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
- ☐ Covers damaged/ Couverture endommagée
- ☐ Covers restored and/or laminated/ Couverture restaurée et/ou pelliculée
- ☐ Cover title missing/ Le titre de couverture manque
- ☐ Coloured maps/ Cartes géographiques en couleur
- ☐ Coloured ink (i.e. other than blue or black)/ Encre de couleur (i.e. autre que bleue ou noire)
- ☐ Coloured plates and/or illustrations/ Planches et/ou illustrations en couleur
- ☑ Bound with other material/ Relié avec d'autres documents
- ☑ Tight binding may cause shadows or distortion along interior margin/ La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure
- ☐ 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.

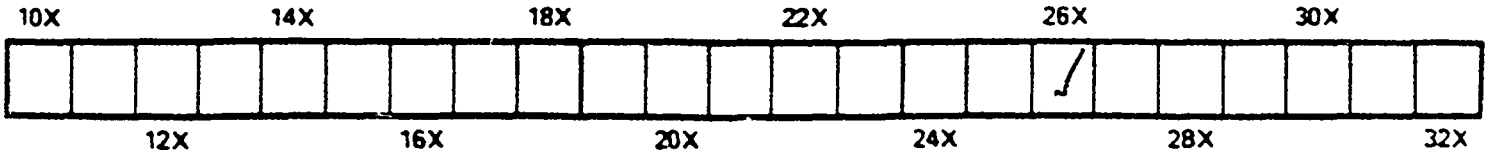
- ☐ Coloured pages/ Pages de couleur
- ☐ Pages damaged/ Pages endommagées
- ☐ Pages restored and/or laminated/ Pages restaurées et/ou pelliculées
- ☑ Pages discoloured, stained or foxed/ Pages décolorées, tachetées ou piquées
- ☐ Pages detached/ Pages détachées
- ☑ Showthrough/ Transparence
- ☐ Quality of print varies/ Qualité inégale de l'impression
- ☑ Continuous pagination/ Pagination continue
- ☐ Includes index(es)/ Comprend un (des) index

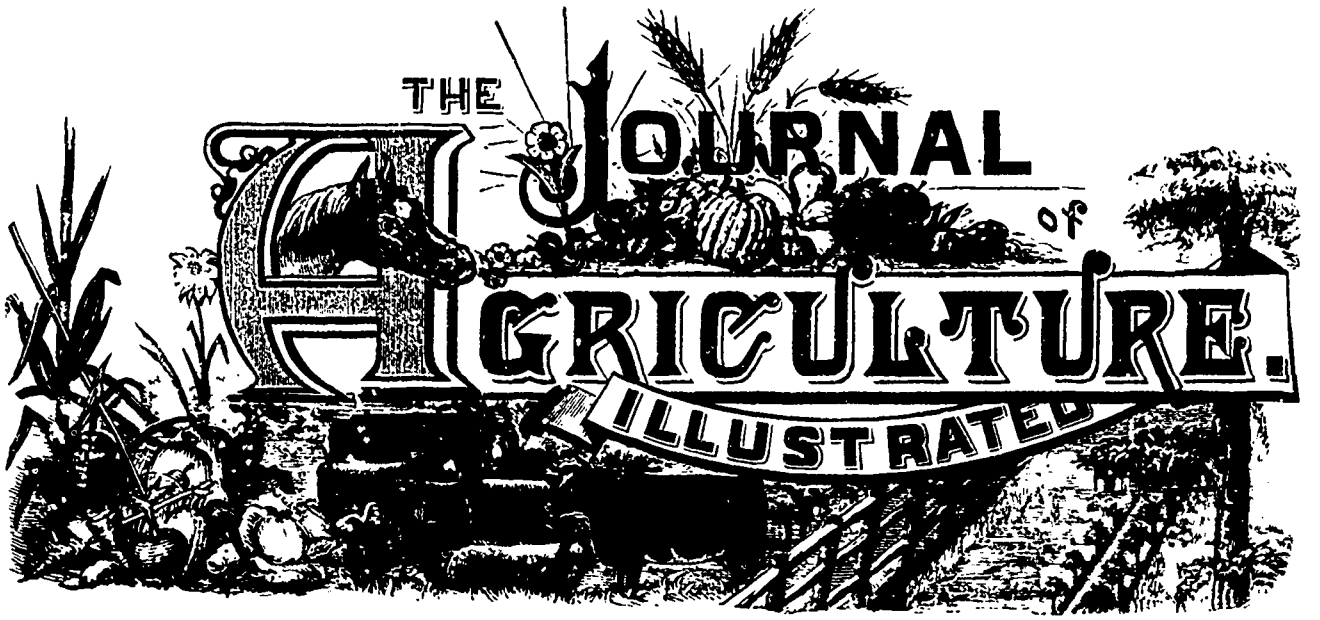
  Title on header taken from:/ Le titre de l'en-tête provient:

- ☐ Title page of issue/ Page de titre de la livraison
- ☐ Caption of issue/ Titre de départ de la livraison
- ☐ Masthead/ Générique (périodiques) de la livraison

☐ Additional comments:/ Commentaires supplémentaires:

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





Published for the Department of Agriculture for the Province of Quebec, by EUSEBE SENECAL & FILS, 10, St. Vincent St. Montreal.

Vol. VI. No. 5. MONTREAL, MAY 1884. $1.00 per annum, in advance.

Table of Contents.

The Price of Fertilizers.

A correspondent writes: "Since I have been reading your excellent articles on the fertilizer question, I have wondered that so little has been said and written upon this most important subject long ago. Just think of it; these fertilizers, made from the waste of slaughter houses and gas-works, mixed with cheap minerals and the cheapest of all mineral acids, are yet sold to the farmers at higher prices per ton than steel rails, and at as high a price by the car load in barrels as very good brands of flour! Something is wrong, 'something is rotten in Denmark,' when such a state of things can long endure. I understand that Bradley is very rich, and that Bowker, who graduated a poor boy from the Massachusetts agricultural college a few years ago, has already acquired a great fortune."

REMARK.—The large majority of our farmers, (having no instruction in our common schools in anything relating to their trade—neither in botany that they may know about plants, nor in mineralogy that they may know about soils, nor yet in chemistry that they may know about fertilizers and manures), are necessarily at the mercy of the fertilizer makers until they can acquire information in some other way. As few of them purchase agricultural books, and as the agricultural papers do not like to offend such heavy advertizers as the fertilizer makers, this information has been slow in getting to them. And now, as we learn from Mr. Ward, these makers are striving to control the market for fertilizer material, in order to prevent the farmers from getting them at reasonable prices. By doing this they hope still to make us pay two prices for their goods. But we do not think they can establish such a monopoly.—DR HOSKINS.

The South Carolina Phosphate Rock.

The first discovery of what is now known as the "South Carolina Phosphate Rock" was made in 1844 by persons digging for marl—the green sand or potash-bearing marl being in great request as a fertilizer at that time. The parties engaged in digging pits to reach the marl often passed through a layer of clay filled with nodules of rock weighing from four or five to twenty pounds, or more. This layer was from ten inches to three feet thick, but usually about sixteen inches, and the rocks were packed in quite closely, embedded in yellow clay. They were not considered of any value at that time, but were known to exist over a large area of territory, mostly near the surface The composition of these rocks was not ascertained until the summer of 1867, when one of them was analysed, and was discovered to be very rich in phosphoric acid. This analysis was made by Dr. N. A. Pratt of Charleston, and efforts were made to raise the capital to dig and prepare the rock for market as a fertilizer. Not being able to do this in Charleston, capitalists in Philadelphia were induced to engage in the speculation, and the "Charleston Mining and Manufacturing Company" was organized. A large capital was employed, lands bought, wharves and buildings prepared, and machinery devised for cleansing and grinding the rock. The analyses made at different times were found to vary considerably, yet nearly all of them showed a rock equal to or exceeding bones in phosphoric acid. These analyses run from twenty-five to thirty-five per cent of this acid, equivalent to from fifty five to seventy-five per cent of bone phosphate of lime. The first cargo of one hundred tons was shipped April 14, 1868, and the excitement, as soon as the value of the rock became known, was almost equal to the coal oil furor.

One plantation, belonging to a widow, and which was valued at $6,000, was purchased by the company mentioned for $45,000, and by them valued at $500,000. The best beds are considered worth $1,000 or more per acre.

POULTRY DEPARTMENT.

Enclosures for a Poultry Yard.

COUNTRY GENTLEMAN—A good fence for a poultry yard may be made of poles or pickets, and should be in sections, that it may be moveable whenever occasion requires. A very good enclosure may also be made of lath, which is comparatively cheap, and still durable if rightly built. If the fence is intended to be permanent, chesnut or locust posts should be set firmly in the ground about six feet apart, and of the height required for the fence. The bottom boards, thirteen feet long and ten inches wide, may be either of hemlock or spruce, undressed. They should be nailed on the posts on the inside of the yard, leaving the rough unhewn posts on the outside. All the material must be thirteen feet long The first board should be placed close to the ground and all uneven surfaces leveled off or filled in. Fowls are prone to scratch in the shady moist places close to the fence, therefore escape must be guarded against in that direction There may be a space between the two boards at the bottom of a couple of inches, not more. In putting up a permanent fence it is better to suit it to the small breeds at once and future difficulty is avoided, while large breeds may be kept in it equally well.

After the bottom boards are secured, nail strips on the inside of the posts, at the distance from the bottom board of the length of a lath, allowing an inch on the board and an inch on the strip for nailing. Use shingle nails for the laths, putting two in each lath at top and at bottom. Place the laths just their width apart. This is for the first tier and makes the fence six feet high. On the top of this put another tier of lath in the interstices of the first tier. If the yard be in a windy locality there might be an extra strip or rail half way of the length of a lath to hold them firmly in place. All the fencing should be nailed on the inside of the posts. This leaves no chance for small fowls to scale the enclosure.

I have used such a fence for years and find it cheap and durable. My fowls are accustomed to confinement and are much better than at large, rarely trying any method of escape if offered. They are thoroughly at home, but if a stranger comes among them they are wild and restive and the ten feet fence will barely restrain them. For this reason I usually lock up the buildings and yards night and day. For the heavy breeds, which are not prone to fly, a lower fence would answer. I am an advocate of the confinement of fowls at all seasons of the year. They are more comfortable, less trouble and more profitable. All varieties will accommodate themselves to it and may be made profitable or not, according to the expenditure of care and feeding. C. B. *Duchess Co, N. Y.*

DEPARTMENT OF AGRICULTURE AND PUBLIC WORKS.

QUEBEC. March 17th, 1884.

To the Honorable The Chairman, Committee on Agricultural Industries.

HOUSE OF COMMONS, Ottawa, Ont.

SIR,—At your request, I beg leave to forward my answers to the queries of your committee.

If all right thinking men admit that the basis of a truly national policy consists in securing, for the whole country, the most profitable agriculture, as the surest, and in fact the only mode of rendering all other national industries permanently successful, your committee will, I trust, see how truly statesmanlike was its organization, and how useful the work in hand.

My answers are numbered and refer to the same numbers in your queries.

First Question.—Under what difficulties does the present system of agriculture labor, and in what respect is the Canadian farmer placed at a disadvantage when competing in foreign markets?

First Answer.—Principally, from want of knowledge of his trade, and, of the requirements of local as well as of foreign markets. The loss thereby occasioned to the Dominion, as well as to the farmers themselves, is stupendous, and equals annually the whole agricultural production of Canada, a loss amounting to over two hundred millions of dollars every year! In other words, our farmers, in the aggregate, do not produce even one half of what they might and should.

Our wheat production in Canada (see census of 1881), taking in our North West and the large proportion of new lands still being reclaimed from the original soil, and put into wheat in all the older provinces, only averages 13¾ bushels per acre, whilst that of Great Britain and other equally well farmed European countries exceeds 28 bushels, after centuries of productiveness! Our production of coarse grains is in a still smaller proportion. And yet all agriculturists, who know Canada, agree that our soil and our climate favor the highest agricultural production in the world, under a proper system of tillage.

There is certainly a remedy to this deplorable state of things. The most flourishing countries have suffered as we do now. But this remedy, to be more or less complete, lies in the power of the State alone. What is imperatively wanted is practical instruction in agriculture in general. Such instruction should be carried to the Canadian farmer, as it has been, so successfully, to the Danish, the Belgian, the French, and to the peasantry of so many other countries In my opinion, even one hundred thousand dollars carefully expended annually, for the purpose of such technical instruction, would certainly, and even very soon, be returned to the Federal treasury many-fold, after producing to the country at large at least one hundred-fold!

Total *estimated* annual value of agricultural produce (see table of agricultural statistics annexed).

Total, $\frac{1}{10}$ of total value of stock	$5,951,420
Cattle, killed or sold only	16 442,025
Sheep, " "	7,482,325
Swine, " "	19,537,545
Wool and honey	3,012,758
Total annual produce mentioned in the census (1)	52,426,073
Dairy produce	21.442,507
Hay	30.334,860
Grain and hay-seeds	92,016,212
Roots	22 324,841
Grand total (*at a low estimate*)	$218,794,528

Second Question.—What deficiencies have come under your notice in the cultivation of cereals, cultivation of roots and grasses, raising of stock and wool growing, production of butter and cheese, culture of fruit, fertilizers in ordinary use?

Second Answer.—They are, generally, out of all proportion in good farming, and without anything like sufficient recupera-

(1) Many items of agricultural production are not even mentioned in the census. Poultry and eggs, for example. Yet this item cannot be less than *ten millions of dollars* We have also no statistics showing what grain and hay, etc, are used on the farm to support both the farmer's family, his stock, etc. All these and more are needed.

tion to the soil, thereby impoverishing and, too often, ruining the land. And yet, with a more rational system of farming, the *quantity* of cereals produced could be, at least, doubled, even on a much smaller acreage.

Hoed crops—Roots and Maize.—The total area in hoed crops of all kinds does not exceed 4 o/o of all the land in cultivation. (1)

Now all good farmers know that the soil cannot be kept clean and properly pulverized, so as to produce the largest returns, without hoed crops, or their costly equivalent, summer fallows. In all well farmed countries, the proportion of hoed crops to all the land in cultivation is certainly 10 o/o, and often much more. Maize, or Indian corn, one of the most profitable and easiest grown hoed crops of America, is certainly not sufficiently valued in Canada, although it very properly forms the basis of all farming in even the most northern parts of the United States. Under the right culture, that is, with an abundance of manure, and extensive horse cultivation, and with a proper selection of seed suited to our northern climate, we can easily produce an average of from 75 to 100 bushels of corn per acre, costing the farmer less than 25c a bushel, besides from 3 to 4 tons of excellent fodder, if well cured and properly prepared As cattle food alone, corn for fodder comes here to perfection, and when cultivated with intelligence and fed in connection with other food, it is the cheapest and one of the best articles of diet for the production of milk, or of flesh in growing animals.

Grasses.—The use of mixed grasses, outside of timothy and clover, is hardly known to our farming community. And yet, what we want, in our pastures especially, is the production of a variety of food, at all seasons of growth, more palatable to the cattle, and more profitable to the farmer.

Raising of Stock.—It can be demonstrated, without cavil, that the cash value of our farm stock in general, and the annual returns therefrom, could be at least doubled, even in a few years: 1st. By better selection; 2nd. By a more rational system of feeding, in summer as in winter. Such a result implies a very possible and attainable increased value in capital, amounting to at least *one hundred and fifty millions of dollars*, and in *annual* production, over that at present, which would amount to the enormous sum of *fifty millions of dollars!*

Eggs.—No stronger argument could, in my opinion, be used to show how much our agricultural production might be increased by a little fostering care than the production of eggs in Canada. These are so abundant, all over the country, that they form an important element of diet, even in the poorest cottage in the land. And yet, how many farmers count the egg crop as of any account on the farm? Not so, of course, with the good house-wife, who gratefully accepts from her lord and master these her modest perquisites. She feeds a few birds, really of no account as compared with the enormous capital invested in our farm stock, she teaches her children to look carefully after the eggs, and lo! not alone is the whole country abundantly supplied with royal food, but our exports of eggs are 40 o/o above the value of all our exports in horses, or in sheep! Even the fat stock, requiring so many steamers to carry them over to Europe, do not produce over 75 o/o more money than our exports of the so much despised egg crop!

Horses.—Respecting horses, when the demand for really good horses, both draft and driving horses, is so great in Europe and in the United States, and when our facilities for the raising of the best horses in the world are considered, it is most painful to observe how comparatively small are the returns from this source. We export hay and coarse grains enough to raise easily ten times more horses than we do, at present, for exportation. Why not keep this coarse feed, raise excellent horse—for no one wants bad or poor horses—and benefit from the very high profits in so doing? besides securing for the farm the, not to be despised, manure.

When we consider what continued efforts the governments of England, France, Germany and Russia, without mentioning minor States, have made in order to improve the raising of horses, and the mighty results obtained, we may well affirm that this subject deserves to be made a State matter. However, I cannot do more than make mention of it here.

Cheese.—It is admitted, on the highest authority, that only 10 o/o of the whole make of Canadian cheese is of the best; 25 o/o of our total production sells at from 1c to 2c less than the best, and the balance, 65 o/o, from 2c to 6c less! Now, taking 70,000,000 lbs. as our total make of cheese, the actual loss, from our not knowing how to make the best article, amounts to fully $3,000,000 annually.

Butter.—According to the census (1881), our butter factories produced only a total value of $341,478 or about 1,500,000 lbs. The home made, or dairy butter, amounted to 102,245,160 lbs.

It is admitted that, whilst we have in Canada, through cold water and ice, every facility for the production of the best butter, not over 10 o/o of this home made butter is of the best quality, whilst the balance sells fully 10c per lb. below the full price of excellent butter in Canada, which shows a direct loss of $9,250,000 to the farmers and to the country on butter made annually. Moreover, what is lost, from want of proper appliances to remove all the butter from the milk, certainly amounts to 15 o/o, at the very least, of the whole make of dairy butter, causing another loss of over $3,000,000 more

I sincerely believe that there is no exaggeration in the statement, that Canada and Canadians actually lose over fifteen millions of dollars annually on their butter and cheese industry alone as now made, *besides what they fail to make!* (1)

Taking the number of cows in Canada as given in the last census, 1,594,806, and allowing 2½ lbs. of cheese to 1 lb. of butter, and from 8 to 9 oz. of milk daily to the whole population, we find that our cows do not produce an equivalent of 100 lbs. of butter per cow, whilst there is really no reason why we should not make 200 lbs. per cow, or at least, at 20c a lb, $32,000,000 more!

Through Government efforts, sustained by thorough patriots, and principally through one man, Prof. Segelcke, Denmark has obtained these very results in the last forty years, viz.: it has improved the quality of its butter to the value of more than 20c a lb., and it has more than doubled, in fact nearly tripled, the quantity produced per cow! (2)

(1) The census of 1881 gives as improved land 21,899,181 acres, of which 464,229 acres are in potatoes It does not give the acreage in corn or in other root crops. However, the quantity of corn grown is given in bushels, at 9,025,142, and roots, at 48,241 341 Now, allowing 30 bushels of Indian corn to the acre, and 500 of roots, the total average in hoed crops, including potatoes, would be 861,549 acres, or about 4 o/o of the total improved land.

(1) A paper on "Commercial dairying in Canada" is annexed, showing the commercial features of this question, of butter and cheese.

(2) Whilst the average prices for butter in Canada range from 15c to 25c a lb, according to quality, it has been shewn (see the Royal Agricultural Society of England's Report, 1876, page 330) that the prices in Denmark, at the farmer's door and for the English market, range from 19c to 35c' And yet, from want of direct communication, freight and charges are nearly as high as with us, amounting in all from Canada, to not over ½ cent a lb. Now, our very best butter is *not inferior to the best Danish*, as some of our makers have passed several months in Denmark to learn how they could improve our Canadian butter. In fact, the enormous difference in prices, between best Canadian and best Danish, is mainly due to the reputation

I beg leave to call the attention of your committee to one fact of great importance, respecting dairying as compared with beef fattening—which does not seem to be sufficiently known or valued in Canada. It is this: that it takes about as much food to produce a lb. of meat, live weight, as it does of butter. This has been clearly proved in Denmark, more especially, by the weighing of all the food given to a large herd of cows during a whole winter, and the milk and butter produced; weighing with equal care the food given to a number of fattening oxen, and the meat produced during the same space of time. (See Report of the Royal Agricultural Society of England, 1871, page 341.)

In the case in point, the food, which produced a pound of meat, live weight, on an average, the season through, produced 21 lbs. of milk, from which $\frac{3}{4}$ of a lb. of butter were made, and $1\frac{1}{2}$ lb. of partially skimmed cheese, which is fully equal to over a pound of butter.

Fruit.—There is certainly much room for improvement in fruit raising, considering the great natural facilities Canada possesses for the economical production of fruit. However, there is evidently a lively interest being developed on this subject at present, for which much credit is due to Charles Gibb, Esquire, of Abbotsford, amongst others.

Fertilizers in ordinary use.—Farm manure is certainly wasted, to the extent of 75 o/o, and from this source alone, we lose one half of what our lands would otherwise produce, with the same labour and capital! The liquid manure, which is worth more than the solid matter, is mostly all lost; then the solids are eave-washed, burned or fire-fanged before carting to the field, and there, too often, sun dried. As generally treated by nearly all farmers in Canada, manure goes to waste, to a greater or lesser degree, but aggregating 75 o/o, as I believe can be proved unquestionably. As long as this waste is allowed, very little interest will be given to the very important question of artificial fertilizers.

LOWEST (ESTIMATED) VALUE OF FARM STOCK IN CANADA.

Horses and colts	$59,531,420
Working oxen	3,977,790
Cows	39,898,000
Other cattle	26,798,940
Sheep	15,243 390
Pigs	10,868,571
	$156,318,111

(See agricultural statistics annexed, *a*.)

AGRICULTURAL EXPORTS, 1882-1883

(See Trade and Navigation Returns, 1883.)

Horses	$1,633 291
Bovines, and their produce in meat, etc.	3,941,261
Sheep, " " "	1.709,569
Swine, " " "	588,972
Butter	1,705,817
Cheese	6,451,870
Eggs	2,256,586
Other animals, and their produce in meat, etc.	909,454
Total annual experts, excluding furs	$19,196,820
Field products	22,818.519
Total agricultural exports	$42,015 339

acquired and to the steady supply of Danish butter on the English markets, and to the very uncertain supplies from Canada.'

Again, the production of butter per cow in Denmark in 1841 was 85 lbs. on an average, per year, and 94 lbs of skimmed cheese whilst in 1872 it was 215 lbs. of butter and 300 lbs of cheese per cow! (See R. A. S. Report of 1876, page 352.)

CANADIAN EXPORTS OF HAY AND COARSE GRAINS IN 1883.

(See trade and navigation returns.)

Exports in barley			$6,293.233
" " peas			2,161,708
" " other coarse grains			1,554,183
			$10,009,124
Hay,	1881	$1,818,560	
"	1882	915.691	
"	1883	902,105	
		$3,636,356	
"	Average of three years		$1.212,115
			$11,221,239

Third Question.—Importation of seed?

Third Answer.—Interchange of Canadian seed, of the best quality, from West to East, and possibly from East to West, should prove of great value. Most careful *experiments* with foreign seeds often prove of inestimable benefit, but they require more time and money as well as very careful supervision.

Fourth Question.—Would a general system of inspection and branding be likely to enhance the value of our butter and cheese in the home and foreign markets?

Fourth Answer.—I think not.—Butter and cheese are sold on their merits—by appearance and taste—and are put up in such a way as to be easily examined. But what is very much required is a system of practical inspection of all cheese and butter factories, by an excellent teacher in the making of of the very best articles. These visits have obtained most excellent results tried, in Ontario and in Quebec, under the auspices of the Dairymen's Associations. One short stay, of a few hours, in a factory, whilst cheese is being made, has enabled the inspector to show where the error lay causing a loss of from 1c to 6c a lb. in the cheese made during a whole season, a loss often greatly exceeding $1,000 in each factory.

Such teachers could, at the time of their visit, cause the farmers to be brought together and then and there a practical lesson or lessons in all that pertains to the dairy might be given with extraordinary results. With the proper appliances at hand, a qualified instructor can teach in one lesson how the best butter is produced, and in a few more hours, how good dairy cheese is made. This system of practical teachings, carried to the farmer and supported by printed tracts, has obtained wonderful results wherever tried in France, Belgium, Denmark, etc., and lately in Ireland.

Such inspections and *conventions* might be organized in such a way as not to cost $10 a day all told; notes might be taken at the same time of the state of agriculture in the localities visited, by calling on one or more of the best farmers, and the results, under proper direction from a central bureau, should become of inestimable value to the country

Fifth Question.—Importation of scions, etc., from Russia?

Fifth Answer.—Of great benefit, provided the party in charge, was thoroughly fitted for such work.

Sixth Question.—Analyst?

Sixth Answer.—Analysis of *soils* so far, I believe, have generally proved of little, if of any use; but it is entirely different with the analysis of artificial fertilizers. It is universally demonstrated that such manures cannot become of general use until they are sold on their true merit, as guaranteed by a respectable chemist—holding an official position for such control.

Seventh Question—Experimental farm or garden?

Seventh Answer.—Such establishment, when under proper

supervision and direction, must prove of inestimable value. However, one only could hardly be of general benefit throughout the Dominion; although one main establishment, in connection with smaller provincial experimental stations, might prove of great benefit.

Eighth Question—Depredations of birds and insects?

Eighth Answer.—Yes, of insects, for unfortunately, we have very few birds left, either for good or for evil.

Ninth Question—What crops, etc., have suffered most, etc.?

Ninth Answer.—The cut worms (larvæ of the May and other beetles) do, perhaps, more harm than all others, to vegetables, and even to young grain in this province.

Tenth Question.—Steps to keep down insects, etc.?

Tenth Answer.—Unfortunately, in our province, nothing, of any practical account, has ever been attempted.

Eleventh Question.—Can you furnish the committee any details as to the amount of loss sustained by agriculturists in your locality from bird or insect pests infesting grain, clover, onions, turnips, potatoes, peas, beans, cabbages, tomatoes, squashes, apples, pears, plums, grapes, strawberries, currants, etc.?

Eleventh Answer.—I may say that turnips, sown in June or later, have repeatedly been a total failure, partly from drought, and partly from insects, to such an extent as to prevent any further attempts from being made. Although other crops have greatly suffered, it is easier to save such as are not attacked by the turnip *fly*.

Twelfth Question—Have the timber trees in your district suffered from any of these destructive agents?

Twelfth Answer.—Yes, the tent caterpillar has done great damage to forest-trees, last year especially.

Thirteenth Question.—Would the appointment of an entomologist, whose duty it would be to give information concerning birds and insects (injurious and beneficial) and the means of protecting the crops against their ravages, accomplish any benefit to the farming classes?

Thirteenth Answer.—A good entomologist, *if of a practical turn of mind*, could do untold good.

Fourteenth Question.—Would it be desirable to extend the duties of the present system of veterinary inspection of stock in quarantine, and, if needful, the staff also, with the view to deal with the local development of infectious diseases among farm stock and poultry throughout the Dominion, and the best means of stamping them out?

Fourteenth Answer—Certainly, when such diseases are reported as contagious especially. Another great benefit, which might be derived from this staff, would be in the possible inspection of stallions, were Government to take action in the fostering of horse raising of a better kind. Dr. McEachran's suggestion, of putting a heavy tax on all stallions unfit for useful reproduction, appears to me invaluable, if intelligently acted upon.

Fifteenth Question.—Is there in your neighborhood sufficient standing timber to supply shade, fuel and other domestic wants?

Fifteenth Question.—Timber is being destroyed, unmercifully, all over the province, in nearly all the settlements where there is still a good supply. In the older settlements, timber is becoming very scarce and expensive. Many municipalities are so situated that the inhabitants have to travel 15 to 18 miles to bring home a load of wood! Yet no systematic efforts have so far been made, of any account, to check this alarming scarcity.

Sixteenth Question.—Have any steps been taken to maintain this supply, or to replant where it has failed?

Sixteenth Answer.—The Quebec Government policy, with its "arbor day" and improved regulations regarding forestry, gives promise of future good. The Hon. Mr. Joly's efforts, those of Mr. James Little, and those of Mr. J. C. Chapais, deserve a most honorable mention. However, this can only be termed "A modest beginning."

Seventeenth Question.—Do you know of any attempts to introduce tree planting for timber purposes, what varieties and area were planted, what were the conditions of the soil, what have been the results, and to what do you ascribe the success or failure of those attempts?

Seventeenth Answer.—A beginning was made last year through the province. The results are encouraging, as proving that the public feels the importance of the subject. A fair success was obtained with the trees planted. We want now a regular organization all through the Dominion, so that statistics can be obtained and informations given from every municipality in the country. Without such organization, it is impossible to obtain any correct data, of a general nature, in tree planting or on any other subject.

Eighteenth Question.—Would the establishment of a Central Bureau, having for its object the collection of information upon all matters relating to agriculture, and having a skilled staff capable of giving advice, making experiments, and noting the improvements effected in other countries that might be advantageously introduced into the Dominion, be a benefit to our agriculturists?

Eighteenth Answer.—Yes, my previous answers go to show that this organization, if well made, would be of incalculable good to the Dominion, and that great improvement in the general agriculture of the country cannot be obtained without it. However, too much must not be attempted at first, nor expected from such a bureau. Certain results, of the most pressing nature, should be aimed at, and all efforts centered on these until success was obtained, and so on, from step to step. The danger of such bureaux is in attempting too much at first, going to enormous expense, and drifting into more or less complete uselessness.

Nineteenth Question—Would the dissemination of handbooks and reports containing the data thus collected, on culture, stock-raising, dairying, poultry-keeping, etc., have a beneficial effect?

Nineteenth Answer.—Undoubtedly. However, very short and pithy tracts, on separate subjects, should, in my opinion, do more good than the immense volumes published at Washington. The distribution of such printed matter should also be made, with care, and only where useful. Possibly, a small charge for such information would cause it to be better appreciated. At all event there is great danger of drifting into enormous printing expenses on this score.

Twentieth Question.—Would you recommend in this connection the formation of a section devoted to agricultural statistics, showing the acreage under the different crops, the movements and prices of grain, cattle, etc., rates of transportation, fluctuation of foreign markets, etc? And what advantages might be expected to accrue therefrom to the producer?

Twentieth Answer.—Yes, by all means, as a part of the Central Bureau, and under its direction. The producer would thus find out, in many ways, how his management compares with that of other Canadians situated exactly as he is, and the result would create an animated competition, by which untold wealth should be extracted from the soil.

Twenty-first Question—Would the issue of monthly bulletins and abstracts containing such information be of sufficient advantage to warrant their publication?

Twenty-first Answer.—I would much prefer occasional publications of undoubted importance, to rapid monthly bulletins, which are certainly costly, but not always useful.

Twenty-second Question.—Does your experience enable you to offer any further suggestions whereby such Central Bureau might be utilized to promote the agricultural interests?

Twenty-second Answer.—Not at present. It strikes me that a thorough system of collecting statistics, and distributing valuable information to farmers all through the country, could be obtained through the secretaries of municipalities. Such a system, if regulated by special laws emanating from the local Legislature, need cost but comparatively little, and could be made thoroughly effective, 1st, by complete supervision from a central bureau, and 2nd, by heavy penalties strictly enforced.

A CONDENSATION OF AGRICULTURAL STATISTICS,

DESCRIPTION.	PRINCE EDWARD'S ISLAND.			NOVA-SCOTIA.			NEW-BRUNSWICK.			QUEBEC.			ONTARIO
	Quantity	Acres	Average by acre	Quantity.	Acres.	Average by acre.	Quantity.	Acres.	Average by acre.	Quantity.	Average.	Average.	Quantity
Lands occupied	1,126,653	Each head of animal for pasture (4) .69⅔		5,396,382	Pasture ground per head (4) 1 8⅔		3,809,621	Pasture ground per head. (4) 1.13¼		12,625,877	Pasture ground per head. (4) 1.31		19,259,3
" improved	596,731			1,880,644			1,253,299			6,410,264			11,294,1
" in cultivation	467,211			942,010			849,678			4,147,984			8,370,8
" in pasture	126,935			917,010			392,169			2,207,422			2,619,0
" in gardens and orchards.	2,585			21,624			11,452			54,858			304,8
Total population	108,881			440,572			321,233			1,359,027			1,923,2
Occupiers of less than 11 acres.	1,188			12,471			1,827			19,159			30,2
" " " 51 "	4,280			13,536			8,828			24,564			41,4
" " " 101 "	5,087			14,504			13,323			47,686			75,2
" " " 200 "	2,517			10,742			6,748			34,723			42,1
Above " " 200 "	587			1,620			3,111			11,740			11,5
	13 629			55,873			36,837			137,863			206,9
Horses at (1) $60	25,182			46,044			43,957			225,006			473,9
Colts and fillies at $40	6,153			11,123			9,018			48,848			116,3
Working oxen, &c., at $25	84			33,275			8,812			49,233			23,3
	15,200			63,389			35,414			160,207			363,0
Milch-cows at *a* $25	45,895			137,639			103,965			990,967			782,1
Other beasts at *b* $15	44,743			154,689			99,786			490,119			896,6
Sheep, alive *b* $5	166,496			367,811			221 163			889,833			1,359,1
" dead or sold *b* $5	58,872			151,245			98,743			436,336			746,9
Pigs, alive *c* $9	40,181			47,256			53,089			329,199			7,9
" dead *c* $15	26,836			56,259			59,904			333.159			796,3
Total equivalent in beasts (2)	182,224		Heads (4)3 26	503,567		Heads. (4)3.69	346,195		Heads 3.59	1,680,529	(4)	Heads 3.78	3,049,7
Butter, dairy 15c	1,688,690			7,465,285			6,527,176			30,630,397			54,862,3
" creamery 24c				501,657									
Cheese, dairy 8c	196,273			501,657			172,141			559,268			1,701,7
" factory 9c													
Wheat { Spring, $1 00 bushel	546,872	41,942	13 3/70	522,602	45,045	11 4/5	517,997	40,831	12.56¼	1,999,815	224,678	8.98½	7,213,0
Wheat { Winter, $1.00 "	113			649			3,959			19,189			22,193,6
Oats, (bushels of) 40c	3,538,219			1,873,113			3,297,534			19.990,205			40,209,9
Barley, " 60	119,368			228,748			84,183			1,751,539			14,279,8
Rye, " 75	307			47,567			18,268			430,242			1,598,8
Pease & beans, " 80	3,169		14.23	37,220		8.09	43,121		13 88	4,170,456	12.77		9,434,8
Buckwheat, " 50	90,458			339,718			1,587 223			2,041,770			841,6
Corn, " 60	2,603			13,532			18,159			880,169			8,096,7
Potatoes, (bushels of) 40c	6,042,191	39,083	154.59	7,378,387	60,192	122.60	6,961,016	51,362	135.33	14,873,287	123,869	120.07	18,893,9
Turnips, 500 bush. p. acre at 10c	1,198,407	2,482	(5)500 M	1,006,711	2,865¼	(5) 500	990,336	2,299	(5) 500	1,572,476	7,246¼	(5) 50	33,856,7
Other roots, (5) p. acre 20c	42,522			326,143			159,044			2,050,904			6,479,2
Linseed, $1.00	919	(3) 92		1,793	(3) 179		17,715	(3) 1,715		65,995	(3) 6,599½		38,3
Timothy and clover, $2.50	15,247			8,128			7,527			119,306			173,3
Hay p. ton. $6.00	143,981	119,936	1.20 T	587,731	519,855	1.14¼T	414,046	389,721	1.06 T.	1,614,106	1,495,494	1.08 T.	2,038,6
Apples p. bush., 35c	31,501			903,519			231,096			777,557			11,100,3
Grapes p. lb., 04	795			35,015			2,108			158,031			3,697,3
Other fruits p. bush, 50	2,547			18,485			6,122			155,542			644,8
Maple-sugar p. lb., 08c	25,098			217,481			453,124			5,687,835			4,169,8
Tobacco " 15	1,367			1,216			6,114			2,356,581			160,2
Hops " 15	10,209			1,142,410			15,006			218,542			615,9
Honey " 10	552,083			18,677			760,531			2,730,546			6,013,2
Wool " 25	19,945			24,500			78,203			559,024			1,197,8

(1) The above prices are purely conjectural, there being no sure guide to the computation we have made. But to the best of our judgment, a

(2) This *equivalent* is found by taking 2 colts, 2 young beasts, 5 sheep, and 3 pigs as equal in value to one horse, one bullock, and one cow.

(3) The census only gives (in bushels) the total grain harvested, without giving the number of acres occupied by each sort. To arrive at t cultivation, less those in hay, green crop, and flax. It is this average, in bushels, which is shown, opposite the grain mentioned. Linseed is set at

(4) Unfortunately, the census does not distinguish farm-stock properly so called from the same sorts of cattle belonging to non-cultivators. head. The figure we have given show that, as regards complete agricultural statistics, the census has no value.

(5) The number of acres in roots other than potatoes is given under the supposition that each acre produces 500 bushels. The calculation is ma

[FROM THE CENSUS OF 1881.]

ONTARIO		MANITOBA.			BRITISH COLUMBIA.			TERRITORIES.			GREAT TOTALS FOR THE DOMINION.		
Acres	Average by acre	Quantity.	Acres.	Average	Quantity.	Acres	Average	Quantity	Acres.	Average	Quantity.	Value. $	
Pasture ground per head. (4) 85		2,384,337 250,416 230,264 17,197 2,955	Pasture ground per head. (4) .21⅜		441,255 184,885 83,657 98,457 2,771	Pasture ground per head (4) 98		314,107 28,883 21,214 7 334 285	Pasture ground per head (4) 31		45,358,141 21,899,181 15,112,284 6,395,566 101,335		
		65,954			49,459			56,416			4,324,810		
		284 300 579 4,016 3,868			1,013 294 195 666 575			132 26 16 325 515			75,286 93,325 156,672 102,243 36,499		
		9,077			2,743			1,014			464,025		
		14 504 2,235 12,269 4,936 20,355 27,657 6,073 1,382 17,358 18,674			20,172 5,950 2,319 13,696 18,878 67,254 27,788 10,683 16,841 10,411			9,084 1,786 3,334 1,796 3,848 5,690 346 232 2,775 712			857,855 201,503 132,593 657,681 1,595,800 1,786,596 3,018,678 1,496,465 1,207,619 1,302,503	$ 51,471,300 8,060,120 3,977,790 16,442,025 39,895,000 26,798,940 15,243,390 7,482,325 10,868,571 19,537,545	00 00 00 00 00 00 00 00 00 00
(4)	Heads 3 63	80,513	(4)	Heads. 3,07	1,446	(4)	Heads. 1.81	23,072	(4)	Heads. 1 23			
		957,152			343,387			70,717			102,545,169	15,381,775	35
		19,613			33,252			1,060			3,184,996	254,799	68
949,135	14 01	1,029,378 4,296	51,293	20 15	153,485 20,168	7,952	21 84	119,644 11	5,678	21 07	12,102,817 20,247,452	12,102,817 20,247,452	00 00
		1,270,268 253,604			253,911 79,140			54,952 48,415			70,473,131 16,844,868	28,201,252 10,106,920	40 80
17 08		1,203 8,991 320 2,516		20 84	482 50,542 59 1,433		8.95	240 1,291 50 1,948		16 80	2,097 180 13,719,662 4,901,147 9,025,142	1,572,885 10,999,739 2,450,573 5,415,085	00 60 50 20
181,394	104 15	556,193	4,306	129.18	473,831	3,272	147.87	89 326	811	110 14	55,268,227	16,580,168	10
80,672	6) 500	149,025	396	(5) 500	270,525	905½	(5) 500	14,893	36	(5) 500	39,059,094	3,905,909	40
3,820		49,096			82,249 31	(3) 3		3,091			9.192,320 108,694	1.838,464 108,694	00 00
		303			857						324,317	810,792	50
795,965	1 14 5/12	185,279	100,591	1 84	43,898	28,449	1.52½	17,500	8,337	2 10	5,055,810	30,334,860	00
		190 13 1,483			28 100 2,961 12,347			175 30			3,377,655 3,896,508 20,556,049	4,682,179 155,860 420,609	25 32 00
		2,796 2,037 1,385 16,452 1,080			9 96 24,899 85,148 365			72 320			2,527,962 905,207 11,300,736 1,874,745	379,194 90,520 2,825,184 187,574	30 70 00 50

king all things at the lowest rate, our prices are a pretty fair approximation to the truth.

verage per acre, we have added together all the grain harvested except the wheat, and taken the average per acre of all the land in ushels per acre.

consequence it is impossible to show how many head of horned-stock farmers keep per 100 acres, and how much pasture is necessary per

order to arrive approximately at the number of acres and the yield per acre of the same grain because the census does not give it.

OUR ENGRAVINGS.

The seven-eigth's shorthorn steer, first prize at Chicago, is an other proof of the prepotency of the shorthorn bull.

Enterprise.—A. Shire Stallion.

Chaff-cutter and Drag harrow.

ON THE RUSSIAN APPLES.

Imported by U. S. Department of Agriculture in 1870.

BY CHARLES GIBB, ABBOTTSFORD, QUEBEC

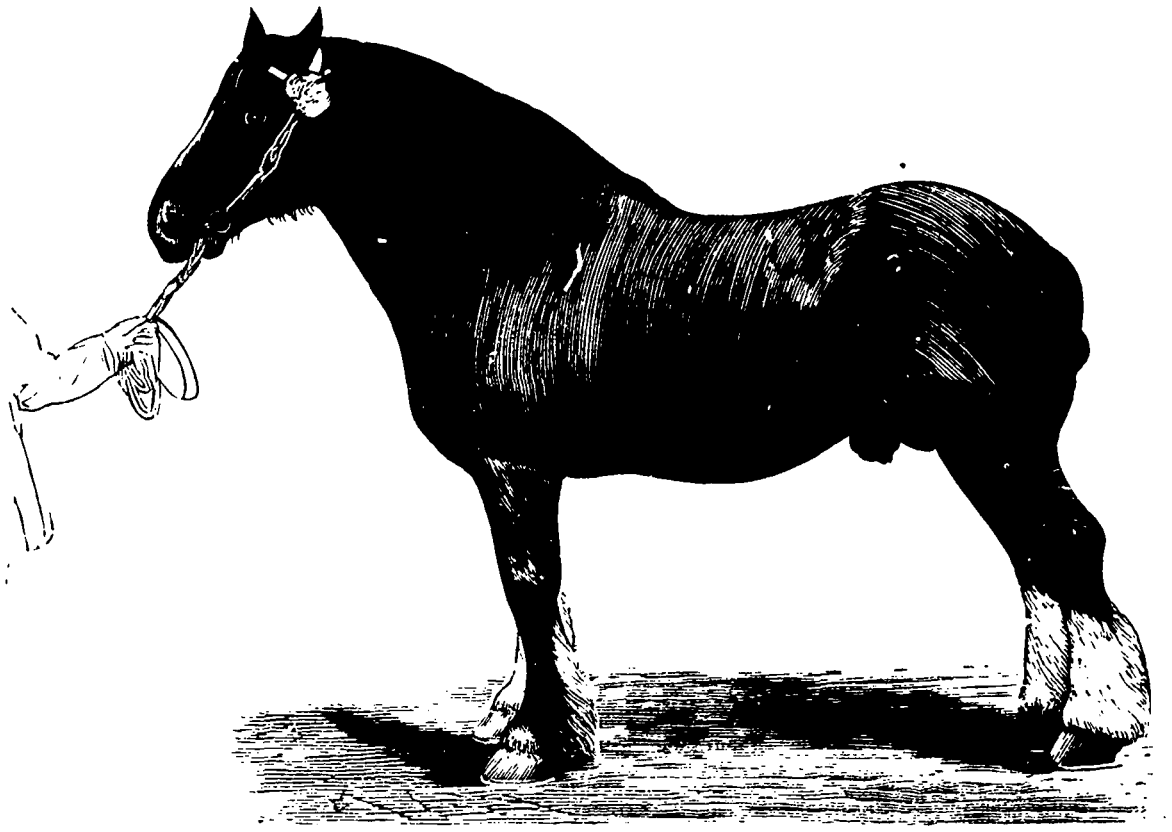
(Being an abstract from a paper from the forthcoming report of the Montreal Hort. Society.)

It is important to know which are the really good apples in this collection of 252 varieties. This collection of apples was received by the Department from Dr. Edward Regel, the director of the Imperial Botanic Gardens at St. Petersburg. A small proportion only of them had been grown in that fickle climate. They were, therefore, very largely "obtained" by Dr. Regel from different sources, and these mostly from the coast provinces of Russia.

There have been many drawbacks to the introduction of the Russian apple. Nomenclature in Russia is most confused, that of the Department list no less so. We have duplicates under different names, confusion of names as to types and families, evident mistakes. In Dr. Regel's work on Russian Pomology the list of synonyms show how confused is the Russian nomenclature. If Spitzenburg and Northern Spy were synonyms of Golden Russet, the case would be somewhat parallel.

Unfortunately in the Department list, the name is, too often, no guarantee to the nature of the fruit. Apples, whose names state them to be of Greening, Anis or Blue Pearmain type, prove to be Duchess; Aports do not prove to be of Alexander family; Stekliankas, the very opposite of Greenings. Apples, marked Beel or Belui, are far from white, and others noted as red, show no trace of it. Those marked winter, if from the northern parts of the coast provinces, where the summer is short and cool, are by no means winter apples in our longer and warmer summers.

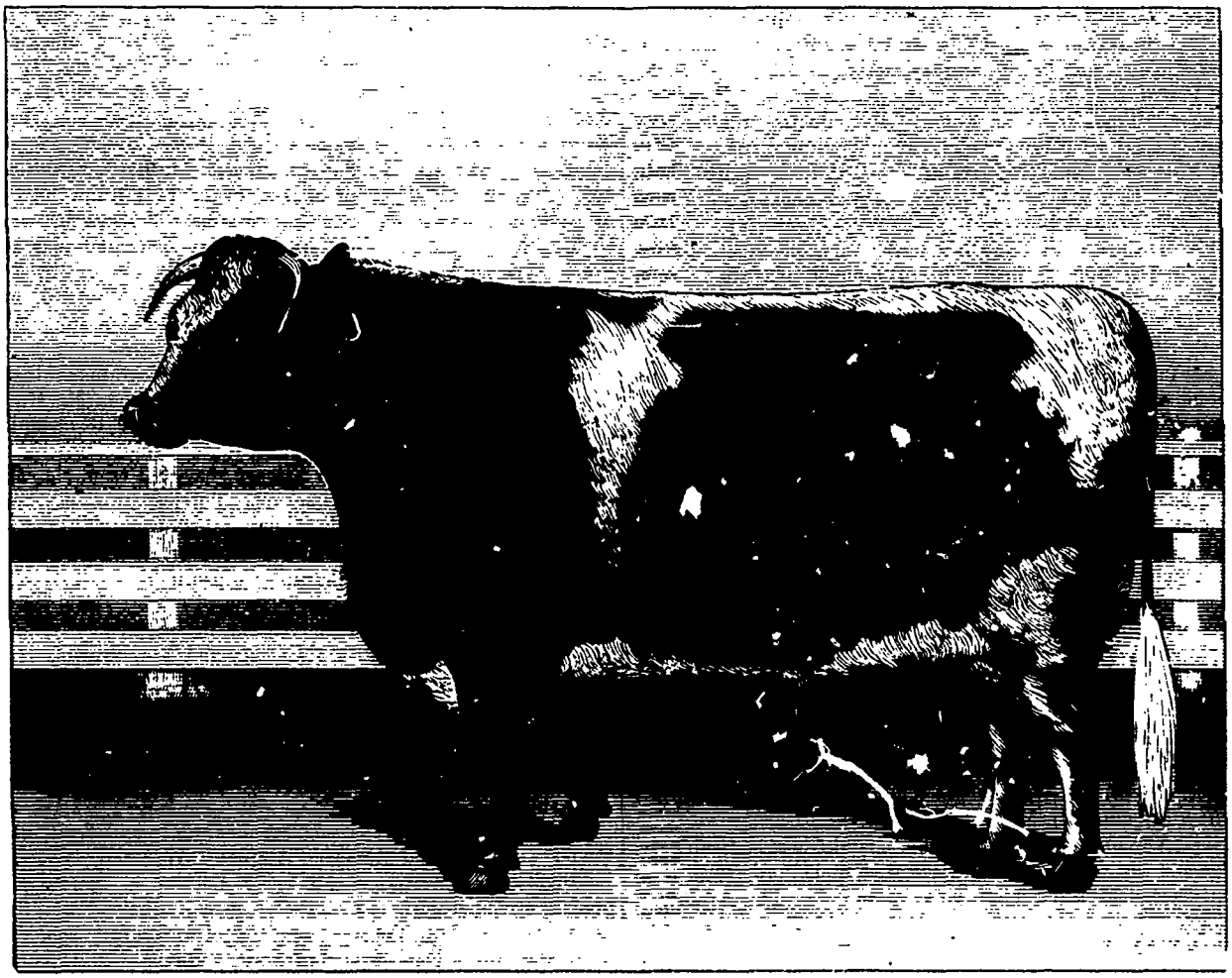
The early ripening of these apples on the Department grounds at Washington, gave many the idea that they were all summer apples, that is, summer, irrespective of the climate they are grown in. Prof. Budd, of Ames, Iowa, in 1876, on 20th August, noted Borsdorf, No. 341, on the Department Grounds, as "falling from the tree and about ready for use," while he quotes an authority from Northern Vermont saying, "a long keeping apple of finest quality." Again, Red Queen, No. 316, Mr. Budd notes as "a rusty green apple, about mature 20th of August, and falling from the tree." Mr. A. G. Tuttle, Baraboo, Wis., says: "Fruit of good size, red on the sunny side; season, January to April." It may thu be seen that the Department test was no test at all, as regards the quality and keeping of these fruits, nor were they so intended by the Department, who used their grounds merely for the purpose of growing for distribution. These trees as received by the Department were labelled by number; they were also sent out by number. Some mistakes are observable, and mistakes will happen when things are received and sent out by



SIR HENRY ALLSOPP'S "ENTERPRISE OF CANNOCK."

number. These numbers referred to a list in Russian, which was translated at the Russian Embassy in Washington, and distributed by the Department. Unfortunately the Russian names are rendered into English sounds from a Russian, not an English, standpoint. These names should be rendered *euphonically* from an English point of view. Thus "ow" and "ou" are intended to be pronounced "ov" or "off," "ja" should be pronounced "ya." This has robbed the Russian of all its music. We should have uniformity in the spelling of the Russian names. We find *naliw*, *naliv*, *nalin*, *nalciv*, *naliwnoe* and even *walisonoe*, for the word translated *juicy* or *transparent*. We find *scholti*, *schotor*, *schatui*, *soltoi*, *scholtoe* for the word uncongenial to the Russian apple. The experience of Mr. Tuttle will illustrate this. Of 127 Tetofsky, top-grafted on Transcendent, after ten years growth, but one living; on Yellow Crab, two trees alive out of 74, the Tetofsky having made a growth, before dying, of six to eight feet; of 57, on apple, all alive and doing well. Mr. Sias of Rochester, Minn., and Mr. Webster, of South Northfield, Vt., often speak of fruit, medium in size, top-worked on crab, larger on apple. It is to be regretted that our first impressions of the Russian apple were either from specimens grown in the climate of Washington, or else from top-grafts on crab at the north.

My information in the following list is based upon visits in



IMBODEN BROS.' SEVEN-EIGHTH'S SHORT-HORN STEER, SCRATCH.

yellow. The word *green* is spelt in six different ways, but this is in part the work of the printer. We have *rannet kaluski*, Queen of Kiew, or Kiev, as we would say, but who would suppose Kiluski had anything to do with Kiev; any number of such mistakes.

The translation, also, is badly done. In number 355, Aport is translated orange, which it does not mean. In 399 Krimskaja is translated Crimean, in 439 Krim. and in 563 Krimtarter, and these mistakes have been puzzled over and copied by every one who has grown them.

There is also another drawback. In the North, scions have been usually top-grafted on crab. Growers in Vermont, Wisconsin, and Minnesota, are now agreed that the crab-stock is

August last to the orchards of Mr. Spaulding (formerly that of Mr. Moulton), near Minneapolis; A. W. Sias, President Minnesota Horticultural Society, Rochester, Minn.; Mr. Underwood, Lake City, Minn.; A. G. Tuttle, Baraboo, Wis.; State Agricultural College, Ames. Iowa; Ellwanger & Barry, Rochester, N. Y. Also Mr. A. Webster, of South Northfield, Vt., and Dr. Hoskins, of Newport, Vt., brought to the Montreal Horticultural Society Exhibition samples of their Russian fruits, and gave me every opportunity of getting information from them.

Prof. Budd is not able to help in this matter, as one might expect, as the State Agricultural College at Ames, Iowa, received their own importation from Dr. Regel, but as Russian

apples have been (or are being) received by the college from twelve different sources in Europe, much valuable light will be thrown upon the matter.

1. RED ASTRACHAN.—This is Duchess, or an apple very closely resembling it—Spaulding.

60. RED DUCK.—Of the same family as Yellow Transparent, say Mr. Webster and Mr. Tuttle.

68. EARLY CHAMPAGNE.—A small, early fruit, colored like Duchess—Tuttle and Spaulding.

69. SUMMER PEAR.—A very conic white apple, of rather small size, with wrinkled basin, not very good, as fruited by Mr. Sias.

157. JUICY WHITE.—A large white apple, very juicy and fine grained, acid, though milder when fully ripe—Tuttle.

161. LONGFIELD.—An early winter fruit of fine quality, yellow and red, and bright and attractive in color. It is the same as 587 English Pippin or the Englishman's Pippin, a chance seedling from the Volga. Mr. Tuttle thinks very highly of it as a hardy tree and a regular annual bearer. Its fault is its small size; top grafted on crab it is quite small. Those who have grown it on apple roots on rich Western soils say little of its lack of size.

164. HEIDORN'S STREAKED.—A very beautiful, large-sized, striped apple, sweet, and of delicate texture. Such were the specimens brought to Montreal and fruited by Mr. Webster

166. SUMMER APORTO.—The Aport is the family of which the Alexander is a member, but this Summer Aport shows no Alexander features as fruited by Mr. Webster. It is a large, flattened, angular, brown checked apple, of fair quality, but of no special merit.

177. GREEN STREAKED.—This is a large, showy market apple, belonging to a family of which Turnipy Juicy, Zolotoreff and Hibernal are types. They are trees of medium hardiness, for Russian apples, and, except Hibernal, have shown some little tendency to blight in nursery. Green Streaked is a little coarse in texture, but a showy market fruit, that keeps into winter, and which Mr. Tuttle thinks highly of.

178. BARLOFF.—This has the distinct features of the Alexander, family as I saw it at Mr Tuttle's; a sweet apple of good size and fair quality. That, however, grown by Mr. Webster is a flat, sub acid, thin-flavored apple, in shape more like the Zolotoreff and Turnipy Juicy family.

180. NEGOLOFF.—An October apple of good size and fair quality, but not of special value.

184. ARABIAN.—There is some mistake here. Both Mr. Budd and Mr. Tuttle have fruited this apple, and found it to be either Duchess or something very like it. The Arabskoe, of Ellwanger and Barry, received from Moscow, is a large, flattish fruit, of deep pink color, very beautiful, though only of fair quality, and not the long-keeper which I had spoken of as growing at Volsk and other places in Russia.

185. ANISETTE.—Mr. Tuttle says this is Duchess.

187. GLASS GREEN.—Duchess, says Mr. Tuttle, in tree and fruit. Mr. Spaulding thinks it is a little later in ripening. There is some mistake here, as the Steklianka or Greenings, are of a very different type.

188. YELLOW ARCADIAN.—The Arcads in Russia are small-sized sweetish apples. This is noted as an early apple of from fair to inferior quality. Numbers 231 and 327 are apples of the same name.

197. CURLY SPICED.—An apple somewhat of Alexander type, acid, with some flavor, not of special value, says Mr. Tuttle.

206. CZAR'S THORN.—Mr. Webster says an extremely, hardy tree; fruit somewhat large and of Calville form, but watery and worthless. Mr. Tuttle speaks of it as a good sweet apple. On the Volga, the Czar's Thorn is a sweetish apple of good quality, fair size, and yellow in color.

210. CUT WINE.—Size and shape of Maiden's Blush; a sharp acid apple with slight flavor. Oct.—Webster.

214 GARDEN.—A smooth, green, fall apple, very mildly acid, and of medium size and quality.—Tuttle.

225. GETMAN'S BEAN.—Tree, says Mr. Webster, of slow, irregular habit and a tardy bearer; fruit large, even very large, very handsome and of excellent flavor, Oct. Mr. Tuttle corroborates the above. The fruit as I saw it at Mr. Tuttle's was undersized this year, but showed the angularity and distinct family features of the Anis of the striped or mottled type.

230. TITUS.—This is not the Titovka which we saw all along the Volga and in Middle Russia, one of the commonest market apples throughout that vast region. In Western Russia, another apple is known as Titovka. Ell wanger and Barry received theirs, I suppose, from Moscow, as it is on their Moscow list, and they have described it as the largest and showiest of the new Russian varieties tested by them. This tree I have grown alongside of trees of Titus, I believe of the Department, and I can see no possible difference between them in leaf or twig. The fruit is of the Zolotareff and Hibernal type, and seems very like the sample lately sent by Mr. H. Goegginger, of Riga, to Mr. Wm. Evans, Montreal, and would also appear to be that pictured in the Russian Pomology by Dr. Regel.

236. ANTONY.—The Antonovka is the king apple of the Russian steppes. I hope this apple is true to name. Mr. Budd has received it from Moscow, St. Petersburg, and Riga, and I think elsewhere. They all seem true to name. Specimens shown to me by Ellwanger and Barry, received from Moscow, are, without doubt, Antonovka Mr. Tuttle showed me good, healthy trees in an orchard adjoining his own. They were not in bearing, but the fruit borne last year answered exactly the description given by me in my pamphlet on "Russian Fruits."

240 LIEBY.—Mr. Oliver Gibbs, the Secretary of the Minnesota State Horticultural Society finds this growing near Lake City: a large fruit, flat in shape, tapering towards the calyx, a second quality, sub acid, fall cooking apple.

245. BOROVINKA, or rather mushroom, as it is translated. Mr. Budd says, just like Duchess, but a month later.

246. PROLIFIC.—A good cooking apple, but a little bitter—Spaulding.

247. POPOFF'S STREAKED.—A medium, small fruit, fine, tender, sub-acid, and aromatic, August.—Webster.

262.—CHARLAMOFF.—An early fall apple, large and oblong, streaked with red and of excellent quality, says Mr. Oliver Gibbs. Mr. Webster says, tree of unrivalled vigor and hardiness, and a good bearer of fruit. Resembling Duchess, but more conic.

275. ZOLOTAREFF.—A large, cylindrical, showy apple, with a good deal of color, a little coarse in flesh, but juicy, with a good spicy mingling of sweet and acid: keeps till November, says Mr Tuttle. Mr. Webster has a different apple.

279. WINTER APORTO. A fruit rather above medium size when grown on apple roots; of good, fair quality, says Mr. Sias: keeps till October.

285. TURNIPY JUICY.—A large, or very large, semi-oblong apple, about as red as Alexander, and rather better in quality; carries well, and keeps till winter. Mr. Tuttle thinks highly of it.

286. KREMER.—In Mr. Sias' orchard, a rather large tender white apple of good quality.

290. UKRAINE.—This I saw in bearing at Mr. Underwood's. I had seen it in bearing at Vilna, in Russia, looking like a large uncolored Northern Spy. There it is known as a

hardy tree; fruit of second quality, which keeps and ships well I think this is true to name.

304 SWEITZER.—A striped apple, above medium size, with a fine sub-acid aromatic flavor, a dessert apple of fine quality, and would appear to be a good market fruit.

315. LORD'S APPLE.—Mr. Tuttle describes this as a large fruit, the size of Blue Pearmain, with much the same color and bloom; a clear, strong, pleasant acid, a fruit that hangs well on to the tree and keeps as long ngfield. This is evidently a true Arabskoe.

316. RED QUEEN.—Fruit of good size, dark green, with red on the sunny side, quality good to very good, season, January to April, so says Mr. Tuttle of his Rannet Red, which he believes to be the same.

317. WHITE PIGEON.—A small, very conic apple, with wrinkled eye and no basin; sweet, and of fine but peculiar flavor. Both Mr. Sias and Mr. Webster speak of the extra hardiness of this tree

322. BROWNY.—Like Duchess, but seems hardier and later in season, and less acid; a very good fall apple, says Mr. Tuttle.

324. GERMAN CALVILLE.—Fruit a good deal like the old White Calville of France, large to very large, and deeply ribbed, a good sub-acid apple, from Dec. to Jan., or even March.—Webster.

333, RED TRANSPARENT.—Of white Astrachan type, but of much finer color and almost sweet.

334. YELLOW TRANSPARENT.—Next to Charlotenthaller, this is probably the best of the Transparent family, and is one of the best known on this catalogue.

335. GREEN TRANSPARENT.—Much like the above, but smaller, more conic and less vigorous in tree, says Mr. Webster.

336. WHITE TRANSPARENT.—Much like the yellow.

338. REVEL PEAR.—An early mild flavored fruit of the Red Transparent type, very pretty, says Mr. Sias.

340. LOWLAND RASPBERRY. A medium-sized, ribbed apple, of pretty good quality.—Tuttle.

342. CHARLOTTENTHALLER.—Opinions are rather in favor of this being the best of the early Transparent family: the earliest and perhaps the largest.

343. RED WINE.—An early apple, much like Sops of Wine, both in appearance and flavor, nearly sweet, so says Mr. Tuttle. Mr. Webster says a sharp, acid fruit like Red Astrachan.

344 SULTAN.—The Grand Sultan, which I suppose to have been from the Department, is a good-sized early apple somewhat of White Astrachan type.

350. BURR.—A small or medium-sized, flattish, yellow tart apple, very sour but a good early bearer and a hardy tree.—Sias.

351. PROLIFIC SWEETING.—Mr. Webster says, tree of Tetofsky type and very productive. An excellent sweet apple, ripe in August and September. Dr. Hoskins, too, speaks very highly of it, although in beauty and flavor it is not equal to Heidorn's Streaked.

364. WHITE WOCHINS.—A large bearer of good, handsome, smooth, sub-acid apples, rather better in quality than Duchess, but not equal for profit—Webster.

368. SUGAR-BARREL.—A good bearer of medium sized, striped, sweet apples, for general purposes, not equal in value to Prolific Sweeting.

372. - ST. PETER.—Dr. Hoskins characterizes this as the Russian "Early Joe," better than Sweitzer, the best Russian apple of its season, which is August and September.

374. PENDANT EAR.—Resembles Duchess in size and color, and about as prolific, but too astringent.—Sias.

378. HIBERNAL.—Mr. Tuttle specially pointed out the perfect health and good growth of this tree. It is an early and good bearer of large showy apples, a good cooking apple of Titovka type, said to keep till December. Mr. Oliver Gibbs also thinks highly of trees of it in bearing near Lake City.

382. RUSSIAN GREEN.—This I saw in the orchard of Mr. Sias, without doubt of the type of the Blue Anis, of the Volga. I saw it at Mr. Tuttle's: a tree that should be tried in the far North.

393. IMPERIAL CITRON.—A good grower and a great bearer of fruit of good size and fair quality, but not of special value. September.—Webster.

398 ENORMOUS.—Mr. Webster has grown specimens of this nearly fourteen inches in circumference. An August apple of pretty good quality and fair color.—Webster.

399. GREEN CRIMEAN.—Tree not thoroughly hardy; of value only for cooking.—Hoskins.

402. BORSDORF.—This is a German rather than a Russian apple, and a member of a large family. The tree has proved hardy with Mr. Webster, and with Mr. Tuttle, about as hardy as Fameuse Fruit, says Mr. Webster, small to medium, of fair appearance, fine texture, rich and good, a first rate keeper for home use.

407. BLACKWOOD.—A great favorite all along the Volga. With Mr. Webster it has ripened early and not seemed valuable.

410. LITTLE SEEDLING.—Mr. Oliver Gibbs says the tree is like Duchess and an abundant bearer. Fruit small, quality cannot be known till later. Mr. Webster says an enormous biennial bearer of fruit, medium in size if well thinned, too hard to be eatable till warm weather in spring, when it becomes tender, juicy, and of fair quality and flavor.

413. CROSS, OR SKRISCHAPFEL.—This is an Anis, without doubt. I saw it in the orchard of Mr. Underwood, Lake City, Minn. It was top-grafted on Crab, and I was disappointed with the flavor of a prematurely ripened specimen. Mr. Oliver Gibbs tells me that, later in the season, it was red, high finished, and a good keeper; it is an apple of the true Red Anis type, valuable in the North. The Skrischapfel of Russia, however, is very different.

429. BOSKLONOFF.—Bitter, sweet, and worthless.—Webster.

433.—ORLOFF.—That of Ellwanger and Barry, which, I suppose, came from the Department, seems to be White Astrachan.

439. WHITE KRIM.—This is Duchess, says Mr. Tuttle.

441. RATTLING.—One specimen I saw at Mr. Underwood's, a large brownish red fruit.

444. LUBSK QUEEN.—Mr. Webster says a beautiful little sweet apple of no value. Mr Tuttle says, though reported from the East as sweet, he finds it very sour.

448. CARDINAL.—A dull red apple of medium size, not good quality, says Dr. Hoskins; that which I saw at Mr. Underwood's was small, striped and of fine flavor.

450. HANDSOME WHITE.—An apple of white Calville form and size. Acid, crude, unripe, as I saw it in the orchard of Mr. Spaulding.

453. BEAUTIFUL ARCADE.—A hard white apple, somewhat juicy, sweet, and with some flavor, which Mr. Tuttle thinks very favorably of.

463 SPREADING PIPKA.—A small apple of Duchess type, sour, dry, flavorless: condemned—Dr. Hoskins.

469. GRANDMOTHER.—Mr. Budd has compared the leaf of this with that received direct from Russia, and believes it to be true to name. In Russia it is said to be a medium sized apple of fair color and fine quality, that keeps till May.

472. OSTREKOFF'S GLASS.—I saw this at Mr. Underwood's: a small green apple, very conic, very wrinkled at the calyx, and without basin. I think it is true to name. In Russia, it is said to keep to the following summer.

490. CLAY.—Mr. Spaulding says, just like Duchess but a month later; less sharply acid, and seems finer in grain than 187 Glass Green.

544. JUICY BURR.—With Mr. Underwood, a large striped apple, like Duchess. As grown by Mr. Sias, an apple more or less of Duchess type, acid, only fair in quality, and a shy bearer.

578. LEIPZIC BORSDORF.—One of the best of the Russian apples, and one of the best keepers, it would seem, yet very conic in shape, and of no special beauty. The tree seems hardy, and a good bearer, says Mr. Sias.

579. SUMMER LOWLAND.—Resembles Duchess in appearance, but a very pleasant sub-acid, and of excellent quality: it should have been named Autumn Lowland.—Tuttle.

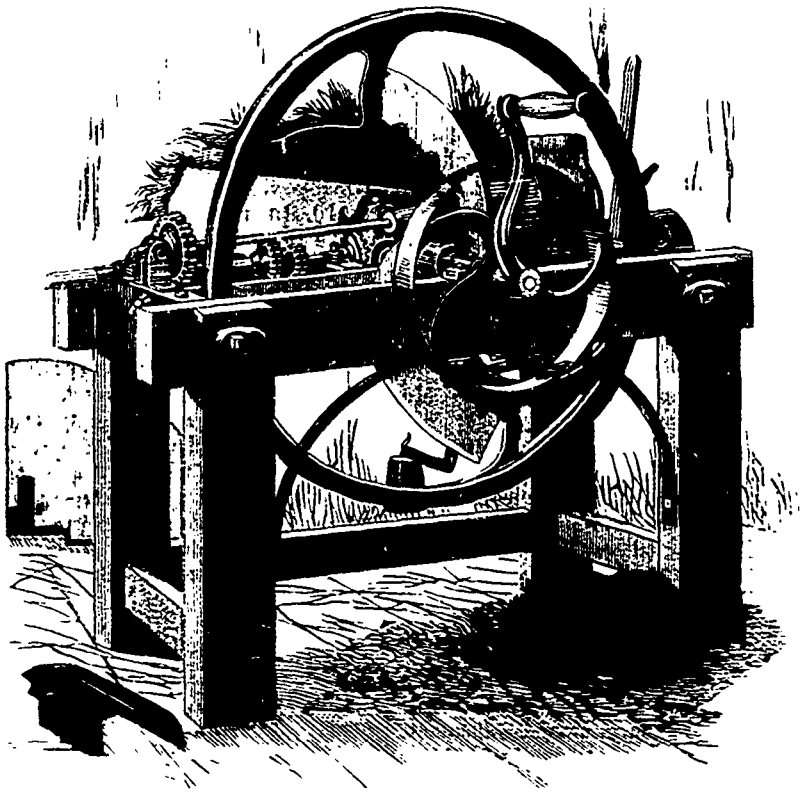
of the Yellow transparent class, says Mr. Webster. I saw it at Mr. Spaulding's; probably the same fruit.

971. VASSILIS LARGEST.—This belongs to the same type of apples as Green-streaked and Turnipy Juicy. A large, showy fall, market fruit, and an early bearer.—Tuttle Like Duchess, says Mr. Baumbach, of Wawantosa, Wis

973. SHINING AROMATIC.—Mr. Webster says, fruit of no value here. Mr. Tuttle says, not inferior in fruit, but we have too many of such.

975. RED TEAT.—This, says Mr. Webster, is a wonderful bearer, and the fruit, if judiciously thinned, is large to very large, red, sub acid, but of fair quality and flavor only.

978. GOLDEN WHITE.—Dr. Hoskins pronounces this the best fall apple among the Russians. Judging from specimens



BELLE CITY FEED CUTTER.

580. WINTER LOWLAND.—In Mr. Sias' orchard this is a small flat apple, striped with bright red, white in flesh, and would seem to be of good quality and a good keeper.

584. RED CALVILLE.—Mr. Webster finds this a hardy tree and an enormous bearer, fruit red, acid and high flavored, but as it lacks size, he cannot recommend it.

587. ENGLISH PIPPIN.—See 161. Longfield.

592. LONG ARKAD.—Much like Red Astrachan in form and color; a mild, pleasant acid; season, late fall; a hardy tree. Mr. Tuttle thinks very favorably of this.

597. GLASSY SAND.—A small, very conic, though not wrinkled, fruit of medium quality as I saw it in the orchard of Mr. Sias.

600. LONG APPLE.—This tree produces a large number of short spurs, each crowned in its season with a rosette of beautiful little red apples of good quality.—Webster.

965. SWEET PEAR.—Not sweet, but a fine sub-acid apple, at the Montreal Horticultural Society's exhibition, the fruit is a good size, a good deal of red on it, and very showy.

983. RED ASTRACHAN.—Not it, says Mr. Spaulding. It should have been translated Transparent Astrachan

984. KURSK ANISETTE.—I saw this at Mr. Underwood's: a small green fruit without any basin; not of Anis type at all.

985. RED ANISETTE.—A true variety of the Anis. I saw it in August last at Mr Sias'; it was not fully colored, not more so than Yellow Anis, which it closely resembles.

987. YELLOW ANISETTE.—Also a true Anis, firm in texture, and a crude acid when I tasted it in August Like the above it is top grafted on crab in Mr Sias' orchard, and not equal in size to others growing on apple in the neighborhood. This and the above, and Skrischapfel and Russian Green should be tried in the far North.

988. PINE APPLE.—Of Yellow Transparent type, at Mr. Underwood's.

I have noted above but 93 kinds,and that with almost fatal brevity. Mr. Wm. Saunders tells me, that of the 252 kinds received all grew, that scions of all were distributed, that every available scion was cut for six years, and that in one year over 100,000 packets were sent out by the Department. Let all throughout the country who have tested these fruits send notes to the Horticultural Societies of their respective states and thus tend to bring facts to a focus on this important question.

VETERINARY DEPARTMENT.

BROOD MARES.

The time is now at hand when mares will be foaling, and we have thought that a few suggestions on the management of them may prove useful to our readers.

They should no longer be worked, their shoes should be removed, and they should be turned into loose boxes, if possible, opening into paddocks or large yards. Their food should be of a laxative nature, and they should be fed so as to maintain medium condition, avoiding too high as well as too low condition.

A careful breeder will preserve a correct record of the dates of service, and as the period approaches he will watch his mares carefully.

It is comparatively rare for a mare to require assistance in foaling, but as it sometimes happens, and as there are several accidents which might happen to both mother and foal, it is necessary to see her frequently both during the day and night.

The immediate approach of the foaling time will be preceded by milk in the udder, and a relaxation of the external genital organs and hind quarters generally.

By all means place them in a loose box, and supply them with plenty of straw, it should be warm, if cold it is apt to produce internal congestions of the lungs or bowels either of which is very apt to terminate fatally.

When we consider the difference in temperature from the womb to the external air, even a sudden change of forty or fifty degrees is seriously felt by an adult, how much more then in a foal just born. In the state of nature, instinct teaches the wild animal to seek for and provide a warm sheltered place, most birds and animals ensure its warmth by active preparation and construction of a nest or a lair lined with warm materials collected for the purpose.

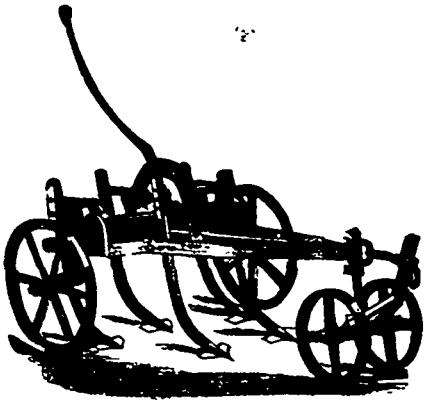
We do not find the larger quadrupeds do so, but we find that in a state of nature the young are born only, as a rule, during warm weather.

The mother should always be loose, as if tied up she is prevented from following her instincts, and many attentions which she will bestow on her young are prevented to its serious detriment. Thus we find that both the mare and cow will lick them all over which has the effect of drying them, applying friction, and stimulating the circulation on the surface of body. The foal should be on its feet within two hours, often within fifteen minutes, when it will naturally find the udder and suck the laxative milk which nature has provided for it. It is very necessary to make sure that the bowels are opened, and we have always followed the practice of giving a wine glass full of castor oil at once. On many breeding farms, a custom prevails of giving a raw egg as soon as it is born, probably with the same object in view. Should it not get up and be able to suck itself, it should be assisted, until it gains sufficient strength to keep itself, should it not be able to stand or keep itself it will be better to milk the mare and feed it out of a bottle with a cow's teat tied on to the neck, keeping up the temperature by keeping it in a bucket of hot water. It is important to give the milk artificially at the same temperature as naturally it would be supplied.

Should the mother not have milk to feed it, or in the event of her death, the foal can be nursed on cow's milk, but the milk of the mare is more watery and sweeter, consequently, if cow's milk be used for the foal, it should be diluted with a fourth of its volume of water and slightly sweetened with sugar, care being taken to preserve its temperature in the manner above described.

During some seasons, and also when the produce of certain sires,the foals come weak on the legs, are unable to stand, and in this way many are lost. Foals carried beyond the natural period are apt to be so. Some mares are particularly unfortunate in this respect, it is apt to occur when the mare is insufficiently exercised during winter. As a rule, when a foal is not on its feet within twenty-four hours, it seldom does much good. However, they should be nourished and cared for until it is demonstrated beyond doubt that there is no chance of recovery.

In many cases the inability to rise is due to weakness of the fore legs, which knuckle over at the fetlocks, or give way at the knees; in such cases the legs should be bandaged with an evenly applied flannel bandage, and a boot laced on,reaching



COLEMAN'S DRAG-HARROW—AWARDED 200 FIRST PRIZES.

from the ground to the knee or above if necessary; it should be strengthened in front by steel or whalebone strips .When required, the boots should be applied early before the tender skin of the fetlock has been abraded in its efforts to get up, and too much care cannot be exercised in preventing sores from pressure of the boots by bandaging and padding.

It is seldom, however, that these colts repay the trouble or expense of rearing.

As soon as the weather and pasture fields will admit of them being turned out, they should be sent to grass—it is best for both mother and foal,not only on account of the laxative and milk producing qualities of the grass, but the pure air and exercise are essential to the health and growth of the young animal.

When it can possibly be avoided, the mare, while suckling her colt, should not be worked, the practice of shutting up the colt in a stable while the mare is doing a hard day's work in the plow or harrows is injurious alike to both. By nature, the foal should have constant access to the nutritious supply,as its small stomach speedily digests the food, and when made to fast for several consecutive hours, digestion is impaired, and derangement of this important process follows.

The milk secreted and retained in the udder when the mare is in a heated state, is more apt to produce indigestion; besides it is apt to cause inflammation of the udder.

We prefer to let the foal follow the mare even in the plow, but this is not advisable, as it soon becomes fatigued, is apt to get injured, and does not thrive as if running loose in the pasture field. If housed, they should be kept in a loose box, so as to avoid the risk of injury by being kicked by other horses.

Should the foal be such a one as you wish to develop to its utmost capacity, it should be encouraged to eat ground oats at three or four months old.

In Kentucky, where they pay special attention to early maturity and development, the colts are fed almost from the beginning, and notwithstanding the rich blue grass, on which they are abundantly fed, they are liberally fed on corn besides, the object being to supply material for bone and tendon formation.

D. McEACHRAN.

ARBOR DAY.

The first anniversary of "Arbor Day" will occur in the ensuing month of May. The *twelfth* day of May has been selected this year for that celebration throughout the Province of Quebec.

The festival was well observed last year. In all parts of the province a great number of trees were planted. It is the duty of all to follow the noble example of the higher powers, who, after having appointed the day of the festival, were the first to observe it, and to plant with their own hands trees destined to carry down to posterity the names of those whose patriotic idea it was to teach the people to love and respect their forests.

The first anniversary of the fête would be worthily observed by planting a greater number of trees than last year. We should profit by experience, and avoid those errors which caused the death of a great proportion of the trees planted last year

In order to succeed, let us lay down a few rules for the guidance of those who wish to celebrate "arbor day" in a practical manner.

The six following questions should be studied by those who wish to plant successfully:

How to choose the plants?
How to get the plants?
How to treat the plants before planting?
How to prepare the land for planting?
How to plant?
How to treat the trees after planting?

How to choose the plants?—The first thing to do before planting, is to study the nature of the soil in order to select trees fit for it. All trees do not suit all soils, for the soil may be: clay, low, cool, gravel, damp, light, marshy, mountainous, stony, flat, deep, rich, sand, dry, shallow. Here follows a list of the most useful trees, and of the soils suited to each. With a choice of soils, we can plant any trees for which we may have a preference, but when restricted to a particular soil, we must plant those trees which suit it.

TREES	SOILS.
Birches, the	Cool, sandy, shallow.
Ash, white	" deep, rich
" red	" " "
" elder-leaved	Low, damp, marshy.
Beech	Cool, gravel, mountainous, shallow.
Maple, sugar	Gravelly, light, mountainous, stony, rich, dry.
" red (the plane)	Alluvium, gravel, damp, flat.
" silver	Alluvium, damp, flat
Oak, white	Clay, deep, dry.
" red	Clay, cool, deep, dry.
Elm, American	Alluvium, damp, flat, rich.
" red	Cool, mountainous, rich.
Pine, Weymouth	Cool, damp, light, sand
" rock	Poor, stony.
" soft	Cool, sand.
" red	Sandy, dry.
Hemlock	Light, mountainous, stony
Fir	Low, damp, marshy.
Willow	Clay, low, cool, damp, light, marshy, poor, flat, deep, rich
Mountain ash	Cool, mountainous.
Poplar	Low, cool, light.
Lime tree or bass-wood	Cool, damp, deep, rich.
Spruces, the—including the Norway'.	Cool, gravel, shallow
White cedar	Low, marshy.

How to get plants?—1o. By sowing, two or three years in advance, the seeds of the trees intended to be planted. This practice I only recommend to skilled horticulturists; 2o. By taking young plants from the forest, where they are already grown up and in good shape—these would be lost in the brush-wood where they crowd one another, but transplanted, they form fine trees, 3o By buying young plants from the nurserymen.

If we proceed by means of seed, the plants may be set out at from one foot to four feet in height, *but no more*. When the plants are got from the forest, the common error is to select them from 8 feet to 20 feet in height! 80 o/o of these trees die From the nurseryman, these plants can be sent by post, for 2 or 3 dollars a hundred, one foot high; and by express, from four to six feet plants for 7 to 8 dollars a hundred. Four feet should never be exceeded.

How to treat the plants before planting?—All the success of the plantations depends upon this. I saw, last year, trees fifteen feet in height, with a mass of earth only two feet in diameter attached, torn up; utterly deprived of their rootlets; with only two or three large naked roots growing from the trunk. Broomsticks would grow just as soon as these! To transplant trees of this size successfully, the attached mass of earth should be at least 7 or 8 feet in diameter. Hence the planting of trees of not more than 3 or 4 feet is to be preferred, and with them, a mass of 2 feet will secure the removal of all the rootlets with the plant, and their success is secured.

Great care must be taken to prevent the roots, especially the roots of the conifers, from drying before planting, and the following is a good mode of treatment: if they come by mail or by express, prepare beforehand a thick mess of cow dung, clay, and water. As soon as the plants arrive, dip the roots in this, and a layer of mud, impervious to the air, will be deposited on them The same process should be followed out if the plants, taken from the forest or from the nursery, are not to be set out immediately.

How to prepare the land intended to be planted?—If a large number of trees are to be planted on a moderate-sized piece of land, it should be ploughed and harrowed carefully. But if only a few ornamental trees are to be set out, at wide distances apart, the spot where each is to be set may be treated with spade and hoe. In dry soils, or those only moderately damp, a trench may be formed, just deep enough to receive the plant to the same depth at which it stood in the forest or the nursery, and just wide enough to allow the roots to be spread out easily. By the side of the trench, a quantity of fine, rich earth should be placed, to fill it up when the plant is in place.

In a rocky soil, a trench, sufficiently wide to receive the roots of the youngling with ease, should be prepared, and good earth should be brought to fill up the trench.

As to low, damp soils, no trenches should be made; the plants set in them in such land would infallibly die; but, on the contrary, they should be set on the surface, the roots covered with mould (terreau) and with pieces of turf taken from the place where the *butte* or mound is made. In this

case, the earth must be brought to the place of plantation, and the turves required must be lifted from the immediate neighbourhood.

How to plant?—Two planters are better than one. While one selects the plants and trims the roots and branches, the other makes a little mound at the bottom of the trench with fine mould taken from its side He who holds the plant spreads its roots on the mound, and the assistant covers them with earth, carefully filling up all the interstices between the rootlets. When the roots are well covered, the trench is filled, and the whole well trodden down. If the soil is dry, the earth should be watered before the trench is completely filled, and then carefully trodden after the job is finished. A stake to tie the plant to with a straw or other band completes the operation.

How to treat the trees after transplantation?—First, the ties must not be allowed to be detached from the stake by wind, etc. All weeds must be cleared away. If the season is dry, the trees should be *mulched*—a layer of straw, sawdust, tanbark, spread round it—thus preserving the moisture. If the tree seems loath to take, it should be boldly pruned, though this remedy is not always efficacious

By following out the precepts I have just enunciated, anyone can become a successful planter And now let us all go to work! Let Arbor Day find us all, spade in hand, ready to plant, with all our preparations made beforehand, so that nothing may take us unaware. Let us consider where we're going to plant, provide ourselves with plants, and on the appointed day, not only individuals, but teachers, schools, convents, colleges, agricultural clubs and societies should act in unison, and so behave, that on the day after the *fête* it may be said that all have contributed to the work of rewooding the country, and have shown that they understand the important part which the forest plays in rural economy

J. C. Chapais.

ENSILAGE IN ENGLAND.

At a meeting of the Teviotdale Farmers' Club Mr W. M. Oliver, Howpasley, read a paper on the storage of ensilage, describing in detail the most successful silo than had yet been erected. Referring to his own experiments, Mr. Oliver remarked that since opening his silo he had given the preserved fodder to some thirty lambing ewes, but they would not touch it, in consequence, no doubt, of the plentiful supply to be had on the pastures. He had given the ensilage to milch cows, however, and with excellent results Last Friday the first week's butter from the ensilage was churned, and on being weighed this was found to be nearly double the weight obtained the previous week, when the cows were fed on hay. His silo is built underground, about six feet square, with walls roughly built of brick of a thickness of 4½ inches. It was filled on the 7th August last, the contents being subject to a pressure of about two cwt. to the square foot. On the 20th the weights were removed, and it was found the ensilage had fallen 27 inches. The vacant place was filled with the usual fodder, and the weights again applied. On the 29th it was once more uncovered, when the ensilage was found to have yielded to the extent of 15 inches. After being refilled it was allowed to remain for nearly a month, when it was found to have sunk a similar distance. A layer of peat about six inches deep was then put above the boards, and about a third of the original weight placed on the top. It was then roofed over and allowed to remain until January 23, when it was opened in the presence of a number of gentlemen. There was no mould on the top, but round the sides, part was decayed, caused, presumably, by the porous nature of the walls, as well as the roughness preventing a proper settlement. The day was very unfavourable, and the experiments then were a total failure. Samples were taken by those present, and Mr. Oliver believes these have been readily eaten elsewhere Since the silo had been opened the damage to the sides had extended, and fermentation had set in on the top at least, so that altogether Mr. Oliver could not congratulate himself on his first experiment.

Ensilage.—At the Ensilage Congress, in New York, the discussion turned upon ensilage as a food for horses, and the evidence seemed to be decidedly unfavourable. Dr. Baxter, of Virginia said that it had been tried with fatal results in his State, and that autopsies shewed that death was due to the presence in the throat of stomach worms, which caused suffocation. This was due, he thought, to the acidity of the stuff. The experience of the Superintendent of the Greenfield Park Farm in Connecticut was somewhat similar. Others contended that the plan worked well, but Mr. Post, a milk-dealer, declared it was better to feed horses on arsenic than ensilage. But for cattle the evidence was just the opposite A representative was introduced from Theodore Havemeyer's farm at Mahwah, N. J., where for a year the cattle have been fed largely upon ensilage. He said: — "To each of 100 Jersey cows is given 20 pounds of ensilage in the morning, seven pounds of hay at noon, and 20 pounds of ensilage at night. Mixed with the ensilage is one quart of corn meal and one of ground oats. Under this fodder, the cattle have grown in weight from two to three and a half pounds a day, while expenses have been reduced Horses are fed on ensilage three times a week, and hogs constantly. No bad results have been experienced on the farm from overfeeding cattle with ensilage."

Ensilage and Dairy Stock.— Lord Ebrington, M. P. for Tiverton, appears to have tested the use of ensilage very carefully, and the result of his investigation is most interesting. Apart altogether from the cost of the cutting, &c, the effect on the cattle is worthy of notice. Having opened a silo, and having allowed a few days for the cattle to get accustomed to the new food, various experiments were made, and the result was peculiar so far as dairy purposes are concerned. Nine cows were selected, and these were divided into three sets, the milk of each set being measured very carefully. They were then put on different diets, the butter was weighed every day, and again at the end of the experiment. The three cows in Class A were fed between December 26 and January 16 on the following daily diet:—6lb. decorticated cotton cake, 6lb. undecorticated ditto, 6lb. oilcake. 6lb. pollard 16lb. wheaten straw chaff, and 36lb hay. Class B received the same as Class A, with the exception that 100lbs. of ensilage was substituted for the hay. Class C (experimented upon to January 7) also received the same as A and B, but with 150lb. of ensilage in lieu of chaff and hay. The result showed that ensilage might be used to a considerable extent as food for dairy cows without detriment, if not, indeed, with advantage to the production of milk and butter The average of the butter yield per day during the period of experimenting was—Class A, 1lb 6oz.; Class B, 1lb. 11¼oz.; Class C., 1lb. 10½oz. It was found that if used too freely ensilage gave a flavour to the butter, and therefore the experiment with C cows was not a success. They lost condition on it, and there was a distinct falling off in results as compared with B. His lordship has explained that the experiment showed that, in round numbers, the grass that would make one ton of hay would make at least cost four tons of ensilage, which were equivalent, for feeding purposes, to a ton and a third of hay or straw chaff. It seemed that with cotton cake alone ensilage would not do; but with the mixture of cake and pollard it appeared quite fit to take the place of hay or straw, or both, for the B cows kept their condition very well all through, as the C cows did also until after January 16.

A TRAGIC EVENT.

A FATHER'S DESPAIR AND SELF INFLICTED DEATH. HIS SON'S FINAL RESCUE, TOO LATE TO SAVE HIS PARENT.

The graphic occurrence that is described below is one of the most remarkable episodes in the domestic history of America. It is absolute truth which can readily be verified.

The inhabitants of the pleasant town of Cortland, N. Y., were shocked, one morning by the announcement that Mr. Clinton Rindge, one of their most prominent citizens, had committed suicide. The news spread rapidly and aroused the entire neighbourhood where Mr. Rindge was so well and favorably known. At first it seemed impossible that any one so quiet and domestic could do so rash a deed, and the inquiry was heard on every side as to the cause. The facts as developed on investigation proved to be as follows:

Mr. Rindge was domestic in his tastes and took the greatest enjoyment in the society of his children and pride in their development. And indeed he had good reason to be proud for they gave promise of long lives and usefulness. But an evil day came. His youngest son, William, began to show signs of an early decay. He felt unusually tired each day, and would sometimes sleep the entire afternoon if permitted to do so. His head pained him, not acutely, but with a dull heavy feeling. There was a sinking sensation at the pit of his stomach. He lost all relish for food and much of his interest for things about him. He tried manfully to overcome these feelings, but they seemed stronger than his will. He began to lose flesh rapidly. The father became alarmed and consulted physicians as to the cause of his son's illness, but they were unable to explain. Finally severe sores broke out on his arms and he was taken to Buffalo where a painful operation was performed resulting in the loss of much blood but affording little relief. The young man returned home and a council of physicians was called. After an exhaustive examination they declared there was no hope of final recovery and that he must die within a very few days. To describe the agony which this announcement caused the father would be impossible. His mind failed to grasp its full meaning at first; then finally seemed to comprehend it, but the load was too great. In an agony of frenzy he seized a knife and took his own life, preferring death rather than to survive his idolized son. At that time William Rindge was too weak to know what was transpiring. His face had turned black, his breath ceased entirely at times, and his friends waited for his death believing that the fiend Bright's disease of the kidneys, from which he was suffering, could not be removed. In this supreme moment William's sister came forward and declared she would make a final attempt to save her brother. The doctors interposed, assuring her it was useless and that she would only hasten the end by the means she proposed to employ. But she was firm, and putting all back, approached her brother's side and administered a remedy which she fortunately had on hand. Within an hour he seemed more easy, and before the day was over he showed signs of decided improvement. These favorable signs continued, and to-day William B. Rindge is well, having been virtually raised from the dead through the marvelous power of Warner's Safe Cure, as can be readily verified by any citizen of Cortland.

Any one who reflects upon the facts above described must have a feeling of sadness. The father, dead by his own hand, supposing his son's recovery to be impossible; the son restored to health to mourn the loss of his father and the agonized relatives with a memory of sadness to forever darken their lives. Had Clinton Rindge known that his son could recover he would to day be alive and happy, but the facts which turned his brain and caused him to commit suicide were such as any one would accept as true.

However sad this case may be, the truth remains that thousands of people are at this moment in as great actual peril as William Rindge and in as great danger of causing misery if not death to their friends. Liver and kidney diseases are become the most common and most dangerous of any or all modern complaints. They are the most deceptive in their beginnings and horrible in their final stages. They are far more deceptive than Consumption, and can rarely be detected even by skillful physicians unless a microscopic analysis be resorted to, and few doctors understand how to do this. Their slightest approach, or possibility of approach should strike terror to the one who is threatened as well as to all his or her friends. These diseases have no distinct symptoms, but come in the form of lassitude, loss of appetite, aching muscles and joints, dull headaches, pains in the back, stomach and chest, sour stomach, recurring signs of cold, irregular pulsations of the heart, and frequent dizziness. If neglected, these symptoms are certain to run into chronic kidney and liver or Bright's disease, from which there is sure to be a great amount of agony and only one means of escape, which is by the use of Warner's Safe Cure. The importance of taking this great remedy upon the slightest appearance of any of the above symptoms cannot be too strongly impressed upon the minds of all readers who desire to escape death and pain and prolong life with all its pleasures and blessings.