dition, so that air may have free circulation. I will start the outline of cultivation by beginning in the spring and proceeding through the fruiting season to the fall.

It should commence early, so as to loosen up the soil, which tends to conserve moisture and to force a strong growth of cane. All through the fruiting seasons a cultivator should be run through at least twice a week and after a heavy rain, in order to keep a dust mulch on top, to decrease capiliary action. The patch may be cultivated once, after the crop is off, and then it should cease, to allow the young canes to ripen sufficiently for passing the winter safely. Some growers sow a cover crop at this time, but it is not advisable, as a cover crop is very hard to plow down in a berry patch and make a good job of it.

Late in the fall, when all danger of forcing new growth is over, the ground should be plowed up to the canes, and an open furrow left in the center to drain off surplus water in the spring. If the patch is plowed up in this manner, it should be in very good condition to stand the winter.

A good implement to use first in the spring is a one-horse disk harrow. This will cut up the furrow ridges and throw the earth away from the canes into the center, thus making the spaces between the rows about level. After the disk harrow has worked up the soil, the best thing to use is a one-horse spring-tooth cultivator, which will keep the soil loose and cut off weeds and suckers very satisfactorily.

In order to keep weeds from among the canes, in the solid-row system, up-to-date growers make a practice of forking out the earth around the canes, right after the disk harrow has gone through in the spring. For this purpose a berry fork is used, which is very much like a potato fork, only the tynes are longer and heavier. Forking out is not a very expensive job, and certainly improves the appearance of the patch, as well as its profitable life. If the patch is on the hill system, forking out is not so necessary, because the cultivator can be run both ways.

PRUNING.

In pruning red raspberries, growers differ widely as to the best methods, especially as regards summer pruning. A few years ago, the common practice was to pinch back the growing canes during the summer and trim back the laterals next spring. Unless pinched low while growing, the plants do not throw out strong laterals, and the effect of stopping the growth of the cane, after it has attained a height of three feet or more, is to throw out weak laterals which do not become well ripened before winter sets in. It is generally considered advisable, with a normal patch, to allow the canes to grow to their full height in the fall, and then they will become well ripened for winter. In the following spring, trim them back to a level of a little less than four feet. In this way, even if the tips are hurt by frost, the cane is cut below the injured part, and no bad results follow.

An exception to this plan may be advisable in the case of a very rampant-growing patch, where the canes grow so tall that, when cut off in the spring, only imperfectly-developed buds are left at the base. In this case, trim the canes off to a level of about four feet, immediately after the fruit is off, so as to allow plenty of time for any laterals that may develop to ripen before winter sets in.

Some growers take the old canes out in the fall just after the fruit is off, while others leave them in until late winter or early spring. It depends on the locality and whether there is much wind or not, but in the Niagara district it is best to take the old wood out in the fall, for two reasons :

1. It is easier and more agreeable to take out at this time.

2. It lessens the chance of any disease spreading.

For taking the old canes out in the fall, a pair of ordinary grape-pruners is the best tool to use, although a berry hook may be used ; for winter use, the berry hook is the handiest.

In thinning out the canes in a solid row, do not leave them any closer together than five or six inches diagonally. The row should not be allowed to get over a foot wide, because the inner canes will not receive enough light, and berries are liable to be left and wasted. If the patch is on the hill system, five or six good healthy canes is plenty to leave. The brush should all be thrown into the center of the rows, and allowed two or three days to dry, when it will be ready to take out of the patch and burn. Some growers carry out the brush with forks, others drag it out with a pole, but in the fall of 1910 the writer used an ordinary one-horse spring-tooth cultivator, and found it very satisfactory. If the rows are not too long, this will drag all the brush out to other end, where it can be loaded on to a hay wagon and taken to a brush pile.

(To be concluded.)

THE FARM BULLETIN.

Elliot's Holstein Sale a Success.

The auction sale, on May 23rd, of Holstein cattle, property of W. F. Elliot, at Coleman, Ont., proved a grand success, buyers being present from coast to coast. The cattle were well bred, of excellent type, and in good condition, and satisfactory prices were realized. Following is the sale list :

King Fayne Segis Clothilde ; R. M. Holtby, Manchester, Ont	$260
Pauline Birchall Calamity ; Jas. Cornell, Scarboro, Ont.	170
Della Pietertje Calamity ; H. S. Logan, Vancouver, B. C.	200
Deila Johanna Calamity ; Archie Muir, Scarboro, Ont.	185
Her calf, 1 month old ; R. F. Hicks, Newtonbrook, Ont.	90
Delta Gem ; S. Macklin, Weston, Ont.....	185
Lady Bennett ; S. Hollingsworth, Athens..	150
Doncliff Atie De Kol, 1 yr.; H. S. Logan...	175
Calamity Johanna Nig ; G. A. Gilroy ; Glen Buell	175
Sir Johanna Paul Nig, 8 mos.; Joshua Harrison, York Mills	105
Beula De Kol Ononis ; Noel Marshall, Dunbarton	265
Beula Paul De Kol, 9 mos.; H. S. Logan...	175
Lady Ononis Posch ; S. Hollingsworth	210
Mabel Mandeline, 14 yrs.; W. Holmes, Woburn	95
Mabel Mandeline 2nd, 7 mos.; O. D. Bales, York Mills	180
Lady Faforite Mercena ; W. A. Patterson, Agincourt	305
Lady Faforite Mercena 2nd, 9 mos. ; S. Hollingsworth	150
Ernestine 5th ; W. Holmes	125
Her calf, 1 month ; E. M. Readhead, Milton	70
Countess De Kol 2nd ; Gordon Gooderham, Bedford Park	195
Ciintonia Gilsche Segis, 1 yr.; W. A. Patterson	370
Ernestine Star ; S. Hollingsworth	105
Her calf, 1 month ; E. M. Readhead.....	70
Queen Kathleen De Kol ; G. A. Gilroy.....	300
Kathleen Pauline De Kol, 1 yr.; H. S. Logan	295
Locust Hill Gretchen ; Wm. Loveless, Elesmere	160
Aaggie Clothilde De Kol ; S. Hollingsworth	95
LaVata Black ; R. M. Holtby	175
LaVata De Kol, 6 mos.; E. F. Osler, Bronte	120
Inka Sylvia De Kol ; Gordon Gooderham..	350
Inka Sylvia Maida, 6 mos.; J. Kilgour, Bedford Park	255
Sylvia Posch Beets Frontier ; D. G. Peat, Athens	125
Sylvia Cornucopia ; G. S. Henry, Oriole...	265
Her calf, 1 month ; Jas. Johnson, Scarboro Junction	85
Carmen Sylvia 4th De Kol ; Gid. Brounsberger, Markham	360
Emma De Kol Pauline ; N. Marshall.....	215
Rosina Waterloo Alba ; W. F. McLean, Donlands	180
Inka Sylvia 6th ; M. G. Gilroy, Glen Buell	310
Her calf, 8 mos.; H. S. Logan	315
White Lillie ; R. M. Holtby.....	180
Pearl Wayne Beryl ; N. Marshall	100
Sir Calamity Roosevelt, 9 mos.; S. Hollingsworth	75
Emma Pauline De Kol ; E. F. Osler.....	180
Gatatia Sylvia ; G. A. Gilroy	305
Viola De Kol 2nd ; R. M. Holtby.....	170
Her calf, 1 month ; R. F. Hicks.....	60
Goodra Waukausa Pauline, 1 yr.; S. Hollingsworth	125
Prescott De Kol Hengerveld; Gid. Brounsberger	105
Lady Maida Johanna Nig ; G. A. Gilroy....	215

Dr. Rutherford Leaves Service.

Federal agriculture at Ottawa loses an invaluable servant through the resignation, reported last week, of Dr. J. G. Rutherford, Dominion Veterinary Director-General and Live-stock Commissioner. John Gunion Rutherford first saw the light of day in Peebleshire, Scotland, having had the fortune to be born a minister's son. He was educated in Glasgow, and arrived in Canada, September, 1875. Like so many of his countrymen, he found in the Dominion a field to develop his native calibre, and his career has been marked by a brilliant course of professional and administrative success. From 1889 to 1901 he practiced veterinary medicine, was elected to the Manitoba Legislature in 1892, serving till 1896. In 1897 he was elected to the Dominion House of Commons. Subsequently entering the Department of Agriculture, he was in 1904 made Veterinary Director-General, and in 1906 was called to fill a dual capacity, acting as Veterinary Director-General and Live-stock Commissioner. In both spheres he has achieved conspicuous success. His work in suppressing contagious diseases of animals in the West and elsewhere has been thoroughgoing and proportionately successful. As Live-stock Commissioner, he has succeeded in retaining the goodwill and respect of stockmen the country over, while serving their interests judiciously at every turn. At conventions his advice has always been sought, and almost invariably followed. As a veterinarian, he ranks among the most eminent in America. He was last year president of the American Veterinary Medical Association, and was, if we mistake not, the prime mover in securing the appointment of the International Commission on Tuberculosis, on which he served most effectively. The strain of work has told, however, upon his health, which has not been the best the last few years, though we are definitely advised that this is not the cause of his resignation, which he was asked, but declined to reconsider.

P. E. Island Notes.

At this writing (May 18th) we have had no rain for six weeks, and yet there is no appearance of any. There is no pasture for stock, and they are still on full feed in the stables. Our big crop of hay of last year is needed now, as the prospect is that stock will have to be stable-fed well on into June. The crop is about half sown, and, as the weather is so favorable, it will all be got in in good time. Clover on the new meadows that was not fed off last fall and had a good stubble to protect it, has come through the winter well; but where cattle were allowed on it last fall, it is almost entirely killed out. What a serious mistake it is to allow stock on newly-seeded meadows in the fall, when it is almost sure to result in the loss of what would be a good crop of clover. In our climate, where the spring comes in so slowly, if meadows are not protected by the fall growth being left on them, the alternate freezing and thawing in March and April breaks the clover roots. This last has again given us a lesson on this matter which should not be forgotten in future. There is a fine appearance of an apple crop here. The trees are literally covered with blossom-buds that are just beginning to break out. Barring late frosts which struck us last year, we look for a bumper crop of apples.

Markets here are much lower than in recent years, horses being an exception. Beef cattle that sold as high as $6.50 two months ago are hard to sell at $5.50 to-day. Oats are worth 36 to 38 cents; butter, about 20 cents; horses, from $150 for ordinary small farm animals, to $300 for those weighing 1,400 pounds ; stylish drivers are quotable at about $200.

A new departure in our Institute work here is the establishment of Women's Institutes. Two are already organized, with more to follow.

Work on the Experimental Farm here is well advanced. A much larger number of experiments in grain, grasses, tubers and roots are being undertaken this year. A large new stock barn is being erected, and stock will be added later on. The superintendent is also having experiments conducted by a number of farmers through the Province along the same lines as the Ontario Experimental Union. Marquis wheat is one of the grains that will be tested by an experiment covering five years.

Reciprocity is not making much stir here, but all the free-minded farmers we meet are in favor of it. What a pity it should have been made a party question.

W. S.

During the past two years Canada has received nearly two million immigrants, of whom approximately 750,000 were from Great Britain and Ireland, and 700,000 from the United States. Sixty-five per cent. of the latter were farmers or farm laborers.

The next annual meeting of the American Association of Farmers' Institute Workers will be held at Columbus, Ohio, November 13th to 15th, 1911. At the same place, and beginning November 15th, will be held the annual meeting of the Association of American Agricultural Colleges and Experiment Stations.

The Rothamsted Experimental Station's Annual Report for 1910 shows that the yield of wheat on the Broadbalk field last year was only 27.9 bushels to the acre on the plot receiving farmyard manure ; on the unmanured plot it was 7.5 bushels to the acre, which, with three exceptions, is the lowest yield of the 67 years of the experiment. These poor results are attributable to the exceptionally wet winter of 1909-1910, which was followed by low temperature and deficiency of sunshine during the summer of 1910. The highest temperature recorded at the Station during 1910 was 78.5 degrees, on June 20th.