRED TO KEEP A HORSE.—A correspondent of the *Wisconsin Farmer*, who has given careful attention to the subject, says that five pounds of hay at a feed, or fifteen pounds per day, with twelve quarts of oatmeal, or its equivalent in shorts, will keep a good sized horse in fine condition for all road or farm work, and in amply sufficient. Some will keep on considerably less; this however is a fair average.

THE ART OF AGRICULTURE.—A great deal has been written and said about the science and art of agriculture, but for practical guidance the whole thing is in a nut shell. It consists in these two rules—make the land rich, and keep the weeds down. If any person who tries to raise any plant will follow these two rules he will succeed, and if he does not follow them he will not succeed.

Agricultural Intelligence.

Kansas a Sheep Country.

It appears from a letter of Governor Medary, of Kansas, recently published in the *Ohio Cultivator*, that that territory is peculiarly well adapted to the raising of sheep, particularly the fine and short woolled. The country is described as unusually rolling, without swamps or wet marshes; the hills in some places approach to mountains, with wide and dry valleys, having sufficient inclination of surface to afford good natural drainage. The climate, like all high

rolling prairie of great extent, is peculiarly dry with clear sky. Winter continues about three months, thermometer occasionally below zero but generally mild, dry and pleasant. In some of the lower valleys sheep require but little artificial food or protection during winter, as but little snow falls in such situations. There is but little drizzling rain, which is so injurious to sheep. Millions of acres of the best pasturage are said to be yet unoccupied in the organized counties, extending 500 miles to the foot of the mountains, which may be occupied with sheep and cattle for little more than the expense incurred in providing shepherds, and abundance of hay can readily be procured. The Legislature has exempted sheep, buildings, and pasturage lands from taxation. This is a glowing picture which the original may not fully realize.

WHEAT PLANTED IN HILLS.—We noticed, a year ago, the experiment of D. Yant, of Evans, O., in planting an acre of wheat in hill using a little over five pounds of seed to the acre. The hills were 20 by 15 inches square with five kernels in each. He now reports the result in the *Ohio Farmer*, from which we learn that the grubs and cut-worms destroyed full one-half of it, and that it yielded at the rate of 17 bushels per acre, or 204 bushels for one of the seed. Mr. Y. says: It stood enormously; thirty, forty, sixty and some large well filled heads from one grain were common, and I have 111 stalks of wheat that grew from a single seed, yielding about 4 bushels of grain, and a rye plant that produced 183 bushels containing over 10,000 grains—about this is neither mistake nor guess work. Wheat, fifteen inches apart in the drills will not do and to what extent liberal manuring, and some cultivation, may carry the yield, has to be tested."

SHEEP FOR WOOL AND MUTTON.—J. S. Tibbels says in the *Michigan Farmer*, "If wool was my object, I would breed the Spanish Merino; if mutton solely was my object, I would breed either the South Downs, Leicesters or Cotswolds."

REMEDY FOR SMUT IN WHEAT.—A North Carolina correspondent of the *Country Gentleman* says the following has proved successful to him: To the first bushel of seed take 1 tablespoonful of blue vitriol, and soak 24 hours. Then pour off the brine, and dry the seed with lime. Keep the brine, and to every bushel of seed add one spoonful of the vitriol and wash and skim as before, except the 24 hours soaking, and I think Tyro will soon be clear of smut in his wheat.

AGRICULTURE IN SOUTH AUSTRALIA.—The *Colonial Government Gazette* published an extract of the agricultural statistics of the last season, the detailed tabular statements have not been issued. It appears that the total number of acres under cultivation in the colony season, inclusive of 56,266 acres in fallow, was 361,884½ acres, showing an increase in land crop, as compared with the previous year, of 39,445½ acres. The area on which crops were grown was 218,216 acres the total yield was 2,103,411 bushels; an increase over the previous year of 1,000,000 bushels to the extent of 29,513 acres, but a decrease in the total produce of 6,133 bushels. It is also stated that the average yield of wheat at the last harvest must have been miserably small; it is stated in the abstract before mentioned to be 9 bushels 36lbs. In barley there has been a falling off in both area and yield, as compared with the previous year, to the extent of 1,000 acres and 64,822 bushels. The average yield of barley is stated at 12 bushels 4½lbs.—It is also there has been a decrease, amounting to 744 acres and 528 bushels. In potatoes there has been an increase of cultivation with a decrease of produce—579 acres in excess of the previous year having been put under crop, the yield fell short of the previous year by 323½ tons. Hay stands in the same position as the area under crop having been increased 291½ acres, and the produce having fallen by 2,701 tons.—*Australian and New Zealand Gazette*.

BUNG CORN.—As the subject of dibbling (wheat) is attracting considerable attention at the present time, it may not be uninteresting to some of our readers to have before them what was thought upon this point more than two hundred years ago. Our extract is from the 'Systema Agriculturae' published in 1861.

OF SETTING OF CORN.

It is the usual manner of sowing of corn, and there are several other ways of dispersing it, as dibbling and hoeing of it in, &c. This art of setting corn seems to be very ancient, as appears by Virgil, '*Unguibus infodiunt et ipsis*' and hath been a long time attempted brought into practice again, as appears by the late Mr. Adam's 'Tool Revived,' printed in 1640, where he doth very ingeniously shew that it is not only the way, but the great advantage that accrues by this then new discovery. The first part thereof giving you the reason why corn sown in the common way yields not so much as an increase as it doth by being set; the second part shews you the manner of digging the holes where you are to set your corn; then he comes to the description of his instruments, and shews that some are only many pins, set at a constant distance in a board, which, compressed into the earth, make so many holes where the seeds are to be dropt one by one; but these are very unnecessary and troublesome, and that there are newer and better ways

found out, I shall decline any further discourse about them. Also, he gives you the distance and depth; where he observes that, at three inches distance, and three inches depth, *there hath grown thirty quarters of wheat on an acre of ground*, and that four inches in depth and distance hath yielded but twenty quarters; he also speaks of five inches in depth and five inches distance. It's probable the diversity of the land, or of these years wherein the experiments were proved, might beget some difference. Afterwards he adviseth, in barren lands, to fill up the holes with some good mixture or fat compost, or to imbibe the grain you set therewith.

Then Mr. Gabriel Platt succeeds with his newer and better composed method of setting corn, whereby he pretends to remedy all the inconveniences of the former way by his two new invented engines,—the one for the more expeditious setting of the corn, the other for the laying up the land on ridges, just on the tops of the rows of corn, that neither superabundance of moisture might annoy it, nor frost in winter kill it: which way prevents the laying the land in high ridges before sowing; neither need the land be digged, only ploughed, arrowed, and then set.

Here follows a long description of these engines, which it is needless to give, as we have evidently much improved upon these old implements; though we question whether, with all these advantages, we can grow 'thirty quarters of wheat to the acre.'

The Purik Sheep.

The following letter, describing this animal, was sent to the Society for the Acclimatisation of Animals, recently formed in London, by Dr. John Gardner:

SIR—A letter appeared in the *Times* a few days ago from Mr. E. Wilson, on the subject of the Acclimatisation of Animals. It stated that a great desideratum for England is an animal of size between the rabbit and sheep, and suggested the wombat. Two objections appear to lie against that animal—its burrowing habits, and the prejudice which would be certainly entertained against it as an article of food. Assuming that the subject would interest you, and come within the scope of your society, I take the liberty to point out an animal, the introduction of which into this country would be a great public boon, and I cannot but think would amply repay your society by the great popular interest it would excite. The animal to which I allude is a very diminutive species of sheep, found in countries adjacent to the Punjaub—the Purik sheep. This creature is so small that when full-grown it is not larger than a lamb of a few weeks old. It has small bones, and full, fleshy carcase, and its mutton is excellent. It gives two lambs every year, and yields 3 lbs. of very fine wool. Its habits are as domesticated as the dog; it feeds on every kind of vegetable, grain,

fruit, &c., and takes crumbs of barley-cake and shreds of fruit-parings, &c., from its master's hand.

To cottagers, small farmers, and, indeed, to all classes having gardens or living near small pieces of waste ground, it would be a most valuable acquisition. The food which would keep millions is wasted in this country. I have no doubt that a small flock could be got to England at a very moderate expense, and I think it probable that, were your society to evince an interest in the matter, the Peninsular and Oriental Steam Navigation Company would afford facilities for effecting the importation. The vessels of the company leave Kurrachee twice monthly, in connection with the transit on the Indus.

The Purik sheep would seem exactly adapted to supply the requirement mentioned by Mr. Wilson, and it would be an object worthy of the efforts of a public-spirited philanthropist to import it. The countries it inhabits are not unlike England in climate—hotter, perhaps in summer, but colder in winter.

Farming in Kincardineshire, Scotland.

SIR,—A copy of the *Irish Farmers' Gazette* is now lying before me. Several interesting questions are referred to in it—such as the partial substitution of oatmeal as an article of diet, in place of potatoes, amongst the agricultural population, the cultivation of turnips, and the providing of sufficient housing of stock during the winter, &c. Perhaps the practice in this far off corner of Scotland may be interesting to some of your readers.

I may, then, premise that the great Grampian range of mountains, which extends in a north easterly direction across the whole of Scotland, terminate in this county, towards the confines of lower Aberdeenshire. Much of the area of the county is occupied by mountains, incapable of cultivation; but in the valleys and hollows, and along the line of sea coast, agriculture is conducted with the *greatest* energy. Great competition exists for the occupancy of land; and whenever an old tenant declines to give what the landlord may ask, the farm is at once advertised in the newspapers, a day is fixed for receiving *written* offers, and the result generally is that the highest offer is accepted. A lease for nineteen years and crops is granted; the landlord erecting all the farm buildings, often at a great cost, and in some cases charging five per cent. on the outlay, while in others there is no charge. Capital is also advanced for draining, at from four to six and a half per cent., as the case may be, the tenant, on his part, undertaking to keep the houses in good repair, and the drains in working condition. The outgoing tenant has the privilege of selling off the whole of the last crop, which he generally does by auction; and the incoming tenant may purchase

what he pleases of it. He has also to pay for manure which may be on the farm, but never pays for clover and grass seeds, sown on, perhaps, one-fifth of the farm, together with any ploughings which may have been given to the land. If he be an energetic farmer, he immediately sets about preparing for green crops, by deep ploughing his stubbles, collecting manure, &c.; as it is by producing heavy crops of turnips that he expects to keep his land in heart, and pay his rent, which is usually done about the 15th of February and 15th of August, for the preceding crop. The fifth shift rotation is the most common—that is, oats, after two-year-old lea; turnips; barley, sown with ray grass and clover, viz., 1 bush. ray grass, 2 lbs. white clover, 1 lb. red, and 2 lbs. alsike. The whole farm-yard manure is applied to the turnip and potato crop, with an addition of 3 cwt. of guano per acre to the former, and 4 cwt. to the latter. Greater is taken to clean the land previous to sowing the turnips, and afterwards by hoeing and grubbing, and finally, by furring up. One farmer, who acted with me the other day as a judge of the sips for a sweepstakes offered by the corn club, and who farms nearly 500 acres, told me while riding along, that his guano bill this year amounted to £500. The farmer who gained the sweepstakes told us that he bought annually five tons of manure for *each* acre he occupied, a mix with his farm-yard manure, besides having a large guano bill. I occupy 250 imperial acres, and my outlay for manures for the last ten years is above £1,000.

I mention these facts merely to show what can be done with profit under adverse circumstances such as a generally poor soil and severe climate. In the parish to which I belong the rental in 1839 was about £11,000, and it is now about £17,000. Yours, &c., A SCOTCH FARMER.

LONG LIFE AND FARMING.—What advantage hath the farmer in this respect? Not much, as the results of reliable statistical observations, given in a condensed form in what follows, very satisfactorily demonstrate. Dr. Edward Jarvis of Boston, President of the Statistical Association, has prepared a table from mortality reports of Massachusetts, of men in different occupations. The average length of life of cultivators of the soil is much higher than that of any other large class, being 64 years, while that of professional men of all classes is 62; that of merchants and capitalists, 48; that of mechanics whose business leads them to outdoor activity, 48; that of mechanics confined to shops, &c., 47; that of sailors, 46; that of laborers, 45; that of common carriers, 44. Of the particular professions and occupations, the average longevity of clergymen was 56; of lawyers, 54; of physicians, 54; of coopers, 53; of blacksmiths, 52; of carpenters, 50; of masons, 44.

of tanners, 48; of merchants and clerks, 47; of shoemakers, 43; of painters, 42; and of tailors, only 41. This well established fact that farmers have the advantage of almost all other men, and altogether of any other large class, in point of longevity, seems worthy of record, and of a place in the memory. It may subserve several purposes, and be of special service in moments when we get discouraged, or discontented, along with a glance at our other blessings and privileges.

BRINE OF HERRING AS A MANURE.—The *Journal d'Agriculture Pratique* publishes an article pointing out the great advantages to be derived from the use of the brine in which herrings have been cured as a manure for land. From an analysis made by MM. Girardin and Marchand, it has been found that 543 litres of this brine, arising a density of more than twenty degrees, contains as much azote or fertilizing matter as a cubic metre of farm manure weighing 800 kilogrammes, and 393 litres of brine as much phosphoric acid as a cubic metre of the manure. His brine, according to the experiments which have been made, is especially suited to land rich in carbonate of lime, the quantity to be used being not more than about 1,400 litres for a hectare (2½ acres). It produces very marked effects on wheat crops, increasing the produce both in grain and straw, and preserving it from smut; and when applied to rye, oats, colza, potatoes, and vegetables of all kinds; materially promotes their growth. It may also be used with great advantage in beetroot intended for feeding cattle, but must not be applied to that root when grown for the fabrication of sugar. This brine is applied in various ways. Some farmers spread it over the ground immediately after the crops are sown, while others mix it with the ordinary manure. From the quantity of herrings caught and pickled, it is calculated that 45,000 hectolitres of the brine might be annually devoted to agriculture.

DISTILLERS' GRAIN OR DRAFF which cattle-keepers have hitherto found so far from realizing their expectations in laying on fat, has, of late, when used, we understand by Mr. Finnie of Swanon, in feeding sheep with singular success. So testified is Mr. Finnie of the advantage of the application of distiller's grain, both in respect of economy and improvement, that he has fully determined to feed his sheep stock in this way throughout the ensuing winter.—Those whose farms are in the neighbourhood of distilleries might for their own satisfaction, test the desirableness of this mode of feeding on a small scale, and should they come to the same result, we shall have pleasure in receiving a communication from them on the subject.

Horticultural.

Hints for the Season.

Although stern winter has not yet released his frozen grasp, and the thermometer a few nights since ranged as low as zero, yet there are now and then unmistakable signs of the near approach of spring, when the gardeners will be so beset with work, as not to know which way to turn. Every thing, therefore, in advance of the busy season, should be now done that is possible. Future plans should be finally decided, tools for out-of-door operations should be got in readiness and repaired when needed, tubers and seeds examined or procured, with special regard to their health and purity; for the gardener or farmer can scarcely commit a greater mistake than the sowing of inferior seed, which is always dear at a gift. The price of the seed usually bears but a very small proportion to the aggregate amount of raising a crop, therefore we strongly urge our readers to procure *the best*, whatever the price, and to deal only with such parties in whom they can reasonably place confidence.

No time should be lost in getting matters ready for active operations, as soon as the weather and the state of the ground will admit. It is best, however, not to be in too much haste, as the weather in early spring is often treacherous, severe frosty nights sometimes following warm and sunny days. Before planting trees or putting in any principal crop, care should be taken not only that frost is perfectly out, but that the ground is dry, with but little chance of the return of strong, chilly winds, which are often so disastrous to newly transplanted trees, and vegetation generally. In this climate but little can in general be done in making the main crops in the kitchen garden, till the middle or end of next month, but the particular preparations should be now commenced. Hot beds should at once be made; and in this climate where there is such an absence of early spring vegetables, they will largely minister to the health and comfort of the family. With small outlay and little attention every one that has half-a-dozen yards of ground, can do something in procuring early salads and vegetables, which

Knit stockings were invented in Spain in 1550. Handkerchiefs were first manufactured at Paisley, in Scotland, in 1743.

are truly considered as belonging to the real luxuries of life.

Orchards and fruit trees generally, should now be carefully examined and pruned; a most necessary operation, and, in this climate, much better deferred till the more intense frosts are over, but by no means so late that the vegetable fluids are in active circulation. Shrubs and exposed flowering plants, whose tips the frost has affected, should be severally cut down, which will enable them the more readily to make fresh wood when the growing season arrives, and sometimes prevent their being destroyed. Box-edgings, which have so neat an appearance along garden walks, may be made as soon as the frost is fairly out, and the ground getting warm and dry. Rooted plants are much to be preferred to cuttings, the latter being so liable to die in patches. Care should be taken to place the plants at a uniform depth, and tread the soil closely against the roots, in order to preserve a straight line and prevent disagreeably looking conditions. In Canada it is well to keep box-edgings pretty close to the ground, or they are liable to severe injury by winter frosts. A slight covering of leaves or rough muck before the warm weather sets in will do much to ward off this evil. All kinds of rubbish should now be removed from the garden, if not done before, and the walks raked and got into order, as soon as the weather and surface will admit. When the frost is thoroughly out of the ground, and before the latter becomes too dry, the rollers should be put into requisition, both on the walks and lawn. If the grasses are getting thin and weakly, a slight top dressing of guano and salt, soot or wood ashes, or a rich solution of the nitrates of potash or soda, will be found highly advantageous; the latter should not be applied till the growing season has fairly commenced. In England these nitrates in a crude and impure state, are used pretty largely in agriculture, throwing rapidly much nitrogen into the cultivation of plants, and often changing their color, in a few days, from a sickly yellow to a healthy green.

In the vegetable garden no time should be lost, as soon as the frost is out and the ground dry, in making the necessary preparations for getting in peas, carrots, beets, parsnips, spinach, lettuce, onions, salary, early potatoes, &c. Caution, how-

ever, is required in these matters; and care should be taken not to put in any crop unless the soil is properly prepared, and sufficiently warm and dry. It often happens that but little can be done in getting in garden crops till the middle, and sometimes the end of April. In some situations and seasons, but little can be done before the beginning of May. Much, however, will depend upon the character and treatment of the soil, and the exposure of the garden. Under-draining when needed, and a deep, rough digging previous to winter setting in, will render Spring operations both earlier and easier, and the crops more abundant and certain.

Asparagus, rhubarb, and horse radish beds should be prepared as soon as the ground will admit. The two former require a deep, loose, rich soil, and care taken not to plant too thickly, which is a common mistake. Ground should be prepared for pot herbs, which are required in every family; such as thyme, sage, mint, balm, and other perennial herbs. Cabbage seed of the summer kinds is sown in hot beds, and the young plants should be gradually hardened by careful exposure before being finally planted out. Cabbage requires well manured and deeply cultivated ground, in which a considerable amount of clay is incorporated; heavy soils produce a better quality than such as are sandy. Owing to the lateness and uncertainty of our springs, it is prudent not to be in too great a hurry in planting out cabbage; a caution indeed that is needed in relation to most other crops. Be always prepared for sowing as soon as the proper time arrives, which must be in great measure determined by the state of the ground and the atmosphere;—always remembering that in gardening, as well as in farming, *haste is not necessarily healthy progress.*

Dwarf Apple Trees.

EDITOR CANADIAN AGRICULTURIST.—In a previous communication I endeavoured to call attention to the mode of training and planting orchards of apple trees adopted by Dr. Beattie of Nichol, and Mr. Werden of Picton, to advance some reasons why such a system seemed better adapted to meet the severity of our climate; and to obtain from these gentlemen a more full and detailed statement of their mode of culture, and of the results attained; in the belief

that the information in their possession would prove of great benefit, and show how orchards of apples may be grown successfully in some of our colder sections, where trees pruned up in the old fashion have thus far, and probably always will, fail.

Apple trees pruned in the manner adopted by these gentlemen may be termed *half standards* or *dwarf standards*; and are produced, not by grafting upon any peculiar stock, but by forming the head low and keeping it there by pruning. As we gather in the experience of cultivators in different sections, and this mode of training is more extensively tried, we shall know whether there be any parts of our country where even the dwarf standards will not endure the climate, and where consequently it becomes necessary to grow the apple in some other way, in order to enjoy the fruit fresh from the trees.

In view of the possibility of such a result, and of the difficulty already experienced in growing some very desirable varieties, I now propose to say a few words about growing the apple in the form known as the Dwarf Apple Tree. And in the outset, it may be well here to correct a very common but also very erroneous opinion, that the dwarf apple tree is a particular kind of very small apple, produced by an equally diminutive tree. On the contrary, any kind of apple, even the largest in size, can be grown on a dwarf apple tree. By grafting or budding the desired variety of apple upon the Paradise apple stock, the tree is dwarfed in its growth, begins to bear fruit at two and three years old, when the fruit is often larger and finer than when grown on the common apple stock. The Paradise apple tree, which is simply used as a stock, only grows three or four feet high, and when our fine varieties of apple are grafted upon it, the stock checks the natural growth of the graft, and compels it to form a low tree or bush, about the size of a currant bush. These stocks are as yet all imported from Europe, planted out here and grown until fit for grafting or budding; and though the tree is so very small as to look contemptible in the eyes of those accustomed to standard trees, yet they cost more and are necessarily at a higher price than apple trees grown on the common apple stock.

When thus grown on the Paradise stock, such varieties as the Baldwin, the Rhode Island Greening, and others too tender in the colder parts of the Province, seem to be perfectly hardy, and to endure any exposure and cold to which they have been subjected. It seems then but natural to expect that if there be any section of the Province where the apple tree will not thrive either as a standard or dwarf standard, that there can be successfully grown when thus dwarfed. I have been informed by a resident of the county of Waterloo, that he is acquainted with sections, not very far north of him, where the inhabitants have never as yet gathered an apple of their own raising, though they have planted

many trees that should long before this have shown fruit, but instead of bearing fruit they have wholly perished. Without more knowledge of all the circumstances, it is not easy to form an opinion of the cause of this extensive failure. Yet it has seemed probable that in those sections, where the snow usually falls so early as to cover the ground before it is frozen, and so deep as to prevent the frost from reaching it throughout the winter, so that the undug potatoes lie safely in the hill until spring, that the roots of the tree are kept so warm as to allow of the sap starting too early in the spring, when the sun shines out in March and early April, upon the branches and tops, causing the buds to swell, and the sap vessels to be filled, before the severe freezing weather is all passed away.

But whether this be the case or not, the dwarf apple tree would be likely to be wholly protected in those regions, not only from sun, but from frost and frosty wind, for being so small it would be buried all the winter long under the snow, and thus kept safe until the return of spring made its covering no longer necessary. And besides all this, the slow, short growth it makes during the summer is so hard and firm, so well ripened and perfected, that it is prepared to resist a degree of cold that would kill a more succulent growth. Nor would the amount of fruit obtained from an acre of such dwarf apple trees be so trifling a matter after all, for although not more than half a bushel of fruit could be expected from each tree at seven or eight years old, yet being so small they are usually planted at six feet apart, so that twelve hundred trees are set on an acre. Our orchards of standard trees are rarely set nearer than thirty feet apart, giving at that distance only fifty trees to the acre, so that each tree must bear an average of twelve bushels per tree to equal the product of the acre of dwarfs. Very few orchards indeed, even in the most favored parts of the Province, yield such a crop at eight years old, and where the trees are liable to be injured by the winter when grown in any other than the dwarf form, the question as to which to plant is no longer open.

My object, however, was not so much to express my own views of the probable value of the dwarf apple tree to Canada, as to invite, through the columns of your journal, an expression of opinion by those who have tried them, particularly those who reside in the northern and western counties, where the climate is more trying than in this favored county of Lincoln. Mr. Werden has given them sufficient trial to say "as for dwarf apple trees, I feel so well satisfied that they will give good satisfaction, that I recommend every man that has ground only for a garden, to fill it up with these trees." But we need something more full and definite. We require to know whether any varieties are tender when dwarfed on the Paradise; and if so, what they are; whether the fruit is as large, as fair

and as high flavored as when grown on the common apple stock; at what age they generally begin to bear; how much fruit on an average is produced by dwarf apple trees at four years old; how much at eight. Also, whether they are adapted to all soils, or can be grown only on some particular soils; whether they require any special treatment, and if so, what it is; and whether they have been found to fail under any circumstances, and if so, what they were.

Many gentlemen doubtless have had more or less experience with dwarf apple trees on Paradise stock. Will they please send it to you, Mr. Editor, and in addition to Mr. Werden, you can call on Mr. C. Arnold, of Paris, County of Brant, who has had considerable experience with these dwarfs, under circumstances calculated to test their hardiness and general value for Canada.

D. W. BEADLE.

St. Catharines Nurseries, March 1861.

Orchards on Steep Hillides.

Well do I remember when I was a boy, getting many a bump in the ribs, from the plough handle while working our steep hillides for rye and buckwheat, and not with the best of feelings towards our forefathers for clearing the timber off. I am frequently asked which is the best place to plant an orchard. My advice is to take the best land. I would always prefer a sheltered situation, behind a hill or wood. Steep hillides are generally objected to for planting an apple orchard; but I think a steep hillside is not the worst place by any means. My hillside orchard is doing quite as well as any I have. It is in the form of a half circle, with a south-eastern exposure. I plant my trees in a half circle to suit the hill, in order to make it more pleasant to work, and also to keep it from washing. I think that trees can be placed much closer on a steep hillside than elsewhere to advantage. My method of cultivation has been to plough down from the upper side to within four or five feet of the next row. I plough the first furrow close to the row with one horse; I then plough the balance with two horses.

In four or five ploughings it will form a terrace that answers a very good purpose. I had also planted a row of nursery trees with each row of orchard trees, which did very well. By merely working from the upper side, the spaces are now level, or rather inclining a little back, which causes it to retain moisture much longer than it did before it was ploughed into terraces. The spaces between the terraces I use for strawberries, blackberries, seed-beds, etc. It is also a first rate place to raise early vegetables.

The side-hill used to be a regular eye-sore, but now it is the prettiest part of my farm. I think we can make no better use of our steep hillides than to plant them with trees, if it were for no-

thing else than for the appearance. The grass growing on the terraces we used, when the trees were young, for mulching; drawing mellow ground on them from the upper side.—C. B. Orr in *Gardener's Monthly*.

Rhubarb.

The different kinds of rhubarb are raised from seed, and increased by that means, or by dividing the roots; the latter is preferable for increase, as there is a much greater advantage in getting good strong plants in one half the time they could be had from seed. If raised from seed, sow in sixty-sized pots, very thinly, in a mixture of earth consisting of one half leaf mould and one-half rich loamy earth; place the pots in a cucumber frame, or hot-house, until the plants make their appearance, which will be in a very short time, provided the seed is sown in March. As soon as the plants have attained the height of one inch, let them be thinned out to a single plant, and in two or three days move the pot into the green house, or other cool place, to harden the plants. As soon as the pots begin to be full of roots, which will be the case in two or three weeks, let the plants be moved into pots a size larger, and in two or three weeks time the plants may be placed in the rows where they are to remain,

If increased by dividing the roots take care that there is a bud on each part you intend to plant; let one of those buds be placed in the centre of each pot, and as soon as they begin to be filled with roots, &c., treat them the same as the seedlings. In making the ground or rows ready for planting, throw out the earth two feet in breadth, and to the depth of twenty inches; let this be filled up with equal parts leaf mould, rich loamy earth, the soil which is thrown out of the trench, if of a moderate quality, and one part of good rotten dung, to which add a small quantity of sharp sand; let all these be incorporated together. Fill up the trenches sufficiently high to allow for setting. When the earth has sunk down, turn the plants out of the pot into the middle of the trench, three feet apart in the row, and if a double row, let them be four feet row from row. If the above instructions be properly attended to, rhubarb of a first rate quality will be produced. The only management required afterwards is to keep the rows clear of weeds, and every autumn to fork the ground over to the depth of four or five inches, covering the same with a good coat of rotten manure; take care not to injure the crowns in forking. As soon as any of the plants begin to run up for flowering, let the stem be immediately cut off; which will be the means of keeping the plants in a much stronger growing state; for, when they are allowed to retain the flowering spikes, it weakens the leaf stalks very much.—RHEUM GIGANTEUM, *St. Albans, in Gardener's Monthly Magazine*.

The Tomato—Its uses and Cultivation.

We find the following letter on this subject in the "Working Farmer," published at New York, by Chas. V. Mapes.

Dear Sir:—Since you and many other cultivators of the Tomato, have expressed your surprise and satisfaction on examining some of my seedling Tomatos, and a desire to know their right and proper treatment, I will with pleasure comply with your request.

Until within a few years, very little was known in this country about the Tomato. It is as grown as an embellishment in some corner of a flower garden, and called the *Love-Apple* now, it is an article of Daily food; and in a few years it will be in common use in almost every part of the globe. Its culture and use will everywhere extend, just in proportion as reliable and exact information on the subject is spread. I have grown the Tomato, and watched its culture in many of the climates and countries of Europe and America, and I will furnish you a little quota of observation and practical experience, hoping thereby to draw out valuable information from others. Everybody knows something of the value of the Tomato as a fruit, and how we should miss it if it could be raised more. But very few persons know how easily and abundantly it can be grown in perfection, how cheaply it can be preserved for future use in many forms, nor its invaluable medical properties as conducive to health and vitality. I will speak on only two or three of these points.

1st. The best Kinds and Varieties.—Six years ago I began a more thorough system of experiments than I had ever practised or seen. I prepared my beds for growing Tomatos, and the analysis of the soil corresponded very closely with the chemical components of the fruit. I sown germinated ten or twelve of the finest varieties I had, or could get, and obtained large vigorous plants of the same kinds from our New York gardens. One of each was planted itself, where it could not hybridize. In another bed I planted all the varieties together, to make them hybridize, and multiply new kinds. I succeeded in getting one variety, which I found superior to any I had ever seen, in the following qualities—*delicacy of flavor, thinness of smoothness of skin, sweetness of seeds, solidity of meat, earliness of ripening, richness of color, evenness of size, and ease of culture.* The next year I cast all other varieties away, and sought this to perfection; and it has been universally pronounced by Agricultural Fairs, Farmers clubs, and Scientific Horticulturists, to be superior to any other.

2d. My Mode of Culture.—Germinate in a greenhouse, hot-bed, or kitchen; for very early sow, transplant when quite small into pots. The Tomato improves by every transplanting, and the time should be set deeper. From the time

four or six leaves appear, pinch or cut off the larger lower leaves and the terminal buds, and continue this process of pruning, till the fruit is far advanced; so that when ripe, the bed will seem to be covered by one mass of large, smooth, even sized, Tomatoes, of the richest pomegranate color—and the leaves hidden by the fruit.

Set plants three or four feet apart, in the warmest spot you have, and let them fall over to the Northern frames twelve or fifteen inches high; or on pea brush; anything to sustain them; and keep the fruit from touching the ground, which delays ripening, creates mould, invites cut-worms, and always gives the Tomato an earthy taste. Try for only one cluster, (the first that blossoms,) and cut everything else gradually away. This will give you Tomatos in perfection in the latitude of Buffalo, four or six weeks earlier than they are usually ripened in our climate. If you wish late Tomatos, pull up each plant by the root (just before the frost comes) and hang them up on the south side of a building, top down, with a blanket to roll up days and let fall nights. When ice makes, hang them up in any room that does not freeze, or in a dry cellar, and you will have fresh Tomatos all winter—somewhat shrivelled, but of fine flavor.

EDWARD LESTER.

The Hot Bed.

Few that have not tried it can form an adequate idea of the amount of luxury and comfort that may be commanded in early spring by means of a hot-bed. In these northern parts, in particular, after a long and severe winter, early vegetables are relished with a peculiar zest. But without artificial means this enjoyment cannot be obtained. Salad, spinach, tomatoes, melons, cucumbers, potatoes, and whatever it is desirable to anticipate in the course of the natural season, may be produced in a hot-bed, and brought to the table many weeks before they can be matured in the open air. For the wants of an ordinary family a bed 15 or 20 feet long and about 7 or 8 feet wide will be found amply sufficient. The following instructions for setting about the business are taken from the *New American Cyclopaedia*, an excellent work of authority now in course of publication:—

HOT-BED, in gardening, a bed of earth so prepared as to bring forward at early periods of the year various kinds of plants by means of artificial heat. The fall of the temperature in autumn is met by the readiness of plants to fall into repose, and in those used to climate changes no

serious effect can be produced. Such, however, as are not acclimated cease to grow during any fall in the usual temperature, and commence again on its rise. Unlike animals, plants have very little power to generate heat, and are therefore dependent on the media which surround them for whatever degree of warmth they require. The earth may be heated many degrees more than the surrounding air, and yet prove in no way injurious to vegetation. The unusual vigor of plants growing near hot springs, and in places artificially heated by subterranean fires, is also worthy of attention. A species of moss, the only living thing found within 4000 feet of the terminal crater of Mana Loa, was noticed by Wilkes; its existence there being due to the steam which escaped, and which supplied it with warmth and moisture.

This heated condition of the soil, thus natural to seasons and to regions of the globe, would suggest what is called bottom-heat in gardening. Many seeds, especially those of tropical plants, will not germinate unless in higher than ordinary temperatures of earth, and to excite them some kind of stimulus is requisite. It is not an unusual practice in America to sow such seeds in mid-summer in the open ground, which becomes so heated by the rays of the sun as to retain much of the warmth during the entire night. The hot-bed then, is a provision by which a constant and gentle warmth is maintained: and the external structure, which preserves this warmth, is called a frame. Many tropical plants will neither flower nor grow unless they are surrounded by an elevated atmosphere, and are planted in such heated soil as they are accustomed to; and the same holds true with many aquatic plants. Meyer found the temperature of the water in the rice-fields where the red Nelumbium flourishes to be 113 degrees. Hence the hot-house or stove is erected for their especial accommodation, and by a system of hot water pipes or some similar contrivance the required heat is procured.

The hot-bed differs from the stove, in having the space between the sash and the surface of the bed very shallow, and having its heat maintained by fermentation. The work of the gardener in the early spring months is directed to the hot-beds or frames, and in these he forces such vegetables as he wishes to have prematurely fit for the table. The art of framing or management of the hot-bed depends much upon the accuracy and care taken in its construction. The ground where it is to stand should be defended from cold and cutting winds, and enclosed by a tight and well-built fence, or by live-hedge. The frame can be made of any suitable material, but should be so constructed as to give the top surface a proper slope to the sun, as well as a declivity to carry off the wet when covered with the sashes or lights. It is essential that they should be as tight as possible, so that none of the warm air from within, or cold air from without shall penetrate through the cracks. On this declivity or slope the sashes should be laid, and in such a way that they can easily move or slide from top to bottom.

The bed that is to be covered by such frames

must be composed of good horse-stab's dung, selecting that which is fresh, moist, and full of heat. After a sufficient quantity of such is procured, it should be forked into a heap, so as to mix it well, and allowed to remain eight or ten days to ferment equally; a necessary precaution lest the bed become too hot and thereby destroy the germinating seeds. At the end of this period the dung should be shaken and mixed, and formed into a bed four feet thick, beating it down firmly with the back of the fork. It is calculated that this thickness will be diminished at least 8 inches in a fortnight, when the frame and sashes are to be put on and kept closed until the heat comes up, when the glass is to be raised behind to allow the steam to pass away. This accomplished, the manure is to be covered with soil, which has been previously prepared in the form of compost, of equal parts of light, rich garden-earth, the mellow surface loam of rich old pasture-ground, and a portion of very rotten or old horse dung. This, having been well incorporated and exposed to the weather for several months before, is to be spread to the thickness of about 6 inches in a level manner, when the hot-bed is ready for use.

The seeds of most vegetables are sown in drills upon this compost, those of melons and cucumbers in small pots which are plunged into the soil. After the seeds are sown and the sashes are closed, the heat of the bed raises much steam from the moisture beneath; this should be suffered to escape by raising the corner of the upper end of the sashes. An hour before sunset the sashes should be shut and covered with matting or some suitable protecting substance; and this is to be taken off regularly an hour or so after sunrise. Great caution is requisite, in a climate like that of the Northern United States in order to keep up proper warmth and to exclude any frost. After the seeds have vegetated and the young plants have come up, the sashes should be raised a little in the day time, so as to admit fresh air, and if the surface of the bed appears to be dry it should be moderately moistened with water of about the same temperature as that of the enclosed air of the frame. After a while the heat will sensibly diminish, when it is customary to line the exterior of the bed with fresh dung, and cover these linings with litter.

TREE PLANTING.—Mr. Wm. Bright, (good authority) recommends to the Gardener's Month, the planting of all kinds of trees as near the surface of the ground as possible, even for quite large trees, digging about four inches deep only, setting the tree in the basin, and when covered to a mound with a cart load or two of earth prepared for the purpose. The tree then is in position to start its new roots into the top soil which is warm, instead of into the cold bottom soil they have to when planted the ordinary way.

During the past year the Massachusetts cotton mills have manufactured 30,265,000 yards of cotton cloth, or a web of 18,190 miles in length.

Domestic.

CHARCOAL FOR BURNS.—The Gazette Medical of France, says that, by an accident, charcoal has been discovered to be a sure cure for burns. By laying a piece of cold charcoal upon the pain subsides immediately. By leaving the charcoal on one hour, the wound is healed, as has been demonstrated, on several occasions. The remedy is cheap and simple, and deserves a trial.

COOKING POTATOES.—Never soak potatoes in water before cooking them. As soon as boiled, the water should be poured off, and the potatoes on one side of the fire to dry, before they are peeled. This is the way to make them mealy. Steaming them is a still better way. Never eat them after they are ready to be dished.

AN IMPROVED CHAMBERLIGHT.—Take a common cylindrical ointment pot, a 2 oz. size in the winter; in the summer a smaller one; fill this with any kind of fat, as the waste fat from the kitchen for instance. Trim by about half an inch of the common wax wick, sold at the tallow-chandler's, simply stuck into a thin slice of wine-bottle cork, upon which place a strip of fine filtering paper, about half the diameter of the cork in breadth, and a diameter and a half in length. It need not be quite so broad, but it must be at least the length stated. The reason for using the bibulous paper is, that it feeds the wick properly; without it, or some such contrivance, it will not burn. Remove with the handle of a teaspoon sufficient of the fat to allow the wick to be a little below the surface, and then remove the fat so removed over the cork and paper, neatly spreading it to make an even surface. The light is now prepared.—*Ann. of Chem.*

HOW TO CURE BACON.—In answer to a question "How to cure bacon by the mild process"—*Irish Farmer's Gazette* gives the following directions:

"Scrape off the hair, and scrape thoroughly clean; when cut up, rub the flesh side with common salt, and pack the pieces on the top of a tray with a gutter round it to catch the brine; once every four or five days, the salt should be changed, and the slitches moving those on the top at the bottom; in six or six weeks of this treatment will suffice to cure the bacon, when it may be hung up to first rubbing them over with coarse bran, or a sort of sawdust except deal; if smoking referred, hang in a chimney; if not in a airy part of the kitchen not too near the fire."

We are not acquainted with the Limerick cantile process; the Wicklow is similar to the given above and practiced by farmers there.

—
solid cake or gold, worth nearly \$50,000
been sold to the Bank of New South Wales.

Veterinary.

Anatomy and Function of the Heart of a Horse.

BY DR. DADD, IN AMERICAN STOCK JOURNAL.

On exposing the heart of a horse, we find that it is inclosed in a membranous sac, or bag, known as the pericardium or heart bag; the function of this tunic, or covering, is to limit its action—and supply from its interior tunic, a quantity of fluid to guard against the consequences of friction which would otherwise occur.

The heart is a dense composition of muscular fibre, and its function is of the involuntary order; so that its physiological expansions, contractions or beating occur without the knowledge or consent of the animal. The average weight of the heart of a horse is seven pounds. Yet when this organ becomes the seat of fatty degeneration or enlargement from any other cause, its weight and bulk are very much augmented. The heart is anatomically divided into four cavities, two of which in consequence of their assuming somewhat the form of the ears of a dog, are named auricles; these cavities, known as right and left, do not communicate with each other, and the septum or wall which intervenes is known as the septum auriculorum. The auricles are located in the front or anterior region of the heart; the ventricles are found in the back part, or posterior region. The right cavity of the heart, known as the right auricle, is the reservoir for the reception of venous blood, and three venous trunks terminate in it, viz.: the anterior vena cava—gate vein—which returns the venous blood from the fore extremities, head, and neck; next, the vena cava posterior, which returns the venous blood from the hind limbs and the posterior part of the body; and to this may be added the coronary or crown vein, a vein of considerable size engaged in returning blood which has circulated through the substances of the heart for purposes of its nutrition.

A considerable quantity of dark venous blood is usually found in this auricle after death; this auricle has free communication with the right ventricle, by an aperture denominated the auriculo-ventricular channel or opening; yet in consequence of three valves, termed tricuspid, which close in an upper direction, when the ventricle contracts, the blood cannot return into the ventricle.

Internally the right auricle is lined by a glistening membrane, somewhat highly organized, having on various parts of its surface small muscular eminences, termed muscular pectinati; the small cavities which occur in consequence of this arrangement, are termed cul-de-sacs. The right or venous ventricle is also lined by a similar membrane, and has beneath it several muscular prominences named *camæ columnæ*—fleshy pil-

lars—which give origin to as many tendinous slips, which are known as *corda tendinae*, they are inserted in a fibrous membrane in the region of the auriculo-ventricular opening and these are named *valvula tricuspis*.

The venous blood having accumulated in the right auricle descends into the right ventricle, from which it is propelled through the pulmonary artery to the lungs. At the commencement of the pulmonary artery are found three valves which in form are half moon shaped—hence are termed semi-lunar valves,—their function is to prevent the return of the venous blood into the right ventricle.

The left auricle has scarcely any anatomical or structural differences than those observed in the right auricle, although its cavity is somewhat smaller, and its walls are somewhat thicker than those found on the right side; it is the receptacle for arterial blood, which is returned to it, after purification in the lungs, by vessels known as pulmonary veins.

The left or arterial ventricle, is the reservoir for arterial blood; which is destined to preserve the integrity of the animal economy, and guard against the wear and tear of the vital machinery; its functions requiring more muscular power than that of the right ventricle, we find that its walls are much thicker, sometimes three times as thick as those found on the right side. This peculiarity of two ventricles, viz.: the muscular mechanism, enables us, when the heart is detached from the body, to determine which is the right or left ventricle.

The channel of communication between the left auricle and ventricle is named, as is the case with the opposite side of the heart—auriculo-ventricular opening; it is furnished, however, with *two* instead of three valves; these are termed *valvula bicuspis*. The left ventricle is one of importance for our consideration, from the fact that here originates the great aorta—a vessel of considerable magnitude—engaged in distributing, by means of arterial ramifications, the arterial blood to all parts of the human body; at its base, near the ventricle, we find three valves named semi lunar; they are similar in function and structure to those found at the base or origin of the pulmonary artery. This ventricle has no direct communication with the left and *vice versa*, between the two we find a strong muscular partition termed *septum tenticulorum*; hence, the heart is a double organ, one is employed in receiving pure arterial blood and in circulating it; the other receives venous blood and distributes it throughout the lungs for purification.

The heart is located in the region of the fourth, fifth, and sixth, dorsal vertebræ right within the central region of the cavity of the chest. It appears that in the bovine—ox species—the heart differs in construction from that of the horse, in the following peculiarities: In the heart of an ox is found a small bone, termed by anatomists “*so*

cordis,” it probably is intended to serve as the attachment for the tendinous and muscular fibres which enter into the mechanism of the heart. Next we notice that on exploring the interior of the ventricles there are several fleshy bands, intended, no doubt, to aid the ventricles in their condition of dilation and contraction.

THE HEART'S FUNCTION.—The blood having gone the rounds of the circulation, through arteries, veins and capillaries, returns by the *vena cava* to the right auricle; it then passes into the right ventricle; by the contractions of this ventricle the blood is forced into the pulmonary arteries; from these vessels it reaches the capillaries, which are in contact with the air cells of the lung; here the venous blood comes in contact with the oxygen of the atmosphere, and is changed from a dark to a crimson colour, and now it returns, by the pulmonary veins, to the left auricle; from thence descends into its respective ventricle. The contractions of the left ventricle force the blood, just purified in the lungs, into the great aorta—*anterior and posterior*—which is the origin of an immense number of arterial branches, and it is through the medium of the same that the blood is distributed to all parts of the body.

The action of the heart may be thus summed up: When the heart contracts, the blood is forced into the trunk of the great aorta; the vessel and its various ramifications being endowed with elasticity, yield to the force and their calibre is increased into longer dimensions. So soon as the contractile force rests, blood ceases to flow into the aorta, it then recovers its size by virtue of its own elasticity, or in other words *muscularity*, and thus forces the contained blood into the capillaries and to all parts of the system.

By the time the aorta has acquired its original size, the left ventricle again contracts, the same process takes place, and is continually recurring, and so the blood is made to move continuously forward.

The beating of the pulse, therefore, is merely the enlargement of the artery under the above conditions, or when fresh arterial blood is forced into it. The blood that passes from the heart in this manner, returns to it, on the venous side by the veins, and by the contraction of the right ventricle the blood is sent to the lungs; so will be perceived that there are two distinct circulations going on in the body at the same time.

Vivisection.

We beg to direct attention to Prof. Spooner's inaugural address on opening the session of the Royal Veterinary College, London, for 1866. It is replete with instructive matter to the students assembled; but that portion to which we would more particularly refer our readers is: reference to the brutalizing system adopted.

the veterinary schools of France, at Alfort and Lyons, in which living horses are subjected to the most torturing vivisection, which we give in the Professor's own words, as extracted from "The Veterinarian":—

"The facts are these: at Alfort, which I visited, and still more I hear at Lyons, the pupils are instructed in surgery by cutting up living horses! Oh, then, is surgery fiendhood? Two days a week, at nine o'clock in the morning, the doomed horse is cast; and then he is subjected to all sorts of surgical operations, such as firing, serratomy, cutting away pieces of the cartilage of the foot, operating as for stone in the bladder, extirpating the parotid and other glands, or the eye, or any organ that forceps can pull, or that knives and saws can reach. Steel and fingers, guided by stony hearts, invade the poor animal at all points. These operations, on the same horse, last from nine o'clock in the morning until four in the afternoon; unless, indeed, he becomes unfit for the diabolism by dying in the meantime. Now, that is what we went over to France to expostulate against. I fear, however, that our deputation made but slight progress towards effecting what I think you will all admit was, on the part of the society, a most benevolent object. To talk of the necessity of these horrors for the purpose of teaching surgery is, I contend, utterly absurd. Here, I am bold to say, we can operate when it is needful, quite equal to the French veterinarian, though we have not learned the art by these direful practices. Our human surgeons, too, are many of them men of consummate skill, though they have not learned it by cutting and slashing living human beings. The same, indeed, may be said of human surgeons all over the civilized world; and yet if there is any necessity for it in one, surely there is the same necessity in the other here is not, in fact, a pretext for these acts, but they stand revealed as naked fiendhood; and hesitate not to say, that every one who has systematically pursued them has become of necessity enamoured of cruelty, and is out of the possible pale of the healing art.

"I hope, gentlemen, the voice of indignant humanity will rise far and wide, from our profession and from the excellent society to which I have alluded—nay, and from all England, where compassion is ever quick to flow towards suffering—until this bloody spot on the veterinary schools of France is wiped away for ever. It is most painful to me to be forced to comment upon the proceedings of our neighbours in forms so harsh, when a very high form of friendship ought to reign between us. But there is no help for it; and I feel that I should be doing the profession in France an injustice did I not with all my heart, with all my mind, and with all my might contend against acts which are destructive of the best interests and tendencies of society, as well as shameful to civilization, and utterly hostile to every pretence of any maxim to human-
-ity.

"Vivisection for physiological exploration may or may not be justifiable, in rare instances; but, if practised, it always ought to be done under some anæsthetic influence; and the doing of it should be avoided by every conscientious physiologist, whenever possible. I may add that physiological schools of vivisection, in which all sorts of animals are cut, and slashed, and sawn open, for mere repetition to the eyes of students, are as infamous in cruelty as Alfort or Lyons. The Society for the Prevention of Cruelty to Animals must keep its eyes open to check the tendencies of these horrid practices, which, it is to be feared, are budding forth in this country, and bring the public opinion, and the law of England, to bear, if necessary, to root them out."

We fear that vivisection has got into England also, if we may believe some reports come to our knowledge. Let us hope that such an abominable blot will not, by any means, be introduced into this country, under any pretence whatever.—*Irish Farmer's Gazette.*

LICE ON CATTLE.—Justus G. Lewis writes the *Prairie Farmer* that if animals are washed all over with soft soap of about the consistency of very thin batter, it will not take the hair off nor injure the animal in the least, and it will destroy the lice. One application is usually enough. It is the best remedy he ever tried or read of.

REMEDY FOR CHOKED CATTLE.—As soon as you discover that the creature is choked, take hold of the windpipe, below the potato, or whatever it is, with both hands, having one thumb on each side, and work out. If that fails, take a horseshoe and put into the mouth to hold it open, then run the hand down the throat and take it out. I knew an ox once that was choked with a potato to throw it out by giving him two or three spoonfuls of Cayenne pepper.

TREATMENT OF RINGBONE.—A correspondent of the *Country Gentleman* says, that he cured this very obstinate disease within a month, with the following recipe:—

- ½ pint spirits turpentine.
- 1 ounce oil oreganum.
- 1 ounce oil amber.
- 1 ounce oil of spike.
- ½ an ounce aqua fortis.

Mix in a bottle, and apply daily (Sundays excepted) with a swab.

CRACKS IN HORSES' HOOF.—The following is Dr. Dadd's mode of treatment of this troublesome complaint, consisting essentially in sewing the parts together, by means of a strong waxed cord:—

"The best practice would be, first, to poultice the foot, (supposing the shoe to have been removed,) with a view of softening the hoof and removing any extraneous matter that may have insinuated itself into the crack. When the hoof

is sufficiently softened, it should be cleansed, examined, and dressed with tincture of myrrh. Select a spot about an inch below the coronet, and with a small gimlet bore a hole through the two edges of the crack, and another one inch above the toe. A straight needle, armed with a strong ligature, is to be passed through the upper holes, brought over and through a second time; thus closing the two edges of the fissure by what the sailors term a "round turn." The same thing is to be repeated at the toe. The assistant, by the aid of the pincers or otherwise, shuts the crack as close as possible, the ligatures are each drawn tight, and tied with a surgeon's knot. A small quantity of blister ointment is to be smeared over the crack, and bar shoe applied.

"The cure is accomplished in two ways—first, by fusion; secondly, by the growth of new horn from the *matrrix* downwards. After the edges have firmly united, cut the ligatures, and pare the uneven edges of the *cicatrix* level with the surrounding parts, and the cure is completed."

Popular Errors.

EDITORS AGRICULTURIST.—"I have recently seen in an agricultural periodical, that the common diseases of the horse are similar to those of man; and the same medicines, in those diseases, are as useful to one as the other. Again we are constantly seeing means of expelling bots. I believe it is universally admitted that 'The Horse,' by Youatt, is a reliable work. On the first of the above subjects we therein find the following:—Epsom salts are inefficacious, except in the immense dose of a pound and a half, and then they are not always safe; and on the latter we find, 'The bots cannot, while they inhabit the stomach of the horse, give the animal any pain, for they have fastened on the cuticular and insensible coat. They cannot stimulate the stomach, and increase its digestive power, for they are not on the digestive portion of the stomach. They cannot, by their roughness, assist the trituration or rubbing down of the food, for no such office is performed in that part of the stomach—the food is softened, and not rubbed down. They cannot be injurious to the horse, for he enjoys the most perfect health when the cuticular part of his stomach is filled with them, and their presence is not even suspected until they appear at the anus. They cannot be removed by medicine, because they are not in that part of the stomach to which medicine is usually conveyed; and if they were, their mouths are too deeply buried in the mucus for any medicine that can safely be administered, to affect them; and last of all, in due course of time they detach themselves, and come away. Therefore the wise man will leave them to themselves, or content himself with picking them off when they collect under the tail and annoy the animal."

I am induced to make these remarks from knowing that a neighbor during the past season in a supposed case of bots, administered to a horse, a large dose of calomel, for three days in succession, followed on the fourth day by a pound of Epsom salts. These doses produced no perceptible effect,—fortunately, no bad effect, but such experiments must surely be dangerous.
BRIAR.

Co. Carleton, Feb. 7th, 1861.

Cure for "Hove" in Cattle.

In a late number of the *Agriculturist* I observed a question on "Hove in cattle," and your answer as to the remedies usually applied for relief to the animal affected; but in too many instances these remedies are not successful, and stabbing has to be resorted to, however unwillingly, for it is a clumsy cure, and leaves bad effects.

I was last spring on a visit to the county of Sussex, where I met some very intelligent breeders and feeders of stock; the subject of "hove" in cattle was discussed, and surprise expressed that I had never heard of the simple and effective cure universally practiced in that county, where hove is very common, particularly amongst their working cattle.

On the swelling causing pain and uneasiness to the animal, a large pail of the coldest spring water is dashed over the back of the animal, or, if the pail is small, two pailfuls; leave the animal quiet for five or ten minutes, and if the wind does not begin to dispel by belching up the throat, repeat the water or shower bath, and the cure will likely be complete.

I confess I was a little incredulous that so simple a remedy would have the effect. But I had not been many hours returned home, when I was called upon to stab an ox dangerously swelled, almost to bursting, from the effects of eating diseased potatoes.

Before resorting to the stabbing operation, I ordered the water cure to be tried; and after a second application it was quite successful,—within fifteen minutes the ox was lying down, chewing his cud, and perfectly well.

Having mentioned this fact to a very intelligent nobleman in the county of Perth, he related what his brother, a captain in the royal navy, told him on return from his last cruise at sea, had happened to a cow he kept on board of ship, fed highly, and subject to hove. This animal was so ill as apparently to affect her brain. She jumped overboard, and was, of course thoroughly immersed in water, was immediately hauled on board again, the swelling dispelled, and no bad effects.

This is strong corroboration of the efficacy of the Sussex cure, which I thus make public, in the hope that my brother farmers may reap the

same benefits as I have done, and that success or failure may be reported by those who have occasion to try the experiment, which, in any case, can do harm.—HUGH WATSON, in *North British Agriculturist*.

Education of the Horse.

That horses may be trained or *educated* so as to be free from tricks and freaks, and perfectly manageable by any sensible driver, needs no argument to prove, the fact is patent to every observing reader. That their education is woefully neglected, is another equally evident fact, and a writer in the last volume of *Flint's Agriculture of Massachusetts*, well touches up this subject in the subjoined paragraph :

One horse is almost perfect, but he pulls away when hitched to any thing less than a cable ; another is very smart and kind while you have hold of him, but if let alone for a moment to himself, springs into a gallop and leaves you alone ; this horse runs away if his tail gets over the line, which it is very apt to do ; and that one if anything touches his legs ; here is one of the very best but goes when and where he chooses. Closely related to him is another, all right if you can tumble into the waggon before he starts. This one kicks, that one bites, and another strikes with his fore feet. One is rendered unmanageable by the sound of a gun or steam whistle, or band of music, and another is terribly afraid of a locomotive, or train of cars, or even of a railroad track. Some will shy at a stone, or a stump, or a white cow, or a bit of paper, and others at a stage coach, or a loaded waggon, or a wheelbarrow. One fears a rube, another an umbrella, and another his own shadow, and so on, and so forth. Now where is the fortunate individual who owns a horse of some spirit, and without one or more of these tricks ; and yet almost every colt may be broken, (educated,) in one month's time, so as to be free from every one of them, and that without any more use of the whip than is necessary to demand his attention."

SAND FOR BEDDING FOR HORSES.—Mr. Small, of Dundalk, Ireland, a veterinary surgeon of considerable experience, states that sand is not only an excellent substitute for straw for horses' bedding, but superior to straw, as the sand does not heat, and saves the hoofs of the horses. He states that sand is exclusively used for horses' beds in his stables.

LICE ON CATTLE.—Ordinary lamp oil has been tried with success in killing lice. It should be applied freely, from the head along the back, and behind as far down as the udder.

INSECTS ON STOCK.—Well kept stock, housed in clean, well-littered, white washed stables, are rarely, unless they take them from other cattle, troub-

led with vermin—but pulverized copperas and sulphur, in the proportion of one teaspoonful of copperas to two of sulphur, with a little salt—mixed in half a bushel of meal, given twice a week, for three weeks, to 100 head of cattle or hogs is said to be a complete cure.

KEEPING HORSES' LEGS AND FEET IN ORDER.

—If I were asked to account for my horses' legs and feet being in better order than those of my neighbour, I should attribute it to the following circumstances. First, that they are all shod with few nails, so placed in the shoe as to permit the foot to expand every time they move ; second, that they all live in boxes instead of stalls, and can move whenever they please ; third, that they have two hours daily walking exercise when they are not at work ; and fourth, that I have not a head-stall or track-chain in my stall. These four circumstances comprehend the whole mystery of keeping horse's legs fine, and their feet in sound working condition up to a good old age.—*Miles on the Horse's Foot*.

Transactions.

Abstract of Report of Agricultural Societies received in the year 1860.

Continued from page 156.

KENT.

COUNTY SOCIETY.—Eighty-five members ; amount of subscription, \$85 ; balance from 1858, \$218 84 ; deposited by township societies, \$318 ; total received, \$10 75. Paid township branches, \$557 86 ; premiums, \$312 ; copies of *Agriculturist*, \$75 ; expenses, \$44 02 : balance in hand, \$86 12.

Extracts from Report.

With regard to the agricultural position of the County of Kent, the Directors observe that Kent, as a County, is watered by the following navigable waters, viz: Bear Creek, on the Sydenham, running through it to the North, Lake St. Clair to the Westward, the Thames through the heart of the County, and Lake Erie to the Southward. That as a general observation, no part of the County is distant more than seven miles from navigable water.

Heretofore the produce of the land, owing to the difficulty of access to market, has been comparatively valueless. Now the construction of gravel roads, plank roads, rail roads, and superior steam navigation in our inland waters, will give a rapid and cheap transport

of our products, which will place us in a better position to compete with other counties. With such prospects as these the farmer will prosecute his work with increased energy; and we have no doubt that the agriculturists of this county will endeavour to raise their standard of farming to that practised in the best agricultural counties in the old world.

The march of improvement is manifested by many of the farmers of this County, by the removal of the great impediments to thorough tillage, viz: stumps, &c. The removal of such obstacles as these enables the farmer to adopt the improvements of the day, such as deep ploughing, high manuring, draining, &c.

It is pleasing to observe the decided improvement in ploughing throughout the county. The ploughing matches, we have no doubt, have been the cause of this improvement; they have created a spirit of emulation among ploughmen, especially the younger portion, who bid fair to surpass their senior competitors. The quality of the workmanship in the class of boys in the ploughing matches in some instances equalled that of the first class.

The timber of the County is almost entirely deciduous, viz: beech, maple, oak, black ash, white wood, and walnut, with some pine and cedar on the shores of Lake Erie.

Connected with the produce of the forest it may be mentioned that several species or varieties of the willow grow, particularly on plains, beaver meadows, and swamps of the townships of Tilbury East, Raleigh, Howard, and the two Dovers, most of which are available for either the coarser or finer varieties of wicker work, or basket making. And this County Society desires to direct the attention of the Agricultural community to the fact that during the long winter evenings a large proportion of adults and juveniles might be employed profitably as basket makers, &c.

Of cereal crops the most important is wheat, the next, maize; then barley, peas, white beans, and buckwheat. The staple commodity may be said to be fall wheat, then oats, spring wheat, barley, and, especially on the borders of the Thames, peas.

Broom corn is likewise, in some townships; as Raleigh and Romney, for instance, extensively grown, and gives employment in the winter to the families of the farmer, with the aid of little and cheap machinery.

As to tenure of land in this County the most of it is freehold. The generality of farms

do not exceed 50 acres of arable pasture and meadow land.

Of mineral manures, as lime, marl, and gypsum, small quantities are used; lime and gypsum are articles of import.

The value of land may be stated to be, for improved farms, with the average amount of accommodation, viz: frame house, barn, cattle sheds, and stable, about from 15 to 50 dollars per acre; and for wild land, excepting the marshes of Dover, Tilbury, Harwich, the Rond Eau Point, and Raleigh, about from 4 to 12 dollars per acre, according to the situation and the value of the timber for lumbering purposes.

Of flax and hemp the Directors observe that the soil of this county is well adapted for their cultivation. But no great attention has been given to it in consequence of the want of machinery for the conversion of the raw product into articles of commerce. The flax seed distributed by the Board of Agriculture arrived very late, but was sown by G. W. Foott, Esq., Messrs. Willmore and others.

It may be observed that carrots, parsnips and turnips are grown more for household use than the feeding of stock, and form no part of a system of rotation of crops.

The average amount of grain produced to the acre in this county for 1859 may be set down as follows:

Wheat, (fall).....	15	bushels per acre.
“ (Spring)....	20	“ “
Maize,.....	30	“ “
Barley,.....	25	“ “
Oats,.....	50	“ “
Peas,.....	25	“ “
Beans,.....	20	“ “

The early fall wheat and Rye, and early sown spring wheat also, were almost destroyed by the summer frost. The late sown corn or maize was in many cases sown three times over, and even then ploughed up for buckwheat.

With regard to the Annual County Exhibition the Directors observe that the attendance was very large, the live stock was not as good as former years. In farming implements there was but little competition. The articles that were exhibited were very creditable to the parties exhibiting them. The show of grain, roots and other vegetable productions was very good. There was a fine display of cheese and butter. No county is better situated than Kent for grazing, and some of

our farmers, especially the township of Howard, make a very large quantity of cheese, to the extent of several tons per annum.

The Directors feel assured that the improving prospects in our productions are a source of congratulation, and we may venture to say that few, if any, counties in this Province shows more durable improvements. The farms in Kent show an increasingly neater and more cultivated appearance than formerly, and a better description of dwellings of brick and frame houses are annually taking the place of the old log hut.

The following observations by Messrs G. W. Foot and David Wilson were ordered to be appended to the annual report, and forwarded to the Board of Agriculture:

Flax—Mr. Foot writes: "In answer to your question enquiring how the flax seed the Board of Agriculture distributed last year succeeded with me, I beg to state that not having received the seed in time it was sown much too late in the season. However, with this great drawback, it grew well, the severe frost of the 7th of June, which destroyed all my wheat, rye, corn, and potatoes, and greatly damaged timothy and clover, did not affect the flax in the least.

The soil and climate of this county appear to me particularly adapted to the growth of flax. The land must be well prepared and clean; but before the flax can to any extent be grown here, farmers must have information as to the proper mode of retting or rotting, the necessary machinery within reach, to prepare it for market, and then the market and probable price per ton. With this information and these facilities, I have no doubt flax would be extensively grown in this county. But unless the farmers are instructed and assisted, and understand that the crop will pay, I fancy little progress will be made.

The government should, in my opinion, (and properly recommended, I believe would) give the necessary information promulgated, particularly through Kent, for the reason already given, and supply the necessary machinery, which is by no means expensive, and might also readily find out what the farmers might expect for a fair sample per ton at the abroad depot.

In Ireland the crop is failing, and has been for some years. The linen manufacturers of that country are now turning their attention to India to get a supply. Cheap labour there

would be the only advantage over Canada. We have climate, soil, and distance in our favour. The value of flax in Ireland ranges about 20 guineas per ton.

From the above you may be enabled to shape your report, and I would recommend the society to apply to the Provincial Agricultural Board for practical information, which would enable the Canadian farmer to understand the mode of culture and preparation, particularly the mode of rotting other than steeping in water; as a failure in the commencement would have the effect of discouraging many, and thus prevent them undertaking the growth of an article which would pay better than any crop in Canada.

Sheep.—Mr. David Wilson, of the township of Harwick, whose experience in sheep husbandry has extended over twelve years, gives in the following statement: "In selecting a stock of store ewes, see that they are of pure breed, young, strong, and healthy. I prefer the large Leicesters to all others, but be sure to get no more than you can take good care of. Let them be in good condition before going to the ram, and be very particular in your choice of one, for it is upon him your main dependence lies in the improvement of your flock. 30 ewes are a sufficient number for one ram to serve. Do not let them fall off in flesh after they become pregnant; the day you do so, you greatly, if not irreparably injure their chances of weathering through the spring successfully. When winter sets in provide them with a good warm and well ventilated house, with proper racks and troughs to feed in. I feed on hay and beans, and all the water they wish to drink. I have a flock of 36 ewes; they have drank as much as twelve patent pails of water each day during the time the ground was covered with snow. I gave a good supply of hay and $\frac{1}{2}$ of a quart of beans a day to each sheep. I prefer the above feed to roots, as our climate is too cold for the latter. I sheared 31 last June, 18 of which were raising 23 lambs; the average weight per fleece was within a small fraction of $5\frac{1}{2}$ lbs., as a reference to Messrs. McKeough's books, of Chatham, will prove to be correct. From the produce of 31 head I have realized \$135, and have 36 left. All those engaged in sheep husbandry may not be as lucky as I have been, for this cause: the great mistake in regard to sheep is in not keeping them well enough; and the great

cause for having weak lambs and careless mothers I attribute to poor feeding and poor shelter, with a bad supply of water."

TOWNSHIP BARNCHES.

CHATHAM.—Thirty-seven members; amount of subscription, \$37; balance from previous year, \$26 18; sundries, \$7 90; total received, \$71 08. Paid in premiums, \$42 25; copies *Agriculturist*, \$5; expenses, \$14; balance in hand, \$9 83.

Extracts from Report.

The soil of this township in the front and rear is generally a heavy clay and clay loam, while in the centre of the township it is a sandy loam, and has always until the last three or four years been a largely wheat producing township. During the years 1857 and 1858 the wheat crops were nearly all destroyed by the weevil or midge. In 1859 it is impossible to say whether the crop would have been again destroyed by that scourge of the farmer, or not, as in order to escape its ravages, the farmers generally had sown their seed early, and of such early varieties, (the Mediterranean, blue stem, and Soule's), that in trying to escape from Scylla they fell into Charybdis; inasmuch as the wheat crops here being so far advanced when heavy frost in June came, was consequently all, or nearly all, destroyed.

The Board think that they may safely set down five bushels to the acre sown, as the average return of the wheat crop of Chatham township for 1859; whereas the usual average in this township in a good season may be set down as 30 bushels. The pea crop has been a remunerative one—the kind of peas sown has been generally the common blue and the Prussian blue. The average return to the acre sown may be set down at 25 bushels, for which the farmers have realized the handsome sum of seventy-five cents per bushel, and even as high as \$1 per bushel has been paid for good samples of clear blue—these prices being paid by Americans, who came from Rochester and Buffalo, N. Y. For some years peas could not be raised here, on account of the peabug, but in 1858 and 1859 the crop was entirely free from this destroyer.

The corn and buckwheat crops, which were extensively planted, on account of some other crops having been totally destroyed in the spring, have proved very light crops, owing to the cold, dry summer and early fall frosts.

A large area of land was likewise planted

to potatoes, which have been below an average crop, say 150 bushels to the acre.

In the cultivation of the soil for these crops no artificial manures have been resorted to, other than the common produce of the barn-yard; as it has been found, especially in the front farms, that the application of manure to the soil extensively has caused too great a growth of straw, and a less quantity of grain than otherwise. The average price of farms may be set down as \$50 per acre for farms in the front, and \$20 per acre for farms in the rear; for bush lands, which lie chiefly in the rear, the price may be set down as \$8 per acre.

The prices paid to farm-labourers have been \$12 per month, and board; for day hands, 75 cents per day.

With regard to animals, until late years not much attention has been paid to the improvement of the native breeds. Lately, some very fine Durham cattle and Merino sheep have been introduced, and appear to suit this locality, and promise to repay the expense of introduction. But it would be premature to state figures as to the advantages sufficient time not having yet elapsed fully to test the question as its importance demands; although it may be here remarked that this is chiefly a grain producing township, and there has not heretofore been much attention paid to the improvement of breed in cattle. In horticulture, this township can excel; but with a few exceptions, it is not so extensively cultivated as its importance demands. Lately Mr. Wm. Webb has established a nursery near the town of Chatham, where fruit trees of every description are propagated, and garden seeds of all varieties are raised in perfection; but on account of the heavy frost in June, which destroyed all garden fruits, the Board have no report to make of the different varieties displayed in 1859, as it would afford no fair index of the capability of the soil for this class of culture.

Lastly, under this head the Board have to report, that the great disadvantage under which the farmers labour in this township,—which is also the reason why the Board have no report to make out of any thorough draining undertaken by particular farmers,—is the level nature of the land throughout the whole extent of the township, which will require a combined system of ditching and draining to be undertaken, either by the Municipality or Government in connection with the people, to

render it effective; as it is utterly impossible for any individual farmer, or even a neighborhood, to undertake it, as there is no sufficient natural outlet as yet cleared out, in the centre of the township, even to carry off the surface water, but all surplus water has to undergo the slow process of evaporation.

With respect to agricultural implements, with the exception of thrashing machines, reaping machines, cultivators, and seed-sowing machines, no others, as yet, have been introduced into the township.

HARWICH.—Fifty-one members; amount of subscription, \$51; balance from previous year, \$27 48; share of public grant, \$71 29; received for services of stallion owned by Society, \$155 25; proceeds of a note, \$50; received for seeds sold, \$12: total received, \$367 02. Paid for keep and attendance of horse, \$180 50; premiums, \$50; paid for seeds, \$15 48; incidental expenses and sundries, \$64 29; balance in hand, \$56 75. The directors of this society also report a partial destruction of the crops by late frost, but that on the whole the returns were better than for two years previously.

HOWARD AND ORFORD.—Ninety-two members; subscriptions, \$108; balance from previous year, \$71 38; grant, \$111 81; received on debts due society, \$293 50; total received, \$584 69. Paid for premiums, \$135 25; sundries, \$444 66; balance sheet imperfect.

RALEIGH.—Fifty-two members; subscriptions, \$52; balance from previous year, \$134 30; share of grant, \$71 88; received on account of sundry notes for seed wheat, &c., \$520 89; total received, \$779 07; appropriated to purchase of spring wheat for seed, \$394; paid for a bull, \$80; paid in premiums, \$74 25; expenses, \$17 55; balance in treasurer's hands, 213 27.

TILBURY EAST.—Twenty-six members; amount of subscriptions, \$50; balance from 1853, \$60; share of public grant, \$69 88; total receipts, \$179 88. Paid for sheep of improved breed, \$83; paid for keeping bull, \$20; other expenses, \$26 83; balance in hand, \$179 88.

Extracts from Report.

The first settlers, consisting of three or four families from Britain, entered the woods in the centre of this township, in the fall of 1833, and were located on 100 acres each by the Hon.

Col. Talbot. They settled on the bank of a creek, or on a little beech ridge, supposing these spots to be the very best in the township, being then a dense, wet and level forest, without a single blazon or mark to direct them to the shore of the Erie or the River Thames, except the spots made the Surveyors. In order to pass the creeks that are on the straight line to lake or river, they had to travel 8 miles to the nearest settlers, and 14 to mill, or any place they could get a yard of cloth or any thing to buy, and to wait until they could get a few bushels ground at a horse-mill. The first seven years were spent in the making of sleigh-roads, building shanties, learning to chop, and trying to hoe corn and potatoes among the green roots. Then the men who had just got a field cleared and the troubles of fever and ague, then prevalent, almost over, were warned out as militia to repress the rebellion. From the year 1840 until the Board of Works began to make what is called the Middle Road, in 1846, many left the settlement. Some got a little for their improvements and others got nothing; as no one would take the lots as a grant from the Government. But the road through the woods raised the spirits of those who remained, and gave some employment to those who had nothing to sell; and others made a little money of hay and potatoes, &c., that enabled them to make some ditches around their small clearances to take off the surface water; after which they sowed more fall wheat, which produced surprisingly well, in many cases from 20 to 40 bushels, of an excellent quality, to the acre, and from 20 to 35 bushels of peas in the crop preceding the fall wheat. In 1846, at the town meeting, the organizing of an Agricultural Society was proposed, and a committee appointed to draw up a Constitution in accordance with the Act of Parliament. The subscription for 1846 was \$19, being one dollar by each member. Each got a number of the *British American Cultivator*, and with the balance the Society purchased a Bull, partly of the short-horned breed, and two Rams; which improved both cattle and sheep to some extent. In 1848 the funds were used in getting a Threshing Machine, as none of the settlers were able to buy one; this saved so much labour in winter as cleared many acres that would otherwise have been left unimproved, and in 1849 the whole sum, not required to pay a balance on the threshing machine, was given to assist in erecting a steam grist and

saw-mill, that still continues to do good work, in the centre of the township; so that small sums through the Society, have, with the industry and economy of the members, enabled them not only to live in this new settlement, but to extend their improvements farther than many have done in more favourable situations.

There is not, perhaps, a better soil in the province than in this township, being of deep yellow clay, except a few creek-banks of white clay or red sand: and there is not an acre in the whole township we know of that cannot be made dry by making a ditch around it, except the marsh on the front along the Thames and the St. Clair.

The natural state of the bush-land in this township is wet, covered with a variety of flowering plants on the dry land, and a close crop of winter grass on the low land. When these grasses are closely pastured they give way, and are supplanted by, and closely covered by white clover and other grasses similar to what may be seen on the natural sward of Britain. The timber is much varied: large oaks and hickory, bass wood, black and white ash, hard and soft maple, elm, and a few trees of button wood, almost on every lot; some birch and cherry in small trees, and white wood in some parts, with a similar variety of under wood.

There have been many orchards planted out, but only about twenty in the interior of the township producing apples. It is much to be regretted by many that they did not fence and drain a small spot sufficiently when first clearing up, to save the trees from being browsed by breachy cattle. Our garden is only a spot prepared for early potatoes, cabbages, beets, beans, onions, carrots, &c., as used for the kitchen garden, without the ornaments of flowers, unless a few of the most common kind.—Our houses are being renewed by exchanging the log for a frame or brick.

The wheat-fly began its ravages here in the harvest of 1856, destroyed one half of the wheat in 1857, and in 1858 about three quarters of it, so that we were discouraged from sowing; but the little that was reaped the past year was nearly free from injury. And the pea crop, that had scarcely been tried on account of the bug for nearly five years, came off almost entirely free from damage, and averaged 20 bushels to the acre. In 1859 corn was planted to a great extent, partly owing to the want of seed oats, &c., and came off a good crop, averaging 60 bushels in the ear to

the acre. Hay was a light crop; the clover was thrown out last winter by the frost more than ever we have seen it before in this township. There is a great breadth of fall wheat sown, chiefly on the pea ground, as had been done here for several years previous to the disease in the pea, and it looks promising so far.

The want of good water is certainly a drawback here, but like all new settlements, there has been but little done in the way of digging wells and building them up with stone or brick, as in older settlements. However, there have been several springs found here, the water of which tastes a little salt, but is improved by cleaning out the soft muck in which they have been found: cattle like the water exceedingly well.

There is another great loss to the settlement, by the neglect of clearing the fallen timber out of the creeks in this flat country, in the flooding of the land in the spring, and sometimes in the fall. The water spreads over the flats of all the creeks, and prevents the small ditches, that at best only partially drain our roads and fields at the depth of eighteen inches from emptying until the water subsides, which is often not till after the space of eight days; whereas, if our creeks were cleared of the fallen timber and a few beaver dams, the water would be at least two feet lower at the flood than at present, and give ample fall to admit of the thorough drainage of our fields; which we hope soon to begin in this settlement. The first thing is the clearing out of the natural rivulets or creeks, and in some parts the opening of large ditches, which should be at least four feet deep, and the enlargement of almost all our open ditches between fields. In this flat country the great length of large ditches in order to get an outfall, is a work in many instances too expensive for the owners of farms in newly cleared townships; and, as remarked by others, it cannot be given to the individual farmer directly from Government, but might be to the Township Municipalities that are not already in arrears. It would be a constant source of trouble to lay out a sum that could be got for the purpose for the benefit of the individual asking it for thorough drainage; but it might be used for general drainage in procuring the outfalls, even in new places, if borrowed and expended by the Municipalities.

When the wheat crops began to fail in 1857, many that had not enough cleared commenced to chop for potash, at first it was said

clear the land heavily timbered with elm and blackash, and make some money after paying the workmen; but after it has been tried by many of us, we can only say that it pays labour and clears the land; and by working at it many have kept their families well. There are about 20 potasheries and one pearl-herry in the township. This is certainly a great improvement over the way we had of clearing at first, when we paid seven or eight dollars an acre for chopping, and then logged and burned up every thing, even the largest trees, except what was to be used for rails. We want of roads and the distance from the sea made the timber of no value, even had we had the knowledge of making it into staves or lath. The large trees of oak are dying off very fast; they seem to be full grown; at any rate they are easily hurt by opening the woods for them, so as to let the sun and air to them. This settlement at first was very subject to fever and ague, of which there has been now little known for seven or eight years. Occasionally a stranger in the west has an attack of it; but there are many from Lower Canada, (notch people) who had settled there for five or six years, and who have been in this township for five or six years, and have not yet had ague, so that on the whole the township may be termed healthy.

Cattle have not thriven very well; sometimes they take a disease we call murrain, and it is common to lose three or four at the same time; then they may do well for years. The disease seems to prevail most in the fall, when they are in good condition; but stock have been ill cared for during the preceding winter are the most liable; and perhaps if the better accommodation and care in providing with hay and turnips, were more attended to, the disease would not prevail to such extent as at present.

Sheep have frequently been destroyed by wolves and dogs, from being allowed in many places to range on the wild grass instead of a field of clover, but none of the diseases that destroy large flocks have been observed.

There are only a few farms having sufficient clearance for laying out in regular rotation for cropping; however, many of the older settlers, being from Scotland and North of Ireland, aim at it, and we have doubt but the soil will be well farmed in a few years, if the times and crops come to their way again.

We regret to say that green crops have been but little tried.

The price of land is rather a difficulty to get at. Two or three lots, with about 35 acres cleared, changed owners a few years ago for \$2000 per lot; but the last two years there has been neither courage nor money in this part to buy land; but it is hoped that the figure will be raised when times improve again. The wild land is chiefly occupied except the Canada Company's, and the large block south of the Middle Road. The Company hold theirs entirely over the rate of wild Land here yet, and it is difficult for one person to get on in the large block, but the Rail Road would, if made through it, settle it at once.

If our non-resident lands were occupied by settlers, it would greatly facilitate our agricultural interests, and enable us to establish School Sections to meet the wants of all.

We only want agriculturists with a little capital and good moral character, and a few good choppers that could have from \$10 to \$15 a month, to make Tilbury East, like the land we left, except the hills, the heather, and the little crystal springs.

KINGSTON.

ELECTORAL DIVISION SOCIETY.—The following are extracts from the Secretary's Report:

A sum of more than eight hundred dollars had been subscribed and paid over to the Society in 1859, and the amount thus realized, added to the grant from the Provincial Treasury in 1859, to which the Society became entitled by its compliance with the provisions of the statute, had materially aided the Kingston committee of the Exhibition in their efforts to provide the accommodation which had given such general satisfaction at the Exhibition of 1859.

By the present organization, if the Electoral Division Society, and the County and Township Societies think proper on future occasions to unite, excellent exhibitions of agriculture, horticulture, manufactures, and works of art, may be held in the Crystal Palace and the other structures specially adapted to the different objects intended for exhibition.

A bountiful harvest has been garnered in the United Counties in 1859, and the steady, although no high prices realized for every kind of farm and garden produce, may well incite the members of the society to renewed exertions for the current year.

The crops in this district for 1859 may be roughly estimated as follows:—

In oats, peas and rye, there have been more than the average crops. In the two last the yield has been very large, and the quality good.

In barley the produce has been large, and quality harvested good.

In wheat, notwithstanding the severe frosts which occurred in the first and second week in June, the average must be considered good.

Indian Corn suffered from the frost. Buckwheat also suffered from the same cause.

Flax and hemp were but little cultivated in the district, but the samples shown were good, and the former will be more extensively cultivated during ensuing years.

All the tubers and roots sown early and carefully cultivated, yielded well. Potatoes gave a large crop, and generally speaking, of excellent quality. Carrots, parsnips, beets, and mangel wurzel yielded very largely; turnips not so well.

One new variety of the potato merits more than a passing notice. It was introduced into Canada by the Vice-President of the Kingston Horticultural Society, and was first grown by him on his farm near Kingston. It is called the Victoria potato, and produces very large crops of full sized tubers, which keep well during the winter. The potatoe is of a very white color, and when prepared for the table is sound, mealy and pleasant to the palate. Dr. Sampson has rendered an important service by the introduction of this variety of the essulent, and the members of the Society who desire to substitute the new tuber for worn out or less perfect seed, would do well to select this potato, which may be procured in the city, the object of the introducer being to disseminate the Victoria potato largely among the farmers of the district

Hay throughout the locality was a poor crop, the late frosts exercising a marked influence upon the grasses, as well as upon the fruits. The crop of Apples in a few exposed positions suffered severely.

In Horticulture and Floriculture the severe frost of June and September had the effect of preventing many amateur and professional gardeners who had taken unusual pains to produce fine and interesting specimens, from making so successful exhibition as they would otherwise have done. The members of the Horticultural Society of Kingston abstained from holding their usual autumnal show with

the view of enhancing the interest and increasing the attractions of the Provincial Exhibition.

In dairy produce, the samples shown at Provincial Exhibition, were of the first quality and nearly all from our own district; judges remarked that they had difficulty awarding the prizes in butter, as the samples were all so excellent. In cheese the judges had never seen the quality excelled in any part of the Province.

Editorial Notices &c.

THE PRINCIPLES OF BREEDING: OR, GLIMPSE AT THE PHYSIOLOGICAL LAW INVOLVED IN THE REPRODUCTION AND IMPROVEMENT OF DOMESTIC ANIMALS—By S. L. Goodale, Boston: Crosby, Nichol & Co., 1861.

We have to thank Mr. Goodale, the able and zealous Secretary of the Board of Agriculture of the State of Maine, for a copy of his interesting and useful treatise; the execution "getting up" of which is alike creditable to the author and publishers. Mr. Goodale has succeeded in condensing a large amount of valuable matter in a form that will both interest and instruct, and we can strongly recommend the work to all who are desirous of becoming acquainted with the matters treated of, which are as follows:—1. Introductory; 2. Law of Inheritance; 3. Law of Variation; 4. Atavism; 5. Ancestral influence; 6. Relative influence of the Parents; 7. Law of Sex; 8. Law of Breeding; 9. Crossing; 10. Breeding in Line; 10. Characteristics of Breeds.

The "FARMER AND GARDENER," and "AMERICAN BEE JOURNAL," for February, March, have been received. These interesting and useful serials are published monthly by M. Spangler & Co., 25 North Sixth Street Philadelphia, at prices that should command a very extensive circulation. The *Farmer and Gardener* has long been known as an agricultural and horticultural paper of the first class, and from what we have seen of the two numbers of the *Bee Journal*, we predict for it an extensive patronage. It is the only periodical on this continent devoted to Apiculture, and which are not only extremely interesting,

and history point of view, but may be made many localities profitable also. These two series, with a handsome Premium Book, are offered to subscribers for the very low sum of \$1 per annum! We are always glad to hear of American periodicals of first class, on Agriculture and its sister, Gardening, circulating on this side the line; and we can confidently recommend those at the head of this notice.

WESTMINSTER REVIEW FOR JANUARY; AND BLACKWOOD'S MAGAZINE FOR FEBRUARY.—New York: Leonard Scott; & Co. Toronto: R. Rowsell.

The new number of the *Westminster* is, as usual, full of well written papers on subjects of great interest. The general scholar and politician can scarcely forego the privilege and advantages of consulting this talented quar-terly; but we deem it right to warn our readers, especially youthful and more ardent minds, of its latent and avowed skepticism on the subjects of religion. The present number comprises,—Government Contracts; The Colonies of Paris; Ceylon; The Social Organization as it was and is; Christian Revivals; and the designs of Napoleon; Contemporary Literature.

Blackwood is this month as attractive as ever. The opening article, School and College, its Romance and Reality, is almost equal to Brown at Oxford and Rugby. Sports of the Generation, is treated in a truly calm and philosophic spirit, and richly merits a careful perusal. The other articles are, Carthage and its Remains; The Transatlantic Telegraph; the Ireland Route; Norman Sinclair, continuing the *Biographica Dramatica*; Judicial Puzzles; and Foreign Secretary.

DICTIONARY CATALOGUE of Garden, Agricultural and Flower Seeds, Implements, &c., for sale by James Fleming, Seedsman to the Board of Agriculture and Provincial Association of Ontario, Canada, 350 Yonge Street, Toronto; published in 1836.

DICTIONARY CATALOGUE of Seeds for the Farm, Garden, Implements, &c., for sale by J. A. Simmers, 46 King Street, Hamilton. Tenth annual edition.

CATALOGUE OF GARDEN, Agricultural and Flower Seeds,—for sale by J. A. Simmers, Market Place, Toronto. Sixth annual edition.

These catalogues plainly indicate the progress which both Agriculture and Horticulture are making in this Province. A few years ago many articles contained in these lists could not have been had short of Rochester, New York, or Philadelphia; now there is scarcely any new plant or seed adapted to the climate of this country, or suited to green or hot-house culture, but what may be readily obtained. The above catalogues contain, in addition to the price of the articles, some brief and seasonable directions for cultivating the more important crops of the garden, of which we shall probably avail ourselves in our next issue.

REPORTS OF AGRICULTURAL SOCIETIES.—We beg again to remind the officers of County Agricultural Societies, that their reports of proceedings for the past year, including those from the Township Societies, must be forwarded to the office of the Board of Agriculture on or before 1st April, and they are requested to see that the reports are as correct as possible before transmitting them.

LLOYD'S PATENT BROADCAST SEED SOWER.—A specimen of this machine, manufactured in this city, by John Wrigh, corner of Yonge and Gerrard Streets, has been left at our office for inspection. Price \$10.

OUR SUBSCRIPTION LIST.—We are happy to say that our list of subscribers continues to augment in the most satisfactory manner. Parties forwarding lists, will please recollect that it will be only those received on or before 1st April, accompanied with the amount, that will be entitled to receive any bonus in the shape of the money premiums offered. Of course, however, subscriptions for the paper will continue to be received after that as usual. We have still plenty of back numbers on hand.

EMIGRATION TO CANADA.—Canada: a brief outline of her geographical position, productions, climate, capabilities, educational and municipal institutions, fisheries, railroads, &c., &c. Third edition, published by authority, Quebec: John Lovell, 1861.—Price one shilling. This is a very useful and very well printed pamphlet. It contains a large amount of information in a concise form, and is accompanied by an excellent Map of the Province, being a reduced copy of the new Government map. It will form an excellent medium for those who wish to communicate information to their friends in Europe in regard to the resources of this country. [This notice should have appeared in a former number.]

THE MINNESOTA FARMER AND GARDENER.—
St. Paul Minnesota. We have received the
January number of this new journal, being the
the third number from the commencement of the
publication. It is edited by Messrs S. M. Ford
and J. H. Stevens, and is well got up. The
contents convey an idea that the enterprize and
agricultural resources of the new State augar
well for its future progress.

TORONTO NURSERIES.

Fruit and Ornamental Trees, &c.

AS the season for transplanting Trees, &c., is
approaching, I beg to call the attention of
the public to my Large Stock of Fruit and Orna-
mental Trees, Flowering Shrubs, &c., comprised
for the most part of the following Nursery
productions, viz: *Apple Trees*, Standards and
Dwarfs; *Pears*, Standards and Dwarfs; *Plums*,
Standards and Dwarfs; *Cherries*, Standards and
Dwarfs; *Peaches*; *Nectarines*; *Apricots*; *Goose-
berries*, all the best English varieties; *Currants*
of all the new kinds; *Raspberries* of all sorts;
Strawberries, three varieties, including new sorts;
Grape Vines, 12 Foreign varieties, grown in
pots for *Vineries*, &c., and for out-door culture
the following proved varieties, *Diana*, *Concord*,
Delaware, *Hartford-Prolific*, *Rebecca*, *Isabella*,
Clinton, and *Catawba*, with all the other new
kinds highly recommended in American Cata-
logues; *Rhubarb* of all sorts, *Asparagus*, *Sea-
Kale*, *Horse-Radish*, &c., &c. Also, upwards of
200 varieties of choice *Hardy Roses*, including
many new varieties now on their way from Eng-
land; 100 kinds of *Dahlias*, amongst which are
some new ones imported this year; 40 varieties
of *Phloxes*; 1000 Plants of Chinese *Pæonies* of
40 different kinds; a large collection of Flower-
ing *Herbaceous Plants*; and 1000 Plants *Diely-
tra Spectabilis*, the FINEST *Hardy Herbaceous*
plant in cultivation. The following *Hedge plants*
are cultivated largely:—*Buckthorn*—the best
Hedge plant for *Canada*—*White Cedar*, *Red Ce-
dar*, *Hemlock*, *Privet*, *Barberry* and *Tartarian*
Honeysuckle. The *Ornamental Tree* department
will not be found wanting in any particular.

All orders punctually attended to Packing
done in the best manner by experienced hands.
All packages delivered free of extra charge at
the Steamboat and Railroad Stations. Descrip-
tive priced Catalogues sent free on post-paid
application. Address

GEORGE LESLIE,

Box 364, Toronto.

Toronto Nurseries, March 1st, 1861.

P. S.—BEWARE of *American Tree Agents*, who
sell inferior stuff, at higher prices than *Canadian*
Nurserymen. All Agents for these Nurseries
have my signature to a certificate to that effect.

3t

Contents of this Number.

Culture of the Vetch.....	.....
Past, Present and Future of British Agri- culture.....	.....
Salt as Manure, Green Crops, &c.....	.....
Fife Spring Wheat, Characteristics of... Manure.....	.....
Irish Agriculture.....	.....
The Census—Agricultural Products of Canada.....	.....
Land Drainage and Irrigation.....	.....
Liquid Manure.....	.....
Hay required to keep a horse.....	.....
The art of Agriculture.....	.....
AGRICULTURAL INTELLIGENCE:	
Kansas a Sheep Country.....	.....
Wheat planted in hills.....	.....
Sheep for wool and mutton.....	.....
Remedy for smut in wheat.....	.....
Agriculture in South Australia.....	.....
Dibbling Corn.....	.....
The Purik Sheep.....	.....
Farming in Kincardine, Scotland.....	.....
Long life and farming.....	.....
Brine of Herring as a Manure.....	.....
Distillers' grains for cattle feeding.....	.....
HORTICULTURAL:	
Hints for the season.....	.....
Dwarf Apple Trees.....	.....
Orchards on Hill Sides.....	.....
Rhubarb.....	.....
The Tomato, uses and cultivation.....	.....
The Hotbed.....	.....
Tree Planting.....	.....
DOMESTIC:	
Charcoal for burns, Cooking Potatoes, &c. Improved Chamber Light, How to Cure Bacon.....	.....
VETERINARY:	
Anatomy and Function of the Heart of a Horse.....	.....
Vivisection.....	.....
Lice on Cattle, Remedy for choked Cattle Treatment of Ringbone, Cracks in Horses' Hoofs.....	.....
Popular Errors.....	.....
Cure for Hove in Cattle.....	.....
Education of the Horse, Sand for bedding Lice on Cattle, Insects In Stock, Keep- ing Horses' legs and feet in order...	.....
TRANSACTIONS:	
Reports from County of Kent.....	.....
Report from City of Kingston.....	.....
EDITORIAL NOTICES.....	

SHORT HORNS.

FOR SALE—FIVE BULLS, all ente.
American Herd Book. Prices, from
400 dollars. Also, a few HEIFERS,
prices. Apply to

T. L. HARISON, A

St. Lawrence County, New
York at the *Agriculturist* office, Toronto.

March 9, 1861.