PROVINCE OF BRITISH COLUMBIA

TWENTY-SECOND ANNUAL REPORT

OF THE

DEPARTMENT OF AGRICULTURE

FOR THE YEAR 1927

PRINTED BY
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VICTORIA, B.C.:
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1928.

To His Honour ROBERT RANDOLPH BRUCE,

Lieutenant-Governor of the Province of British Columbia.

MAY IT PLEASE YOUR HONOUR:

I have the honour to submit for your consideration herewith the Annual Report of the Department of Agriculture for the year 1927.

E. DODSLEY BARROW,

Minister of Agriculture.

Department of Agriculture,

Victoria, B.C., August 8th, 1928.

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REPORT OF THE DEPARTMENT OF AGRICULTURE.

REPORT OF THE DEPUTY MINISTER OF AGRICULTURE.

D. WARNOCK, O.B.E.

Hon. E. D. Barrow,
Minister of Agriculture, Victoria, B.C.

SIR,—I have the honour to submit herewith the Report of the Department of Agriculture for the year 1927.

CLIMATIC CONDITIONS.

The year 1927 opened up on Vancouver Island and the Lower Mainland with conditions favourable for early spring work, fall seedings coming through well. In March, however, weather conditions went back and some concern was expressed by Lower Mainland farmers with regard to feed stocks owing to the lateness of the season. These backward conditions prevailed throughout April, with snow, frost, and heavy rains retarding spring work; the growth of pastures being slow and stock being still largely stall-fed; small fruits were also affected to some extent by late frosts. In May unfavourable conditions were general practically throughout the month, with heavy rains, and in the northern and north-central districts range-grass was backward. June weather was normal, with good growth generally, and hay better than an average crop; the strawberry-crop was very satisfactory in the Coast districts. July was hot and dry, with grain-crops showing well, also roots and potatoes. The raspberry season was short owing to the extremes of wet and dry weather experienced. Harvest operations were hampered somewhat by rains in August, especially in the Lower Mainland, and in September during the first two weeks heavy rains seriously delayed threshing, and sprouting in the stock became general; eventually some 13 per cent. of the acreage under grain being abandoned. In Northern British Columbia threshing was effected under more favourable conditions. October was mild, but heavy rains interfered with the lifting of potato and root crops, considerable loss being experienced through rotting of potatoes. Conditions in the northern part of the Province were better, with fairly good yields. In November heavy rains were experienced in the south, with snow of an unusual depth in northern sections. December was cold, with heavy falls of snow generally. The year ended up with the feed situation in very fair condition, although it was expected range stock would show the effects of the hard weather. The following figures are illustrative of the increased precipitation in the southern part of the Province during 1927:—

	Total Precipitation, 1927. Inches.	Total Precipitation, 1926. Inches.
Victoria	25.58	21.11
Vancouver	57.17	53.21
Chilliwack	59.85	53.64
Penticton	14.66	9.15

PRODUCTION.

The total agricultural production showed a substantial increase for the year in spite of the abnormal weather experienced, the total value being estimated at $76,999,269, or an increase of nearly 8 per cent. Live stock and poultry, meats, dairy products, fodder-crops, and hops made increases, while fruit, vegetables, and grains showed decreases.

In live stock, dairy cows, beef cattle, and sheep showed the most outstanding progress, milk cows and yearlings increasing from 107,537 head to 118,360, whilst the increase in sheep and lambs was from 102,853 to 130,132 head, or 26 per cent.

Poultry increased over 13 per cent. in numbers, nearly 7,000,000 dozen eggs also being exported from the Province to Prairie and foreign markets.

With regard to dressed meats, a substantial increase is shown in the home-produced article, although imports were valued at $1,432,729, a decrease, however, of 10 per cent. on 1926.

Dairy products showed gains in fresh milk, creamery butter, and miscellaneous items, such as cream, powdered milk, buttermilk, etc. The total value of dairy products, $12,681,009, was an increase of 9 per cent. over the year 1926. Less cheese was manufactured, but the supply of market-milk for domestic consumption is increasing steadily each year.

In fodder-crops, due to the moist conditions, a considerable increase in tonnage was noted.

The production of hops, due to several hundred acres of new plantings on the Sumas reclamation area, was largely increased—i.e., from 966,438 lb. to 1,425,875 lb.; the yield per acre, however, was much lower than in the past two years.

The unusual weather conditions also contributed to a considerable extent to the lessened production of fruit and vegetables, apples and other tree-fruits showing a decrease of over 16 per cent., the net returns to producers, however, being more satisfactory than during the past two years. Small fruits, particularly at Coast sections, were satisfactory. With regard to field crops, potatoes showed an increase both in acreage and yield; returns to the grower, however, were poor. Root-crops showed but little change, whilst market-vegetables, though slightly less in acreage harvested, gave better returns.

Greenhouse tomatoes were again produced largely on Vancouver Island and attained a value of $397,215, an increase in yield and return to the grower being noted.

SHEEP-PROMOTION WORK.

The work of the Provincial Sheep Promotion Committee culminated in a sheep fair, the first of its kind, at the Duncan Fair in September. Ninety pure-bred sheep were on exhibit and forty pure-bred rams for sale at auction. Shropshires were predominant, with Oxfords and Suffolks in lesser numbers. Prices obtained, however, were somewhat disappointing, especially for the rams. Ninety grade ewes were brought in from Mainland points, prices here also being low. Considering the previous interest shown on the Island and other points, the demand for stock was poor and the auction sale rather disappointing.

SEED-WORK IN CENTRAL BRITISH COLUMBIA.

The production of seed continued to receive the special attention of officials of the Field Crop Branch, in conjunction with officials of the Dominion Seed Branch. In Central British Columbia the year 1927 was prominent for the growing of clover and alfalfa seed in commercial quantities for the first time; the Prince George District producing both red clover and alsike clover. In the Vanderhoof District timothy-seed was produced and also some clover-seed, whilst the Bulkley Valley produced about 160 tons of timothy-seed. A record was also made by the Peace River District, where on Mr. Chas. B. Anderson's place, near Rolla, wheat on a 22-acre field averaged 77¾ bushels per acre, the variety being Red Bobs.

"PRODUCE MARKETING ACT."

This Statute, enacted at the 1927 session of the Legislature, broke new ground, and its operation will be keenly watched not only in the Dominion but in other parts of the Empire. This legislation was the outcome of agitation amongst fruit-growers in the Interior valleys for a better system of marketing or control of tree-fruit supplies to markets outside the Province. The Statute constituted for a period of one year a committee of directors to be known as the "Interior Tree-fruit and Vegetable Committee of Direction," with the exclusive power to control and regulate the marketing of all tree-fruits, small fruits, vegetables, grain, or cereals grown in the area which roughly approximates to a quadrilateral bounded on the west by the 121st meridian, on the north by the Dominion Government Railway Belt, on the east by the Provincial boundary, and on the south by the International boundary. In effect this takes in all the producing centres of the Province south of the Canadian Pacific Railway main line, including Lytton and Ashcroft on the east, and only excludes the Lower Fraser Valley and Coast areas.

The committee consisted of three members, two to be appointed by the British Columbia Growers' and Shippers' Federation and one member by the Lieutenant-Governor. This committee may have its existence continued or the boundaries of the area restricted or enlarged. Provision is also made in the Statute for the constitution of other committees of direction, with procedure to be followed, which includes public notice in the local press; the holding of meetings and drawing-up of the petition, it being an essential that 75 per cent. of the persons entitled to be present at any such meeting record their votes in favour of the submission of the petition.

The first season's operations of the Interior Tree-fruit and Vegetable Committee of Direction met with general approbation from the growers, although the short fruit-crop to the south of the International boundary undoubtedly made marketing conditions easier. As some indication of the better prices received by growers the following figures are of interest:—

Okanagan District.—Apples. Average price to the grower per box: 1924, $1.34; 1925, $1.40; 1926, $1.30; 1927, $1.52.

TOBACCO-GROWING.

The impetus given to this revived industry in 1926 bore results in increased acreage in the past year. This acreage was to a large extent developed in the Okanagan Valley in the following districts: Kelowna, Oliver, Vernon, Cawston, and Keremeos, experimental acreage occurring also in the Lower Fraser Valley and on Vancouver Island.

The varieties grown were White Burley, 222½ acres; Connecticut Havana 38, 185½ acres; Virginia, 10½ acres; and Connecticut Broad Leaf, 10 acres. The broken growing season affected the crop to some extent, but the White Burley yielded well, up to 2,400 lb. per acre; Virginia seed (Yellow Fryor) also doing well, averaging from 1,500 to 1,800 lb. per acre. Curing-barns were erected by the company that placed the contracts and also by the Department of Lands, whilst this Department maintained several fieldmen to assist growers. Due to financial difficulties of the contracting company at the close of the year the processing and marketing of the crop appeared to be a matter of some difficulty. Owing to world market conditions caution is advocated with regard to the development of this industry, although experts suggest that Virginia flue-cured tobaccos of a quality to compete successfully with those of other parts of the Empire can be produced in this Province where climate and soil are suitable.

PLOUGHING-MATCHES.

An increasing interest has been shown in these old-time competitions, and annual events are held at Courtenay, Chilliwack, and Ladner with great success. To encourage these matches rules were drawn up by the Department and sent to interested inquirers, together with a synopsis of ploughing-match scores as used on the Prairies and in Ontario. A small grant has also been made available, whilst judges are supplied by the Department.

Respectfully submitted.

D. WARNOCK,
Deputy Minister.

REPORT OF DEPARTMENTAL SECRETARY.

WM. J. BONAVIA.

Dr. D. Warnock, O.B.E.,
Deputy Minister, Department of Agriculture, Victoria, B.C.

SIR,—I have the honour to submit herewith the annual report for this office for the year ended December 31st, 1927.

STAFF.

The changes in the staff were below the usual average, the appointments and resignations being as follows:—

PERMANENT APPOINTMENTS.

1927.	
April 1.	Finlay, A. W., Apiary Inspector, Lower Fraser Valley.
April 1.	Gee, Miss D. E., Stenographer.
June 1.	Kelley, C. C., District Agriculturist, Williams Lake.
Oct. 1.	Challenger, G. W., District Agriculturist, Kamloops.
Oct. 1.	Roger, J. C., District Field Inspector, Penticton.
Oct. 1.	Marquart, Miss W. M., Stenographer.

REMOVALS.

1927.	
Mar. 31.	Hay, G. C., District Agriculturist (resigned).
Sept. 30.	Briggs, Miss S. F., Stenographer (resigned).
Sept. 30.	Hay, A. L., District Agriculturist (resigned).
Nov. 30.	Green, Miss C. G., Stenographer (resigned).

CORRESPONDENCE.

The gradual increase noted in the correspondence of the Department during the past few years took a decided upward movement last year, the total letters received in 1927 showing an increase of 12 per cent., while the letters sent out increased 7 per cent.

As an index of departmental activity and the increasing use being made of the Department by agriculturists and others, it may be pointed out that in the last ten years the correspondence handled has increased 37 per cent.

As regards the past year, the heaviest increases have occurred in the Field Crop Branch, in this office, and the Accountant's respectively. Full details are shown in Appendix No. 1.

Circular Letters.—The number of circular letters sent out by various branches also showed an increase of 23 per cent., grouped as follows:—

Agricultural Associations	945
Apiaries	2,370
Dairy Branch	4,320
Farmers' Institutes	2,045
Field Crop Branch	6,080
Goat-breeders' Association	1,235
Horticultural Branch	2,200
Minister's Office	335
Miscellaneous	1,790
Poultry Branch	6,540
Statistics Branch	1,365
Women's Institutes	4,645
Total	33,870

POUND DISTRICTS.

The past year was quite active as regards pound matters. Five new pound districts were approved by Order in Council, as follows: Westview, March 23rd; Robson, April 20th; Colwood and Langford, North Shore (Kootenay Lake), and Harrison Hot Springs, July 20th. The Colwood-Langford Pound provoked quite a measure of public interest before evidence as to the necessity for organization was presented to the Hon. the Minister.

Inquiry was received from Westbank with regard to establishing a pound district, but was not followed up by a petition.

The attached table summarizes the annual returns from pound-keepers, who impounded 516 estrays, as against 324 in 1926.

Fifty-five pound districts were in operation at the close of the year.

OPERATION OF POUND DISTRICTS, 1927.

Pound District.	Estrays captured.		No. of Sales of Estrays.	Amount realized from Sales.	Fees charged for Sustenance.	Fees paid to Pound-keeper.
	Horses.	Cattle.				
B.X.	....	17	1	$30.00	$28.00	$69.40
Brilliant	21	27	....	.....	2.25	9.20
Colwood and Langford	1	18	1	28.00	.....	45.00
Cowichan Station	16	24	1	5.00	20.30	70.72
Dewdney	9	19	....	.....	13.50	23.80
Ladysmith	....	2	....	.....	.....	3.00
Nakusp	6	4	....	.....	.....	6.50
Naramata	4	.....	....	.....	6.00	8.00
North Kamloops	42	21	....	.....	24.55	3.00
Okanagan Centre	11	.....	1	1.50	5.00	15.10
Okanagan Mission	55	11	12	90.75	58.85	23.40
Oliver	43	42	2	38.00	192.20	256.16
Oyama	5	.....	2	11.00	1.00	4.00
Passmore	1	5	....	.....	.....	1.05
Rutland	26	.....	2	2.00	30.55	7.05
Totals	240	190	22	$206.25	$382.20	$545.38

Estrays captured also include: Sheep, 23; miscellaneous, 63; total, 86.

ORDERS IN COUNCIL.

Amongst numerous Orders in Council relating to the work of the Department which were approved during the year, the following may be noted:—

Protection Spraying Zone.—April 14th: Organization of the Okanagan Centre Protection Spraying Zone, with regulations therefor. April 29th: Organization of the Osoyoos Protection Spraying Zone.

"*Produce Marketing Act.*"—April 29th: The appointment of two members of the Interior Tree-fruit and Vegetable Committee of Direction

"*Milk Act.*"—August 31st: Regulations approved. with regard to standards for stables, milk-houses, and equipment.

"*Codling-moth Control Act.*"—November 9th: The Cities of Kelowna and Kamloops created codling-moth areas.

LICENCES AND SEED-GRAIN CERTIFICATES.

A total of fifty-six horticultural licences was issued, being forty-five for nurserymen and eleven for agents; this was a slight increase on the previous year.

Agricultural poison licences to the number of twenty-two were issued to persons dealing in spray materials, weed-killers, etc.

Several certificates were issued to farmers under the special tariff arrangements between this Department and transportation companies *re* the bringing in from Prairie points of grain, flax-seed, and grass-seed for seeding purposes.

CRUSHED LIME ROCK.

Certificates for ten car-loads of crushed lime rock for fertilizing purposes were issued during the year, the total tonnage being 353, a substantial increase on 1926, when only 90 tons were distributed. Of the above shipments, nine cars were from the Comox Limestone and Fertilizer Company, Limited, which is handling and distributing the raw product obtained from Texada Island very efficiently.

The tenth car was shipped by a Victoria firm to Vernon, in the Okanagan Valley, an apparently uneconomic shipment in view of the well-known lime-deposits at Popkum, in the Lower Fraser Valley, and of others near Armstrong, right in the Okanagan.

COMPENSATION FOR SHEEP AND POULTRY KILLED BY DOGS.

The revised "Sheep Protection Act" passed at the 1926–27 session of the Legislature made provision for a "Dog-tax Fund," into which all licence fees and fines were to be paid. From this fund compensation is payable to the owners of sheep, goats, or poultry proved to have been killed or injured by dogs, both in unorganized districts and also where it is found impossible to collect damages from the owners of such dogs in municipal areas having a dog by-law.

The following shows the details of the operation of the Act during the past year:—

Number of persons applying for compensation: Vancouver Island, 31; Mainland, 7; total, 38.

Number of sheep, etc., killed: Grade ewes, 217; grade lambs, 120; registered ewes, 1; registered lambs, 1; registered rams, 2; total, 341.

Number of poultry killed, 85.

Total amount of compensation claimed: Sheep, $3,124; poultry, $104.50.

Total amount of compensation paid: Sheep, $2,565.50; poultry, $104.50.

Average rate of compensation per head: Sheep and lambs, $7.52; poultry, $1.22.

FARMERS' INSTITUTES.

The summer of the year 1897 marked the thirtieth anniversary of the organization of Farmers' Institutes in this Province. Old records show that following a conference of leading farmers held in July of that year at Victoria a lecturer from the Ontario Agricultural College, Guelph, was engaged and a series of meetings held on Vancouver Island, the Lower Mainland, and the Okanagan, the first Farmers' Institute to be organized being at Surrey Centre on August 28th.

Since those early days the progress of the institute movement has been steady and consistent.

At the close of the year 1927 there were 159 Farmers' Institutes in good standing, as compared with 147 in 1926. Twenty-seven of these institutes were on Vancouver Island and Gulf

Islands, the balance being on the Mainland. During the year thirteen new institutes were incorporated and two had their charters restored, as follows: February 1st, Beaver Lake; February 19th, Elphinstone Bay; March 10th, Saltair; April 1st, Clearwater; April 14th, Chinook Cove-Chu Chua; June 13th, Black Pool; June 29th, Croydon; August 11th, Turtle Valley; September 10th, Halfmoon Bay and Secret Cove; September 19th, Canyon; September 26th, Loos; November 21st, Durieu-Hatzic; November 21st, Newton and District. Charters restored: February, Cortes Island; June, Hoodoo (formerly Eaglet) Lake.

The development of institutes in the Thompson Valley during the year has been noticeable, no less than four on the above list being situated in that district; the whole Province now being adequately served with the exception possibly of the Cariboo-Lillooet area, where preliminary organization-work is being done.

The total membership of Farmers' Institutes for the year was 6,111, against 5,930 in 1926.

The institutes with membership over 100 each were as follows:—

Delta	223
Surrey	210
North Vancouver	193
Mission	142
Cowichan	138
Islands	130
Metchosin	121
Fernie	108

The next leading ones were:—

Maple Ridge	99
Otter District	99
Northern Okanagan	98
Bella Coola	91
Kootenay Lake	82
South Saanich	81
Nanaimo-Cedar	80

Meetings.

Whilst various officials of the Department gave addresses at a number of institute meetings in the course of their routine work, special arrangements were made for two or more speakers at Howe Sound, Courtenay, Armstrong, Carlin, etc.

A very successful three-day short course was put on in the Comox District from November 9th to 11th; lectures and demonstrations being given at Courtenay, Minto, Sandwick, Grantham, and Lazo. The subjects dealt with included: Poultry, bees, weeds and seeds, the use of lime and fertilizers, legumes, etc.

The Advisory Board and District Meetings.

The Advisory Board of Farmers' Institutes held two full meetings during the year at Victoria from January 20th to 22nd and from December 5th to 8th. At the latter meeting Mr. J. W. Turner, of Smithers, took his seat as representative of District B, the Skeena and Bulkley Valleys. The latter meeting was also notable for the association of the Advisory Board with representatives from all the specialized agricultural bodies, such as the British Columbia Fruit-growers, British Columbia Stock-breeders, etc., thus constituting in effect a Council of Agriculture.

The dates of the various district conventions held were as follows:—

District A, at Victoria, November 29th.
District B, at Telkwa, July 6th.
District C, at Prince George, March 1st and 2nd; at Vanderhoof, March 21st and 22nd.
District D, at Salmon Arm, October 28th.
District E, at New Westminster, November 11th.
District F, at Nelson, February 15th and 22nd.
District G, at Vernon, November 3rd.
District I, at Cranbrook, November 2nd and 3rd.

AT THE NATIONAL APPLE-SHOW, HELD AT VANCOUVER, B.C., IN CONNECTION WITH THE WINTER FAIR, DECEMBER 7TH TO 10TH, 1927, THE KELOWNA DISTRICT EXHIBIT WON THE FIRST PRIZE FOR THE BEST EXHIBIT OF FRUIT IN COMMERCIAL PACKAGES.

Fairs held by Farmers' Institutes.

Eleven fairs were held under the auspices of Farmers' Institutes, being an increase of one over 1926. The places and dates were as follows:—

Circuit I.—Luxton, August 31st; Sayward, September 5th.

Circuit II.—Gibson's Landing, August 20th; Fern Ridge, August 31st; North-east Burnaby, September 3rd; Whonnock, September 10th; South Burnaby, September 14th and 15th.

Circuit III.—Carlin, September 7th.

Circuit IV.—Boswell, September 15th; Crawford Bay, September 17th; Rock Creek, October 7th.

Good reports were received from official judges in the majority of cases, South Burnaby and Crawford Bay being specially commended.

Gopher-control.

The usual announcement was sent out *re* departmental aid to institutes and other bodies doing organized work to control gophers and ground-squirrels. In addition to the grant of dollar for dollar spent by institutes up to a maximum of $25, the Department extended aid to a similar amount where "Cyanogas" was shown to have been bought and used for eradicating these pests in a community.

The highest numbers of gophers accounted for in competitions were as follows: Mount Cartier Farmers' Institute, 1,290; Appledale Progressive Association, 852; Baynes District Farmers' Institute, 613.

The full list of organizations taking part in the work was as follows: Appledale Progressive Association; Balfour Farmers' Institute; Baynes District Farmers' Institute; Brisco Farmers' Institute; Eagle River Farmers' Institute; Elk Valley Farmers' Institute; Horse Creek Farmers' Institute; Jaffray Farmers' Institute; Lower Slocan Valley Farmers' Institute; Midway Farmers' Institute; Mount Cartier Farmers' Institute; Northern Okanagan Farmers' Institute; Rock Creek Farmers' Institute; Slocan Valley Farmers' Institute; Winfield Farmers' Institute; Winlaw Farmers' Institute.

Co-operative Activities of Farmers' Institutes.

From an examination of annual reports it is observed that thirteen institutes were concerned in the purchase of feed, flour, seeds, and fertilizer at reduced rates for their members. The institutes at Kaslo and Crawford Bay do a considerable business in purchasing supplies, in the latter case approximating to the sum of $20,000.

The general progress of the institute movement is reflected in their revenues and expenditures, and last year thirty-one institutes reported incomes of over $1,000, as against twenty-three in 1923 and twenty-five in 1925. Appendix No. 2 gives details of these leading institutes which purchased stumping-powder to the value of $28,850.31 and supplies to the value of $43,127.89.

Incomes of Farmers' Institutes, 1927.

The following table gives the incomes of all institutes classified into groups:—

Below $500 per annum	100
From $500 to $1,000	28
From $1,000 to $2,000	19
From $2,000 to $3,000	2
From $3,000 to $4,000	4
From $4,000 to $5,000	4
Over $17,000	1
Over $19,000	1
Total	159

Stumping-powder.

A total of 7,428 cases of stumping-powder was purchased by all institutes during the year; the cost of powder dropped slightly and with the special rebate allowed for land-clearing operations costs the farmer on the average $3.70 per case.

WOMEN'S INSTITUTES.

At the close of the year 108 incorporated Women's Institutes were in operation, grouped as follows:—

Vancouver Island and Gulf Islands	30
Lower Mainland	33
Okanagan and Dry Belt	24
Kootenay and Boundary	21

The institutes at Fern Ridge and Fruitvale were also undergoing reorganization and some special organization-work was done in Central British Columbia, where several new institutes were provisionally started at points such as Terrace, Fort Fraser, etc. These had commenced work but were not incorporated at the close of the year.

New incorporations were: March 18th, Beaver; April 19th, Otter Point; September 9th, North Shuswap Lake.

The following institutes were out of business during the year: Otter Point and Granby.

The total membership of Women's Institutes was 2,997, compared with 3,127 last year.

Institutes with membership of fifty and over were as follows:—

Nelson	97
Cranbrook	68
Qualicum and District	66
Kaslo and District	60
Peachland	59
Bonnington and South Slocan	52
Lumby and District	50
South Saanich	50

Financial.

The total revenue of all Women's Institutes for the year was $47,591.94 and the expenditure $38,520.48, both figures showing slight decreases on the previous year.

The ten institutes with the largest revenue were as follows:—

Victoria	$2,038.23
Kelowna	1,686.18
Okanagan Falls	1,578.88
Salmon Arm	1,529.88
West Saanich	1,359.09
Strawberry Vale	1,102.13
Agassiz	877.90
South Saltspring Island	877.79
Tappen	834.64
Burton City	824.33

Flower-shows, Exhibits of Women's Work, etc.

Sixty-one of the above events were held during the year, being a slight reduction on 1926. A full list is contained in Appendix No. 3, the following summary showing the grouping:—

Vancouver Island and Gulf Islands.—Eighteen events, including one spring flower and bulb show, one fall fair, three health exhibits, one baby-show, etc.

Lower Mainland.—Eighteen events, including one baby-show and one health exhibit.

Okanagan and Dry Belt.—Fifteen events, including one fall fair.

Kootenay.—Ten events, including two "better-baby" clinics.

The usual book prizes were sent to fifty-seven institutes that requested them.

PUBLICATIONS.

The past year was an active one with regard to publishing new issues and the revision of standard bulletins and circulars. The total number of Department publications printed was 110,250, or more than twice those of the previous year, whilst the number issued to the public

by mail and other means was 62,931, being an increase of 20 per cent. The details were as follows:—

Live-stock and mixed-farming bulletins	13,432
Horticultural circulars	12,768
Poultry bulletins and circulars	11,960
Agricultural Department circulars	6,761
Dairy circulars	5,920
Reports and miscellaneous	5,885
Miscellaneous bulletins	3,301
Field-crop circulars	2,904
Total	62,931

Prominent amongst new issues were Bulletin No. 99, "Care and Management of Sheep in British Columbia under Farm and Range Conditions," and Bulletins Nos. 101 and 102, being economic studies by University of British Columbia officials of the small-fruit and poultry industries.

Appendix No. 4 summarizes the publications of the Department during the past fourteen years, in which period over one and a half million pieces have been printed and distributed.

The following statement shows the details of various publications issued in 1927:—

Date.	Name.	Description.	No.
1927.			
Jan. 8	Poultry-house Construction	Bulletin 63	2,500
,, 20	Spray Calendar		2,500
Feb. 8	Oil Sprays	Hort. Circ. 68	1,000
,, 11	Practical Poultry-raising	Bulletin 26	3,000
,, 16	Farmers' Institute By-laws		200
,, 17	Profitable Ducks	Poultry Circ. 15	3,000
,, 18	Poultry Rations for Chicks and Layers	Poultry Circ. 19	5,000
,, 21	Leaflets on Peerless Potato		2,000
,, 21	How to grow Tobacco for Seed	Dept. Circ. 46	1,000
,, 21	Control of Colorado Potato-beetle	Leaflet	500
,, 24	Varying Butter-fat Tests	Dairy Circ. 5	5,000
Mar. 1	Noxious Weeds	Field Crop Circ. 4	2,000
,, 23	Gardening on a City Lot	Hort. Circ. 43	1,000
April 1	Care and Management of Sheep	Bulletin 99	4,000
,, 6	List of Publications		1,500
,, 12	Regulations *re* Creameries and Dairies		500
,, 13	Feeding for Egg Production	Bulletin 93	2,000
,, 25	Climate of B.C., Year 1926	Bulletin 27	1,800
,, 25	Raspberry Culture	Hort. Circ. 55	2,000
,, 29	Apple Aphides	Hort. Circ. 39	1,000
May 3	Small-fruit Farming in B.C.	Bulletin 101	3,500
,, 4	Anthracnose of Apple-trees	Hort. Circ. 45	1,000
,, 9	Board of Horticulture Regulations	Leaflet	500
,, 13	Diseases and Pests of Cultivated Plants	Bulletin 68	5,000
,, 13	Certified Milk and Butter-fat Records	Dairy Circ. 14	1,000
,, 26	Destruction of Grasshoppers, etc.	Leaflet	500
June 22	Recommendations for Control of Grasshoppers	Leaflet	1,000
July 6	The Columbia-Kootenay Valley	Dept. Circ. 42	2,500
,, 11	The Okanagan Valley	Dept. Circ. 40	2,500
,, 11	Vancouver Island and Gulf Islands	Dept. Circ. 33	4,000
,, 11	Agricultural Statistics, 1926	Bulletin 100	1,300
Aug. 1	Poultry-farm Survey	Bulletin 102	3,000
,, 10	Agricultural Legislative Report		500
,, 23	Management of Geese	Poultry Circ. 12	2,000
,, 24	Preservation of Food	Bulletin 83	2,000
,, 31	Pruning Fruit-trees	Hort. Circ. 60	5,000
Sept. 1	Regulations under "Milk Act"	Leaflet	5,000
,, 3	Woolly Aphid of the Apple	Hort. Circ. 34	1,000
Oct. 12	District B Farmers' Institute	Report	300
,, 14	Orchard Cover-crops	Hort. Circ. 69	2,000
,, 14	List of Publications		1,000
,, 15	Potato in B.C.	Bulletin 86	3,000
,, 22	Hog-raising in B.C.	Bulletin 60	1,000
,, 25	Agricultural Fairs	11th Report	250

PUBLICATIONS ISSUED IN 1927—*Continued.*

Date.	Name.	Description.	No.
Oct. 25	Dept. of Agriculture Annual Report 1926	21st Report	900
Nov. 17	Loganberry Culture	Hort. Circ. 54	5,000
,, 19	Fur-bearing and Market Rabbits	Bulletin 80	4,000
,, 30	Currant and Gooseberry Culture	Hort. Circ. 56	2,000
Dec. 5	Bee Culture in B.C.	Bulletin 92	4,000
,, 23	Strawberry Culture	Hort. Circ. 58	4,000
		Total	110,250

All of which is respectfully submitted.

WM. J. BONAVIA, *Secretary.*

REPORT OF DEPARTMENTAL SECRETARY *RE* FALL FAIRS.

WM. J. BONAVIA.

Dr. D. Warnock, O.B.E.,
Deputy Minister, Department of Agriculture, Victoria, B.C.

SIR,—I have the honour to submit herewith the annual report in connection with the fall fairs of the Province for the year 1927.

No new incorporations were recorded in the past year, the total number of Exhibition and Fair Associations standing at fifty-eight. At several points in the Province, however, fairs are being held by Farmers' Institutes and local Fair Committees, and in time some of these should develop into full agricultural associations, notably at such places as Ashcroft, Falkland, Fernie, and Vanderhoof.

Sixty-six dates were arranged for, with an actual total of four exhibitions and fifty-six fall fairs held; the six cancellations being at Squamish, Birch Island, Kelowna, Summerland, Slocan City, and Woodpecker; the infantile-paralysis epidemic in the fall accounting for the cancellation of events in the Okanagan and Kootenay Districts. The net total of fairs held—i.e., sixty—was three less than in 1926 and shows a continuation of the drop from 1923, when seventy-five fairs were held.

The following table shows the fairs of 1927 grouped into their respective circuits:—

Exhibitions and Fairs.	Circuit I.	Circuit II.	Circuit III.	Circuit IV.	Circuit V.
Exhibitions	1	3	....	....	....
Fairs held by Agricultural Associations	9	14	3	8	5
Fairs held by miscellaneous bodies	4	4	3	4	2
Totals	14	21	6	12	7

Grand total for Province, 60.

JUDGES.

The number of judges supplied by the Department of Agriculture free of all cost to associations was the largest number on record, totalling 101, as against 91 in 1926; this taken in conjunction with the net reduction in the number of fairs indicates that the requests of Fair Associations are being met very fully. The chief increase has been in the judges appointed for live stock and women's work, the details being as follows:—

	Staff Judges.	Outside Judges.
Fruit and vegetables	13	4
Flowers	2	2
Field crops	8	2
Live stock	5	25
Poultry and rabbits	3	16
Women's work	....	15
Honey	3	3
Totals	34	67

Grand total, 1927, 101; grand total, 1926, 91.

REPORTS ON FAIRS BY JUDGES.

The score-card system used for reports from judges is now well established and forms a valuable record from year to year of the progress of our fairs. In reviewing the reports for 1927 it is seen that the somewhat abnormal weather and growing seasons of the past year were reflected in the exhibits and attendances, especially of the smaller fairs. The average scorings for fruit, vegetables, and field crops were a little lower in all the circuits, and particularly so in the Kootenay District, where no fairs this year attained 75 per cent. of efficiency.

In the section "support of fairs by local exhibitors" it is found that Vancouver Island fairs again head the list, with an increase over their standing in the year 1926.

SUPPORT OF FAIRS BY LOCAL EXHIBITORS.

Circuit.	Rate for Year 1927.	Rate for Year 1926.
No. 1. Vancouver Island	88.00	78.60
No. 2. Lower Mainland	78.20	78.20
No. 5. Central British Columbia	75.60	68.60
No. 3. Okanagan	74.00	74.40
No. 4. East and West Kootenay	72.20	67.20

In spite of an improvement shown in the above figures, many judges refer to a certain lack of interest in the exhibits and to the gradual disappearance of the keen competitive spirit shown by exhibitors in past years. Whilst it is a difficult matter to handle, some effort should be made to cultivate such a public spirit that exhibitors would realize that the fair is not a place where they go to make money, but a place where they can compare the qualities of their products to the benefit of themselves and neighbours, and raise the standard of the products of our Province. Also that by the fact of proper preparation for an exhibit they themselves are the greatest beneficiaries and that the premiums are only to assist in defraying their expenses.

EXHIBITIONS AND FAIRS (ANALYSIS OF SCORES).

Of the three big Coast exhibitions—Vancouver, Victoria, and New Westminster—judges' reports united in saying that each one maintained its high standard and won both from judges and the public high praise for the splendid services rendered to their respective communities.

Vancouver Island and Gulf Islands, Circuit I. (13 Fairs).—Saanichton again headed the list of rural fairs on Vancouver Island, being scored highest in fruit, vegetables, and poultry exhibits, also in interest of public and management; while Courtenay, Alberni, Duncan, and Coombs all showed advances over the previous year's events. Five fairs advanced and seven fell back in this circuit.

Lower Mainland, Circuit II. (18 Fairs).—Matsqui Fair again was scored highest in this circuit, increasing its points over the year 1926 with top scores in no less than eight out of the ten items allotted by judges. Improvements were also shown by Maple Ridge, Langley, Mission, Aldergrove, South Vancouver, Burquitlam, North-east Burnaby, Fern Ridge, and South Burnaby, a very satisfactory showing. In this circuit ten fairs advanced their position and eight fell back slightly.

Okanagan and Dry Belt, Circuit III. (6 Fairs).—The North Okanagan Fall Fair at Armstrong made a high record this year, having top scores for the circuit in nine out of ten placings. Salmon Arm and Lumby dropped back slightly, whilst Falkland improved its show. In this circuit two fairs were up and three down.

East and West Kootenay, Circuit IV. (12 Fairs).—As stated before, all scorings were lower than usual in this circuit, the four fairs with highest scores—Cranbrook, Creston, Natal, and Fernie—all averaging about 68 per cent. Fruit, vegetables, and field crops were not up to the standard of previous years and live-stock exhibits were weak. Natal Fair earned special praise from the judges for the strong local support given and the general interest of the public; whilst of the smaller fairs Crawford Bay was singled out for commendation in respect to the general handling and management of the event.

In this circuit two fairs improved their position and nine were down.

Central British Columbia, Circuit V. (7 Fairs).—In this circuit the fairs at Prince Rupert and Terrace improved their shows very materially, both from the view-point of exhibits, interest of public, and management.

No live stock was shown at Prince George and the fair at Smithers was disappointing, the entries in live stock here being practically *nil*, with no accommodation for stock. The big feature at Smithers was the horse-racing, and the decline of this fair from its strong agricultural interest of two or three years back is to be regretted.

In this circuit three fairs were up and one down.

GRANTS.

The legislative vote in aid of agricultural fairs for the year ending March 31st, 1928, was $43,500, as against $38,000 for the previous period, and in addition a supplementary vote for $6,500 was found necessary to take care of the special grant to the Vancouver Winter Fair and other miscellaneous charges.

The increased vote enabled a rate of 25 per cent. to be paid to fairs in aid of their prize-lists, as against 21 per cent. in 1926, an increase much appreciated by all associations.

Special sums were also granted by the Minister to a number of fairs where they were able to establish their claim to such consideration through special expenditures incurred or financial straits.

THE BRITISH COLUMBIA FAIRS ASSOCIATION.

This association continued to receive excellent support from the fairs of the Province and is now representative of 90 per cent. of such bodies.

The sixth annual meeting was held at New Westminster on February 24th, with a record attendance of delegates. Amongst resolutions passed was one urging the Department to extend all possible encouragement to the use of graduates of the British Columbia University as judges at fall fairs.

All of which is respectfully submitted.

WM. J. BONAVIA,
Secretary.

REPORT OF PROVINCIAL HORTICULTURIST AND INSPECTOR OF FRUIT PESTS.

W. H. ROBERTSON, B.S.A.

Dr. D. Warnock, O.B.E.,
Deputy Minister, Department of Agriculture, Victoria, B.C.

SIR,—I have the honour to submit herewith my annual report for the year 1927.

SEASONAL CONDITIONS.

The weather conditions experienced during the past year throughout the fruit-growing sections of the Province are, when compared with the past few years, somewhat exceptional. On Vancouver Island and the adjacent islands the precipitation during the first six months of the year was below normal. Temperatures also during the early part of the year were lower than usual, while the spring was very backward, with severe frosts and snowfall as late as April 18th. There were frequent showers during the summer months, while the fall and winter months were exceedingly wet, with the first fall of snow at many Island points about November 10th, and again towards the end of December. The Lower Mainland sections also experienced similar conditions to those which prevailed in the Island section; a very late spring with a heavy rainfall, particularly during the latter months of the year, with snow-storms and low temperatures in November and December. Exceptional conditions are also reported from the Okanagan Horticultural District. The precipitation was heavier than had ever been previously recorded, the total for the year being 22.60 inches, as compared with the ten-year average to 1926 of 14.30 inches. While the result was an abundant supply of water for irrigation, there was a heavy loss both in the field and root crops as well as a severe scab-infection in the case of apples and pears, and considerable injury resulted to ripening cherries by splitting. Extreme low temperatures were also recorded and the lateness of the spring is instanced by the fact that blossoming dates were about two weeks later than in 1926. Snowfall was general throughout the district during November and December, and this no doubt will prevent any injury to the trees that might have resulted from the low temperatures that prevailed. Reports also show

THE ANNUAL EXHIBITION HELD AT PRINCE RUPERT UNDER THE AUSPICES OF THE NORTHERN B.C AGRICULTURAL AND INDUSTRIAL ASSOCIATION IS NOTED FOR THE COMPETING EXHIBITS STAGED BY VARIOUS DISTRICTS. IN 1927 THE PRINCE GEORGE DISTRICT EXHIBIT WON THE FIRST PRIZE WITH AN ATTRACTIVE DISPLAY.

that climatic conditions as recorded for the districts just mentioned also prevailed in the Kootenay districts. Temperatures were below, while precipitation was above the average, with a late spring and short period of hot weather during the summer months and a very cool and wet fall. This was followed by an early snowfall which fortunately came before the low temperatures of late December.

MARKETING AND CROP CONDITIONS.

The fruit-crop of 1926 was one of the heaviest on record and one for which the returns, particularly in the case of tree-fruits, were most unsatisfactory. In the tree-fruit sections of the Okanagan and Kootenays it was felt that vigorous steps would have to be taken if the fruit industry was to survive. Accordingly certain measures along the line of compulsory marketing were discussed with a view to having all fruit in the Interior districts marketed through one organization. This, however, appeared to be somewhat drastic. The final result was that a proposal was made that an organization be established that would have the power to fix prices on fruits and vegetables as well as determine dates of movement and markets to which crops were to be shipped. In keeping with these proposals the Government introduced and passed what is now known as the "Produce Marketing Act." Results have on the whole been very satisfactory and it is anticipated that they will continue to be such as will return the grower a suitable remuneration for his crops.

Small fruits varied in the different districts. On Vancouver Island there was an increased production of strawberries, a total of fifty-seven cars being shipped this year, as compared with thirty-one cars in 1926. Prices, however, were not as good as in 1926 or 1925, and the fruit, because of climatic conditions, did not in many cases arrive in satisfactory shape. In this section the loganberry tonnage was somewhat smaller than in the previous year. The price, however, was the same, the most of the berries being used for wine-making purposes. It is anticipated that a still larger tonnage will be used for this purpose during the coming year. The Lower Mainland acreage of strawberries was somewhat larger than in 1926, but, like the other small-fruit sections, the returns were not quite as large as for the previous year. The acreage devoted to raspberries in this area shows a decrease, due no doubt to the unsatisfactory prices which have prevailed in the past and which were obtained this year. Loganberry returns were also unsatisfactory and in some cases the crop was not picked. Other small fruits were about the same as during the previous year. The strawberry-crop for the whole of the Kootenay District was a heavy one, and a much larger tonnage would have been handled if weather conditions had been favourable. Raspberries were an excellent crop both as to tonnage and quality; the prices for both strawberries and raspberries were not as good as in 1926.

The apple-crop throughout the Province was about 85 per cent. of the 1926 production, but the returns were much more satisfactory than for the previous year. Other tree-fruits also showed a marked decrease over the previous year, and while there was some loss due to scab on apples and pears and splitting of cherries due to rain in some sections, the returns were such that growers are very well satisfied.

On the Coast there has been a marked increase in both greenhouse and outdoor vegetable production. In the Interior sections, particularly in the Okanagan Horticultural District, the vegetable-crop returns cannot be considered as satisfactory. With regard to vegetable-crops, Mr. M. S. Middleton, District Horticulturist, reports as follows:—

"Speaking generally, the vegetable-crop has been very disappointing this year, principally through marketing and weather conditions. Early cabbage and cucumbers met a glutted market and growers did not do as well as the yields and quality of the crops indicated. Cantaloupes, owing to the late cold spring and damage to seed and seedlings from pests, were in the majority of cases late and met a poor market. Onions were a fair crop, but due to the wet fall much trouble was experienced in drying, and neck-rot proved a very common trouble this year. Prices were also low and sales limited. As a consequence much of the crop had to be stored and, the quality not being of the best, further losses have occurred. Tomatoes had a set which was very promising, and with contracts at the usual prices. The crop was cut short, however, by the unseasonable wet weather at the latter end of the season. Celery was an excellent crop, but the market was draggy in the early part of the season and as a result much of the celery was too late in being harvested, and most of the later pitted stuff is still in the field, a total loss. A few car-loads were put in cold storage and excellent prices were received. There appears to

be possibilities in cold-storage celery. Potatoes were a heavy crop in all sections this year, and although the acreage was considerably less than last year there appears to be an oversupply and the movement even at low prices is not there."

NEW CROPS.

In view of the fact that tobacco had been grown in the Okanagan previous to the war it may hardly be considered as a new crop. The growing of this crop, however, had been discontinued until 1926, when about 50 acres were planted. The 1927 planting was much heavier, as approximately 300 acres were planted in the Okanagan and many other sections of the Province also undertook the growing of this crop, with varying success. Growing and harvesting conditions were unsatisfactory, and while the whole of the Interior crop was placed in drying-sheds, there will likely be considerable loss due to drying conditions. It is hoped, however, that this crop may eventually become one of the staple crops of the Province as it fits in well with the general rotation in many districts.

The growing of bulbs and seed both for the home market is also showing an increase. While it will be some time before the growing of these crops may be considered as of major importance from the standpoint of our agricultural industry, there is no doubt that each year will see an increase both in acreage and the value of seed and bulbs produced.

Bermuda onions were also grown commercially in the Okanagan for the first time this year. Young onion-plants were imported from the Southern States, and where satisfactory plants were obtained the results were encouraging. Plants that were set out in one district on April 3rd produced onions for shipment on June 29th. The future of this industry will depend largely upon the possibility of securing the required plants closer to the point of planting and the limiting of plantings to market requirements.

GREENHOUSE SURVEY.

In order to keep a record of the areas devoted to greenhouse crops your Branch makes a greenhouse survey every two years. Surveys of this nature were made in 1923, 1925, and 1927 respectively. The total area devoted to glass in 1927 was 2,764,762 square feet, or an increase of 45 per cent. over the 1923 figures. Of the total 1927 acreage, 1,098,685 square feet, or 40 per cent., is controlled by Orientals and 1,666,077 square feet, or 60 per cent., by white growers. Detailed information showing the districts, number of growers, number of houses, and area in square feet as compiled in the last three surveys is given in the table appended. (*See* Appendix No. 5.)

COMPULSORY SPRAYING.

The details of the requirements for the establishment of compulsory spraying zones were brought to your attention in the 1926 report of your official. Since that time necessary amendments have been made to the "Agricultural Act" that make these zones operative. Two zones were formed in 1927, one at Okanagan Centre and one at Osoyoos. The results have been most satisfactory. An amendment was also made to the "Municipal Act" which gives power to municipalities to enforce spraying within municipalities where it is considered advisable that spraying be undertaken. Use was made of this amendment during the past season in the Glenmore Municipality.

DEMONSTRATION PEST-CONTROL WORK.

Work has been carried out during the past season by different officials of your Horticultural Branch in order to demonstrate the best means of controlling the various insects and diseases attacking fruit and vegetables. In some cases effective control measures have been demonstrated and the work will be dropped; in other cases it will be necessary to continue. New sprays and controls also are being constantly introduced. These have to be tried in order to ascertain their value before recommending them to growers. The following is a brief summary of the work undertaken in 1927:—

Strawberry Root-weevil (Otiorhynchus ovatus).—This insect attacks strawberries and is found in all of our strawberry-growing districts. Various controls have been tried and at the present time a weevil-bait is being recommended that has given very satisfactory results. This bait consists of dried apple-peelings which have been ground and mixed with a poison. Application is usually made twice during the season. A new bait has also been tried out consisting

of raisin-pulp, bran, and poison. This bait, originated by W. Downes, of the Dominion Entomological staff, will in all probability be given extensive trials in 1928.

The weevil-barrier which was the recommended control previous to the originating of the bait mixtures has been practically discarded. As the record of this work with the barriers on the Gordon Head plot has always been incorporated in the report of your Horticulturist, it is thought advisable to include the record of Lot No. 6 in this report. E. W. White, District Horticulturist, who has had charge of this work, reports as follows:—

"*Demonstration Strawberry-plot, Gordon Head.*—The only lot under control in this plot during 1927 was Lot 6, which produced its second crop of strawberries and the patch was then taken out.

"Owing to the fact that it was decided not to attempt to take a third crop off this lot, very little work was done on the weevil-barrier.

"The usual spring work of cultivating, hoeing, and strawing was carried on and the following is a record of the crop yield for 1927:—

Date of Picking.	Variety Magoon.		
	Crates.	Hallocks.	Lb. Jam-berries.
June 13	1	18	.....
" 15	3	16	.....
" 18	11	12	.....
" 20	9	14	.....
" 23	33	22	.....
" 24	11	.....	.....
" 27	34	7	.....
" 28	9	.....	.....
" 30	31	12	46
July 2	27	18	78
" 5	9	16	.....
" 6	6	9	50
" 9	.....	.....	186
" 13	.....	.....	150
" 15	.....	.....	41
Totals	184	144*	551

* Or 6 crates.

"At the approximate average price received for the crate shipments and jam-berries, the gross return per acre would be as follows:—

190 crates at average price of $2.17	$412.30
551 lb. of jam-berries at 8½ cents	46.83
Total gross receipts	$458.13

"In 1926 the returns from this lot were as follows:—

$410^{22}/_{24}$ crates at average price of $2.50	$1,027.29
809 lb. jam-berries at 11 cents	88.99
$126^{21}/_{24}$ crates at average price of $2.74 (fall crop)	347.64
Total gross receipts	$1,473.92

"As will be noted, this lot produced a very heavy crop in 1926, which was possible by making use of irrigation-water. It was also forced to produce a large fall crop.

"The lot suffered during the winter of 1926–27, and also in the spring of 1927 as a result of drought. Production was not heavy in 1927, but it was well up to the record of dry years. The gross revenue over the two years shows a good yearly average.

"After the crop was harvested the plants were removed and the work on the plot discontinued."

Strawberry Leaf-roller (Ancylis comptana).—This insect is very bad in the strawberry-growing areas of the Slocan Valley and the South Kootenay. E. C. Hunt, District Horticulturist, advises in his report that applications of dust composed of hydrated lime and arsenate of lead,

as well as hydrated lime and calcium arsenate, applied at different times and different strengths have not been successful in combating this trouble. He points out that at the present time the best means of control seems to be obtained by cutting the tops and burning over the strawberry-field just as soon as the crop is off, in this way destroying most of the larvæ and pupæ in the folded leaves. Further work will be done during the coming season and it is hoped that a satisfactory control may be worked out.

Cherry Blossom-blight (Monilia oregonensis) Spray.—Attempted controls for this disease with Bordeaux mixture as carried out during the past three years have not given satisfactory results. Reporting on this work, E. H. White, District Horticulturist, says: "In 1928 it is planned to carry on some pruning-work in the Aitkens orchard and also to apply a dormant spray of 8–8–40 Bordeaux as well as a pre-blossom spray in an effort to get some noticeable control of this disease."

Apple-scab (Venturia inequalis) Dust.—The recommended control for apple-scab has for the most part been confined to liquid sprays of lime-sulphur or Bordeaux mixture. Some fruit-growing sections in other Provinces have, however, reported satisfactory results with dusting. In view of this it was thought advisable to try dusting for scab-control in comparison with lime-sulphur liquid spray. C. R. Barlow, District Field Inspector, who conducted this test, reports as follows:—

"Three plots, each consisting of three full-bearing McIntosh Red apple-trees, were selected in a location where air-drainage was poor and conditions likely to be favourable to the development of apple-scab.

"Plot 1 was sprayed three times—pink, calyx, and three weeks later—with liquid lime-sulphur.

"Plot 2 was dusted on the same dates with a mixture consisting of six parts by weight of sulphur dust and four parts by weight of hydrated lime.

"Plot 3 was used as a check.

"A 'Hardy' power-sprayer was used for the spraying and an 'American Beauty' duster for the dusting. The fruit from one representative tree on each plot was taken in checking results:—

Plot.	Pink, applied May 20th.	Calyx, applied June 17th.	Three Weeks later, applied July 11th.	Per Cent. Clean Fruit.	Per Cent. scabbed but marketable.	Per Cent. culled for Scab.
1	L.-S. 1–30	L.-S. 1–35	L.-S. 1–35	69	22	9
2	S.-L.D. 6–4	S.-L.D. 6–4	S.-L.D. 6–4	27	41	32
3	Check	.....	.....	4.7	14.3	81

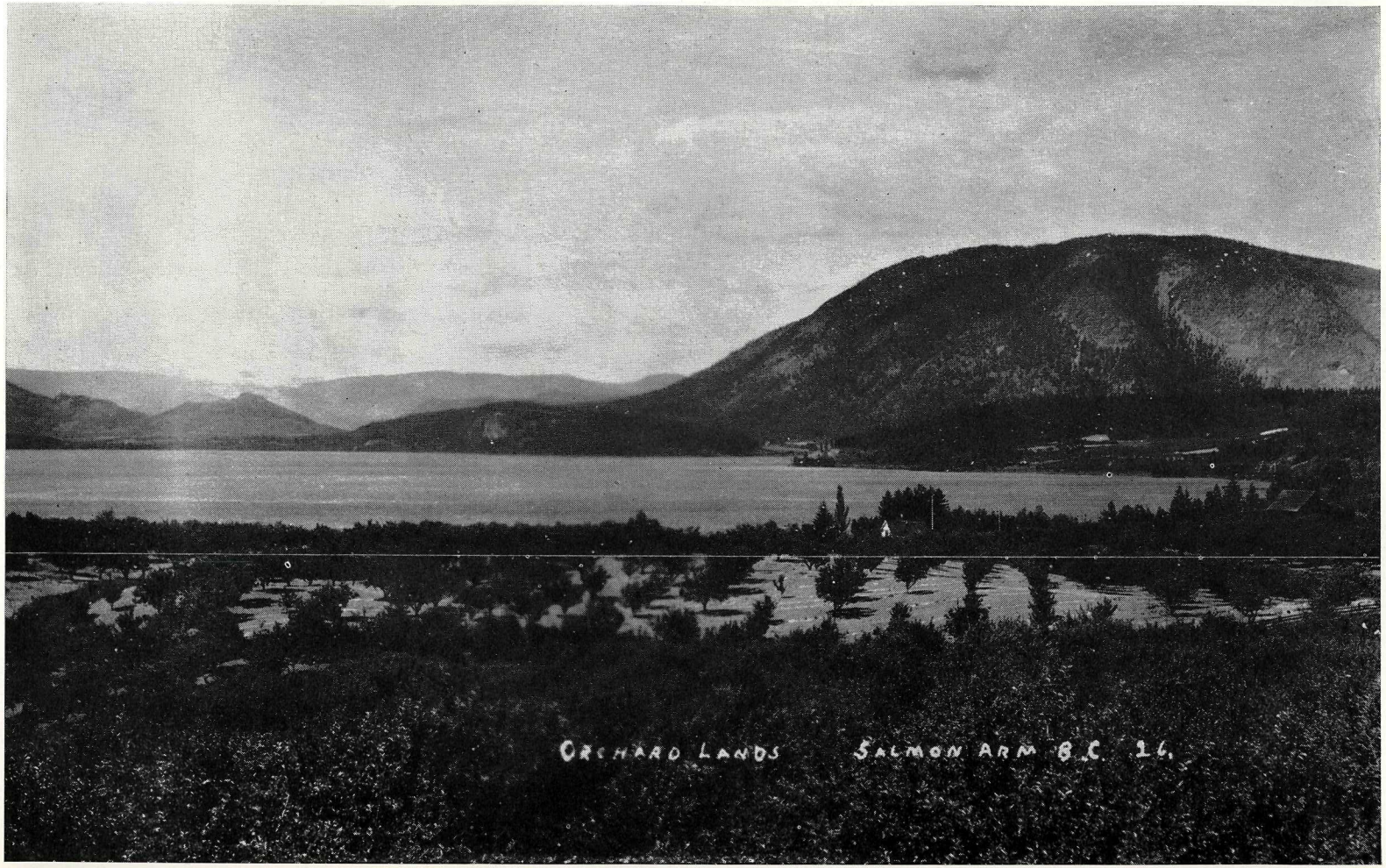
NOTE.—L.-S. denotes Liquid Lime Sulphur; S.-L.D. denotes Sulphur-Lime Dust.

"Further work will be carried out in 1928."

Apple-tree Anthracnose (Neofabræa malicorticis) Spray.—It has been definitely established by the work which has been done in the past by the officials of your Branch in the Coast sections that correct spraying methods will overcome this trouble. In view of the fact, however, that it was causing serious damage in some of the Kootenay sections it was thought that it would be advisable to carry out a series of systematic control sprays in order to demonstrate the feasibility of the control measures which we are advocating. The spraying-work was carried out under the supervision of E. C. Hunt, District Horticulturist. Mr. Hunt reports as follows:—

"This disease has been causing considerable trouble at Kaslo in a few orchards, and although the growers have attempted over a period of years to keep the disease under control, the infected area has become worse. Because of the seriousness of the disease and the damage it was causing to these orchards, your official thought it advisable to give the growers some assistance in the way of a spraying demonstration for the control of the disease. This work was undertaken in the fall of 1927 and the following demonstration plots were established in A. F. Adams's orchard at Kaslo:—

"*Plot 1*, Gravenstein trees, sprayed on August 18th with 1–1½–40 Burgundy mixture, followed by a 4–4–40 Bordeaux mixture spray which was put on on October 3rd after the fruit had been picked.



ORCHARD LANDS IN AN ATTRACTIVE SETTING IN THE SALMON ARM DISTRICT. THE LAKE IN THE BACKGROUND IS THE SALMON ARM BRANCH OF SHUSWAP LAKE.

"*Plot 2*, Winter Banana trees, sprayed on August 18th with 1–1½–40 Burgundy mixture. No later sprays given to this plot.

"*Plot 3*, Winter Banana trees, sprayed on August 18th with 4–4–40 Bordeaux mixture. No later sprays given to this plot.

"*Plot 4*, check, two trees, Gravenstein, unsprayed.

"The results of this work will not be known until the spring and will appear in the 1928 annual report.

"Wiping of the fruit was necessary only on the varieties receiving the 4–4–40 Bordeaux mixture sprays. All fruit free of residue where the Burgundy mixture was used before picking."

Codling-moth Sprays.—Spraying-work is being conducted by B. Hoy, Assistant District Horticulturist, to determine the number of arsenical sprays necessary for the most satisfactory control of codling-moth. R. P. Murray, Assistant District Horticulturist, is also carrying out spraying-work to determine, if possible, the value of arsenical sprays where codling-moth is not a factor. This work as undertaken by both of your officials will, if possible, be continued in 1928, and it is hoped that a report on the three years' work will be ready for publication in the next annual report.

Oil Sprays.—H. H. Evans, Assistant District Horticulturist, reports as follows: "Application of an oil spray on the original plot was the only work conducted with oil sprays; this is being continued for the express purpose of noting any cumulative effects of continuous applications."

PEST-CONTROL WORK.

In addition to the demonstration-work that is being carried on by your Horticultural Branch in order to determine the most satisfactory methods of control, there is also being undertaken actual control-work of different kinds. The following are the most important:—

Codling-moth (Cydia pomonella).—Added to the work being done in the compulsory spraying zones and the areas established under the "Municipal Act," which call for supervision on the part of your officials, there is also being undertaken a certain amount of actual spraying-work by your Branch in the control of codling-moth. Work of this nature has been carried out previously in Kamloops and at Okanagan Landing. In 1927 it was continued at these points and also undertaken in Kelowna City; the work in all cases being done by your Branch but paid for by the growers or lot-holders, as the case may be. At Salmon Arm there has been a somewhat different situation. An area was placed under quarantine for codling-moth in 1925. Spraying was undertaken by the growers in 1925, 1926, and 1927, but under the supervision of your Horticultural Branch, the cost of band inspection being borne by the Government. The results were so satisfactory that this quarantine was lifted in the fall of 1927.

Colorado Potato-beetle (Leptinotarsa decemlineata).—It has been known for a number of years that the Colorado potato-beetle was to be found in the south-eastern section of the Province. In 1927 it was decided to undertake a campaign of control which, while it might not result in the eradication of this pest, might at least assist in checking its spread to neighbouring districts. Accordingly, working in co-operation with the officals of the Dominion Entomological Branch, this work was started. The Dominion official was A. A. Dennys and assisting him was F. A. Marsack, whose services were paid for by your Department. A complete survey was made of the whole section in order to determine as far as possible the limits of infestation. In addition, hand-dusters and dusting material was placed at the various points within the infested areas for the use of growers, and growers were instructed as to the methods and time of application. In his report on the past season's work A. A. Dennys makes the following statement:—

"It is gratifying to note that we could find no evidence of actual spread to new territory during 1927. Prior to this date, however, rather serious advances were made, as small infestations were found at Premier Lake, 34 miles north of Fort Steele, and one very small infestation at Wilmer, 30 miles north of Premier Lake.

"In the main infested area at Cranbrook enormous reductions in the numbers of beetles were secured wherever conscientious dusting was done. Patches carefully dusted showed hardly any beetles, while adjoining patches poorly done had often an average of ten to fifteen beetles per plant.

"We feel that, although many growers in the badly infested areas dusted very inefficiently, the total numbers were greatly reduced and the chance of its spreading naturally to other parts of the Province was considerably lessened."

It is hoped that it will be possible to continue this work in 1928.

Grasshopper-control.—No organized work for the control of grasshoppers was undertaken in any of the horticultural sections during the past year. The few small outbreaks that did occur were dealt with by the individuals whose places were directly affected, your Department supplying the necessary bait material.

San Jose Scale (Aspidiotus perniciosus).—Your officials have continued the control-work for this pest during the past season with very satisfactory results. The work at Kaslo has been under the supervision of E. C. Hunt, District Horticulturist. He reports as follows:—

"This pest was reported in a number of small orchards at Kaslo in the fall of 1924. The area was at once put under quarantine regulations and a general clean-up of the pest was started in the spring of 1925, the Department carrying on the spraying-work, using a dormant spray of oil. This area was kept under quarantine until the fall of 1926, all trees having a dormant oil spray in the spring of that year. At that time, after a thorough inspection of the area and no live scales found, it was thought advisable to lift the quarantine. This was carried out, with the understanding that the area be sprayed again in the spring of 1927, which should remove all doubt as to the eradication. The 1927 operations were carried out on April 5th and 6th, using the Allover Oil spray at an 8-per-cent. solution as in the other years, and it is now felt that the scale is eradicated, at least for some time."

On the condition of the infestation at Spences Bridge C. R. Barlow, District Field Inspector, makes the following statement: "At Spences Bridge your assistant discovered a small area of wild growth infested with San Jose scale adjacent to the original infestation and the same measures for control (i.e., cutting all growth in the early spring and burning over the ground) should give good results. No scale was found in the orchards. Owing to the necessity for the application of a dormant lime-sulphur spray for blister-mite control next spring in the adjacent orchards the risk of the scale becoming established in the orchards will be reduced to a minimum."

Further control-work will be carried out in 1928 in the hope of lessening if not eradicating this infestation.

Fire-blight (Bacillus amylovorous).—Fire-blight is found only in the Interior fruit sections of the Province and at all times constitutes a grave menace to the orchard-owner. Its seriousness, however, to the individual depends to a large extent upon the care which he exercises in the removal of blighted limbs and hold-over cankers from infected trees. In the Okanagan districts your Horticultural officials have each year made as far as possible a personal inspection of all orchards, and where it was found that all evidences of blight had been satisfactorily removed a notice was posted to that effect. During the past season your officials inspected 14,191 acres and passed as free from blight 10,833 acres.

In the Kootenay districts there has been less blight than usual, due no doubt to unfavourable weather conditions. Efforts have been made during the past winter and spring to effect a clean-up in orchards where this disease is bad. This work will be continued during the coming winter.

VEGETABLE VARIETY AND SMALL-FRUIT TRIAL WORK.

Your Horticulturist pointed out in his 1926 report that certain test-work was being conducted in order to find out the most satisfactory varieties of vegetables in a number of districts for various commercial purposes. This work was continued in 1927 and in addition a number of varieties of strawberries were tried out. The following is a brief account of the work undertaken in the Vernon and Armstrong Districts by H. H. Evans, Assistant District Horticulturist:—

Lettuce and Spinach.—A small quantity of seed of these two vegetables was placed with a few growers in the Vernon District in order to test their suitability both from a climatic standpoint and the possibility of using them in making up mixed cars of vegetables. Three varieties of lettuce were grown—namely, Big Boston, New York Wonderful, and Hanson. From the results of this season's work it would appear that New York Wonderful would prove the most satisfactory. Further trials will be conducted in 1928. In the case of spinach three varieties for spring planting and two for fall planting were tried. The spring varieties tested were Noble Gandey, Long Standing Bloomsdale, and King of Denmark. Of the three varieties tested, the King of Denmark gives promise of being the best both for the mixed-car movement and for cannery purposes. Two fall-planted varieties were also seeded—namely, Princess Juliana and Virginia Savoy. Results will not be obtainable until the spring of 1928. If, however, the

quality and yields prove satisfactory they should be of value in extending the season for this vegetable.

Onions.—The following is a brief report covering this work by Mr. Evans:—

"With a view to testing out Sweet Spanish onion growing in the Vernon District, 1 lb. of this seed was obtained in the spring of 1927 and divided between two of our vegetable-growers, J. T. Mutrie and W. C. Ricardo. Planting was much delayed owing to late arrival of the seed. That planted by Mr. Mutrie made an excellent stand, but was very severely thinned by the onion-maggot and heavily infested with the onion-thrip. In spite of these set-backs about 400 lb. of onions was harvested; quality of the bulbs was very good, but size of bulb and outer skin colour was only fair. Those sown by Mr. Ricardo received only fair treatment and the results were considered not worth recording.

"In following up the above work some fall seeding of onions was made at J. Mutrie's, of Vernon, and H. Grant's, of Armstrong. This test is being conducted to find the possibilities of raising and wintering plants for field setting in the spring of 1928. At Vernon all seed is outdoor-planted; one portion of this plot is unprotected; the balance of the plot was covered with straw about 8 inches deep when heavy freezing weather came in December.

"At Armstrong a portion of the seed was field-planted and left without cover except the snow cover; the balance of the seed was planted in cold-frames and these have been given a straw cover since the advent of heavy frosts.

"The varieties of seed being used in this test and planting dates are as follows:—

"Vernon and Armstrong: Riverside Sweet Spanish and Ebenezer, planted on August 26th; Bermuda Crystal White and Bermuda Yellow, planted on September 25th."

Asparagus.—As in 1926, a small quantity of seed was distributed to growers in various sections. The variety was the Mary Washington, and while one of the newer varieties that has given such excellent results in the East, it has never been planted in this Province in commercial quantities. As your Branch was able to secure a pure strain of seed, it was thought that it would be an inducement to growers to undertake the growing of this crop for the shipping market and would test out its qualities for cannery purposes if enough were grown to warrant the canneries in putting it up. Observations on the yields and development of the plots will be noted from time to time.

Corn.—The trials with different varieties were conducted on the same properties as in 1926, the same varieties being used. The purpose of these trials was to secure data regarding ripening periods and the general possibilities of corn-growing from a canning standpoint. A lot of useful information has been collected as a result of the work undertaken and it is proposed to continue the trials for another year at least.

Lima Beans.—R. P. Murray, Assistant District Horticulturist, who has had charge of this work, reports as follows:—

"The growing of lima beans in the Oliver section was again tried, three varieties—namely, Henderson's Bush, Fordhook, and Burpee—being grown. Pound lots of each variety were given to two growers and the plots were sown within a few days of each other, about May 23rd. With the cool damp weather all the beans damped off badly on the heavier soil, but on the lighter soil the Henderson's Bush came through in good shape and a heavy crop was harvested. The Fordhook and Burpee showed poor germination in both tests. Whether this crop will develop into something worth while is hard to say.

"From the results obtained over the past two years it is quite apparent that Henderson's Bush lima will produce fair crops of good beans. The weather conditions for growing are good and with the dry weather at harvesting good colour is generally easy to obtain."

Strawberry Variety Tests.—The following report on this work by H. H. Evans follows:—

"Varieties: Marshall, Marshall Improved, Magoon, Van Sant, Trebla, Ettersburg No. 121, Sir J. Paxton, Parson's Beauty.

"In 1926 plants of the above varieties of strawberries were obtained by the Department of Agriculture and distributed among growers in the Armstrong District. In the spring of 1927 all available runners were set on the various plots; excellent growth has been made by all varieties. In some plots heavy loss has been occasioned by attacks from the larvæ of the June-bug (*Polyphylla decenlineata*).

"The following notes were taken on fruiting of the plants set:—

"Marshall: Strong growth, set good, fruit excellent size, colour and flavour good (sweet).

"Marshall Improved: No yield.

"Magoon: Strong growth, set good, colour fair, flavour fair (acid), many fruits poorly developed.

"Van Sant: Medium growth, set good, colour and flavour good (sweet), size medium.

"Trebla: Medium strong growth, set heavy, fruit on small side, colour and flavour good (sub-acid).

"Ettersburg No. 121: Strong growth, set fair, many fruits fail to develop, colour fair, flavour poor, size poor.

"Sir J. Paxton: Strong growth, set good, size, colour, and flavour very good (sweet).

"Parson's Beauty: Medium strong growth, set medium, colour and size medium, flavour good (sweet).

"During the season of 1928 it will be our endeavour to obtain information on suitability of these varieties for the district, on shipping qualities and yields."

FERTILIZER AND COVER-CROP WORK.

Fertilizer and cover-crop demonstration-work has been carried out by your Branch in the various fruit and vegetable sections of the Province. This has been done with a view to ascertaining the possibility of securing increased production of these crops as well as the most satisfactory fertilizer to use in each case. The work with orchard fertilizers was conducted on Vancouver Island and in the Okanagan Valley. On Vancouver Island the results from a fruit-producing standpoint may be considered as negative. The work was carried out in 1926 on the orchard of T. A. Brydon & Son and in 1927 on the same place. The block used was one of Duchess apples. The work will be continued in 1928. A fertilizer experiment was also outlined and carried out on the raspberry-patch of S. E. Vantreight. This was for the purpose of determining whether or not fertilizer would have any effect in controlling the drying-up of the fruit which has been prevalent in some raspberry and loganberry patches during the past few years. The results were not satisfactory and other methods will be employed in 1928.

Okanagan Orchard Fertilizer Tests.—A series of fertilizer tests were carried out at different points in the Okanagan Valley. The results have been on the whole very satisfactory and the details of some of the work which was done in 1925 and 1926 have been incorporated in the revised issue of Horticultural Circular No. 51, "Orchard Cover-crops." It is proposed to continue this work in 1928.

Nitrate of Soda for Sweet Cherries.—The work was conducted by E. C. Hunt, District Horticulturist. His report follows:—

"Sweet-cherry trees. With the view of trying to increase the sweet-cherry production in some of the cherry-orchards in the Kootenay the following nitrate of soda tests were started this year in Appleton Bros.' orchard at Procter:—

"Plot 1, nitrate of soda, 8 lb. per tree, applied May 14th to eight Bings, four Lamberts, and two Royal Annes.

"Plot 2, nitrate of soda, 5 lb. per tree, applied May 14th to ten Bings, four Lamberts, and two Royal Annes.

"Plot 3, check, five Bings, two Lamberts, and one Royal Anne.

"This orchard had been in sod for a number of years, but clean-cultivated in 1927. There was very little, if any, visible difference as to growth and vigour of the trees in the treated plots over those in the check. The crop was extremely light and all plots showed about the same average yield per tree. There will be more to report on next year, as it is the intention to carry on this work over a period of three years."

Celery Fertilizer Trials.—The work carried out in 1927 is a continuation of the trials with fertilizers for celery as undertaken in 1926. Various fertilizers and combinations were tried and storage tests conducted with celery from the different plots. The nature of the experiments and the results are too extensive to give in a report of this kind. The work, however, will be conducted again next year. It is hoped that it will be possible to issue a circular dealing with the growing of this crop and at the same time give the results of the work which has been done during the three-year period.

INSPECTION-WORK.

Currant Gall-mite (Eriophyes ribis) Inspection.—The mite which causes this trouble was probably imported into this Province in 1909 from England and was reported first in the spring of 1915. In 1916 and 1917 a close inspection was made of black-currant plantings between

Victoria and Nanaimo and resulted in a considerable number of infested currant-bushes being destroyed. Its reappearance in 1925 led to an inspection of all currant plantations in the spring of 1926, when 236 bushes were destroyed and a number of patches placed under observation. This inspection was continued in 1927 and resulted in the destruction of 115 bushes. The areas that have grown infested bushes will be kept under observation during the coming season and all bushes destroyed which show infestation.

Nursery Inspection.—The inspection of nursery stock in all of the principal nurseries of the Province was carried out by the officials of this Branch. This work is of the utmost importance as it ensures the shipment of tree stocks that are free from insect pests and diseases. During 1927 a total of 100,676 trees was inspected, of which 3,960, or 3.9 per cent., were condemned and destroyed. This work will be continued in 1928 along the same lines as it has been carried out in the past.

Car Inspection.—All refrigerator-cars moving into the principal fruit sections of the Okanagan and the Kootenay were inspected for codling-moth. The time and method followed was similar to that practised in previous years. The 1927 reports from the various officials of your Branch show that a total of 1,594 cars was inspected at all points.

Inspection of Imported and Exported Plant Products.—The officials of this Branch during the past year assisted the Inspector of Imported and Exported Horticultural and Field Products in carrying out any inspections necessary at points outside of Vancouver. Full details showing quantities of fruits and vegetables inspected will be given by the Chief Inspector, W. H. Lyne, in his report to you.

PRUNING-SCHOOLS AND DEMONSTRATIONS.

Pruning-schools and demonstrations were held by your Branch in 1927 similar to those conducted the previous year. This is one of the methods employed by your Branch in bringing before groups of growers the best systems to use in the pruning of their trees, cane and bush fruits. The fact that there is a demand for them is evidence that they are of value and appreciated by the growers. In 1927 there were nine pruning-schools held, with an attendance of seventy-nine pupils. One-day demonstrations on pruning were also held. These totalled thirty-two, with an attendance of 324. (For detailed information *see* Appendices Nos. 6 and 7.)

CROP ESTIMATES AND REPORTS.

The necessity of securing figures showing the production of fruit and vegetables in the Province is appreciated by your Horticultural officials. In the spring it is necessary to make estimates on the possible production for the coming season and during the late fall a certain amount of time is devoted to obtaining figures showing the total production The estimates of crop production as well as reports on crop conditions are published fortnightly in the News Letter, which is sent to all interested parties. The final crop yields are forwarded to your Statistical Branch for publication In order that there may be uniformity in both Dominion and Provincial figures your Branch co-operates with the Dominion Fruit Branch in this work.

BULLETINS AND PRESS ARTICLES.

The past season has seen the revision of a number of our present circulars. These have been brought up to date from the standpoint of information and a new circular on Oil Sprays has been issued. New circulars will be issued from time to time as necessity arises.

Press articles have been prepared and published dealing with horticultural subjects and also informing the public of the work that your Branch is undertaking. These have always been well received.

LAND SETTLEMENT BOARD.

A considerable portion of the time of the members of your Horticultural Branch in certain sections of the Province is devoted to work for the Provincial Land Settlement Board. This work consists in making appraisals for loans and also in acting as representatives of the Board in the matter of sales, etc.

HORTICULTURAL SOCIETIES.

The number of Horticultural Societies is increasing each year. During the past year the Vancouver Island Horticultural Association was formed. This consists of a number of local associations on Vancouver Island which have united for the purpose of holding a spring flower-

show in Victoria and also to hold a series of garden competitions throughout Vancouver Island. On the Lower Mainland there has been a reorganization of the Vancouver Horticultural Society and it is hoped that this will lead to a Greater Vancouver Association. In the Interior, Horticultural Societies are making excellent progress and shows were held at practically all the important points.

Your Branch has assisted in every way possible not only in having officials of your Horticultural Branch act on the executive bodies, but also by supplying judges both for flower-shows and gardens.

FALL FAIRS.

Your Horticultural Branch has selected the fruit and vegetable judges for the various fall fairs held in different parts of the Province. The majority of these judges were selected from the present Horticultural staff. In some cases, however, it has been necessary to secure outside assistance. Basing the judging upon the standards of requirements as set by your Branch, it is considered that every satisfaction has been given. It is hoped that the standards at present used will be issued in printed form during the coming year.

FRUIT VARIETY MEETINGS.

The planting of undesirable varieties of fruit is one of the phases of fruit-growing which the orchardist who is setting out an orchard has to guard against. This is particularly true in our tree-fruit sections of the Okanagan and Kootenay, and particularly applies to apples. In these two districts there are approximately 21,794 acres of apple-orchards. Fifteen varieties comprise approximately 87 per cent. of the plantings. The remaining 13 per cent. comprise numerous undesirable varieties. With the idea of eliminating the undesirable varieties entirely and reducing the fifteen varieties a series of meetings were held last spring. In co-operation with growers' committees formed at these meetings your Horticultural staff drew up a list of varieties of all tree-fruits that were considered as suitable for future plantings. These recommendations will be published at an early date.

CHANGES IN STAFF.

The only changes that have taken place in the staff of your Horticultural Branch during the past year consist in the transfer of H. S. French, District Field Inspector at Vernon, to Cranbrook as District Agriculturist. The position made vacant through this transfer has been filled by the appointment of J. C. Roger, who at present is stationed at Penticton.

ACKNOWLEDGMENTS.

In concluding this report on the activities of the Horticultural Branch for 1927, your Horticulturist wishes to acknowledge the excellent assistance which he has received at all times not only from his own staff but from the officials of the Dominion Department of Agriculture and the University of British Columbia.

Respectfully submitted.

W. H. Robertson,
Provincial Horticulturist.

REPORT OF CHIEF INSPECTOR OF IMPORTED FRUIT AND NURSERY STOCK, VANCOUVER.

W. H. Lyne.

Dr. D. Warnock, O.B.E.,
Deputy Minister, Department of Agriculture, Victoria, B.C.

Sir,—I beg to submit herewith my annual report as Inspector of Imported and Exported Horticultural and Field Products, recording the work of your Inspector and his staff of assistants during the year ended December 31st, 1927.

REASON FOR INSPECTION.

That of protecting the Province from numerous insect pests and plant-diseases liable to be imported with the various plant products arriving from all parts of the world. Also to protect the reputation of our products exported to other countries.

ANOTHER VIEW OF SALMON ARM ORCHARDS SHOWING BENCH LANDS. THIS FINE FRUIT AND MIXED-FARMING DISTRICT IS ON THE C.P.R. MAIN LINE, DISTANT 316 MILES EAST FROM VANCOUVER.

METHOD OF PROCEDURE.

Products such as fruit, vegetables rice, corn, beans, and peas were inspected at the several points of entry into the Province where Provincial Quarantine Officers under the direction of your Inspector were stationed. Any such products found to be infested with insect pests or infected with plant-disease of sufficient economic importance were condemned. All such condemned products were either shipped out of the Province by the most direct route or destroyed at the expense of the consignee or shipper. Certificates were issued permitting the disposal within the Province of those products passing inspection. For that which was condemned, certificates were also issued instructing the consignee or those concerned regarding the disposal or treatment of same.

INSPECTION FEES.

Inspection fees were collected on certain products specified in regulations under authority of the Provincial "Agricultural Act," provided they passed inspection. Fees thus collected were paid into the Provincial Treasury as speedily as clerical routine would permit.

INSPECTION OF IMPORTED NURSERY STOCK.

Complying with the Provincial regulations and regulations under the Dominion "Destructive Insect and Pest Act," all trees, shrubs, plants, and bulbs imported into Canada by way of British Columbia were inspected at the Vancouver Inspection and Fumigation Station, with the exception of certain plants and bulbs under special permit. Similar products imported into British Columbia from other Canadian Provinces were also inspected.

NURSERY STOCK FUMIGATED.

All outdoor deciduous trees and shrubs requiring fumigation as prescribed in the regulations were treated accordingly.

INFESTED OR DISEASED STOCK.

All imported nursery stock found infested with insect pests, infected with disease or physically defective, if of sufficient economic importance, was condemned. Stock thus condemned was destroyed or returned to the shipper if so desired and at his expense. A condemnation certificate was also issued to the consignee informing him of the stock condemned and reason for same.

CERTIFICATES AND FEES.

Certificates were issued on all imported nursery stock that passed inspection, permitting the consignee to take delivery and dispose of same. Inspection fees were charged on all outdoor trees and shrubs, but not on bulbs or greenhouse plants.

CONCESSIONS GRANTED.

Concessions granted last year permitting inspection of stock from nurseries in the Prairie Provinces at points in eastern part of British Columbia were continued subject to special permit. Another concession was granted greenhouse-men in Alberta by which their greenhouse plants might enter British Columbia without further inspection, provided their greenhouses were inspected every three months. The Alberta Department of Agriculture accordingly appointed Inspectors for that purpose. Permit address-tags provided by your Inspector were supplied to those greenhouse-men who submitted their Alberta inspection certificates. The tags instruct the transportation companies to deliver direct to the address on the tag without further inspection. Otherwise the shipment would have to come to Vancouver.

IMPORTED BULBS.

During the last twenty years flower-bulbs imported into this Province from Europe, the Orient, and the United States have been under the observation of your Plant Quarantine officials. Owing to the steady increase of such importations in recent years and the evidence of certain insect pest and disease our inspection of them has become more systematic and thorough. This

appeared to be necessary in view of the effort made to utilize the natural resources of the Province in the production of such bulbs on a commercial scale.

During the year ended December 31st, 1927, there were imported 4,538,495 bulbs, consisting of narcissus, tulip, lily, gladiolus, hyacinth, crocus, and other species of bulbs, corms, and rhizomes. From that assortment it was necessary to condemn over 21,806 infested with narcissus-fly larvæ, eel-worm, *Nematode*, and mite, or infected with *Fusarium*, hardrot, scab, and hyacinth yellows—the latter a very serious bacterial disease—so serious, in fact, as to severely handicap the growing of hyacinths in Holland.

INSPECTION AND FUMIGATION STATION.

The building under the above title is situated between the Terminal Passenger and Freight Depots of the Canadian National Railway at Vancouver. The outer walls, of hollow tile and concrete, are 100 by 50 feet. The interior is divided into four large rooms, with four smaller air-tight fumigating-chambers in the centre. A team-track serves the full length of the building on one side and a railway-track on the other. The building was constructed under the direction of your Department and the Dominion Department of Agriculture and is jointly owned by them. A hot-water heating plant is provided for maintaining proper temperatures when fumigating and for frost-proof accommodation in winter. There is every convenience for the careful and proper handling of the imported nursery stock inspected there; also for the fumigation of large quantities of products such as rice, corn, peas, beans, etc., all of which is carried out by properly trained men. The station is also used by the Dominion Health of Animals Branch when the fumigation of certain foreign material is necessary.

UNITED STATES BOUNDARY INSPECTION.

Since the ruling by the Dominion Minister of Customs on September 1st, 1926, that Customs officials cease acting as Provincial Inspectors, the number of ports where fruit and vegetables may enter from the United States have been reduced. Those in operation during 1927 were as follows: Newgate, Kingsgate, Waneta, Grand Forks, Huntingdon, Abbotsford, Pacific Highway, Douglas, White Rock, New Westminster, and Vancouver. Provincial Inspectors were also stationed at Fernie, Cranbrook, Victoria, Nanaimo, and Prince Rupert. The Inspectors stationed at ports mentioned other than Vancouver and Victoria were paid by the Province at the rate of $5 per day for actual time incurred. Those at Vancouver and one man at Victoria were on regular salary. One other man assisted at Victoria when required. The Vancouver staff was composed of six men, your Chief Inspector for the Province, and two clerk-stenographers. An additional Inspector and other men were employed at the Vancouver Fumigation and Inspection Station when required.

NEW APPOINTMENTS.

Owing to the railway and automobile connections at Huntingdon involving at times considerable commercial traffic across the United States boundary, it was necessary to again appoint a Quarantine Officer at that port. P. H. Dawson was accordingly appointed on March 30th in place of Thomas Kirkby, Customs Officer, who had to cease acting as Provincial Fruit Quarantine Officer by order of the Minister of Customs on September 1st, 1926; and F. A. Marshall was appointed Provincial Officer at Abbotsford on July 1st, taking the place of H. T. Thorn, Customs Officer, who ceased to act on September 1st, 1926. The appointment at Abbotsford was considered necessary owing to it being a Customs station and railway junction. Wm. Darling was appointed Quarantine Officer at Revelstoke on February 1st, taking the place of Thos. Steed, Customs Officer, who ceased to act on September 1st, 1926.

OCEAN SHIPMENTS.

The extension of ocean traffic during the last few years has greatly increased the work of inspecting imported and exported plant products at Vancouver and Victoria. The manifests of incoming boats are carefully examined and usually include some product requiring inspection.

TABULATED LISTS OF IMPORTS AND EXPORTS.

The quantities of the various plant products imported and also those exported that involved inspection and the issue of certificates are attached to this report in tabulated form. There is also a tabulated list of imported products known as our observation list. The latter consists of

certain fruit and vegetables not usually associated with pests or diseases of economic importance and for which no inspection certificates are issued. They, however, come under the observation of our Inspectors and would, if necessary, be placed on the regular inspection list.

The tabulated lists also give the quantities of similar products imported the previous year by way of comparison and the quantities of products condemned are included.

PESTS AND DISEASES INTERCEPTED.

The following pests and diseases were found infesting and infecting certain imported fruit and vegetables which were condemned accordingly:—

Codling-moth larvæ and San Jose scale infesting apples, pears, and quince from the United States; scale-insects (*Aspidiotus auranti* and *Lepidosaphis*) infesting oranges, lemons, and grapefruit from United States and lemons from Italy; peach-moth lavæ (*Anarsia lineatella*) infesting peaches, apricots, and plums from United States; corn-ear worm (*Heliothus armager*) infesting sweet corn from United States and tomatoes from Mexico; weevil (*Cylas formicarius*) infesting sweet potatoes from China; brown-rot infecting peaches, plums, prunes, and cherries from United States; black-rot infecting sweet potatoes from United States and China.

INSECTS AND DISEASE ON IMPORTED NURSERY STOCK.

Scale-insects.—San Jose scale (*Aspidiotus perniciosus*) and European scale (*Aspidiotus ostræformis*) on fruit and ornamental trees and shrubs from United States and Japan; *Aspidiotus forbesi, hedera, rapax,* and *ostræformis* on ornamental trees and shrubs from United States, Europe, and Japan; *Chionaspis* and *Diaspis* scale on ornamental shrubs from Japan; *Aulacaspis* scale on rose and blackberry bushes from United States; *Lecanium coryli* scale on ornamental trees from Europe; *Lecanium hemisphericum* and *hesperidium* scale on ornamental shrubs and plants from United States and Japan.

Aphis.—Woolly aphis (*Eriosoma lanigera*) on apple-trees and seedlings from United States; black aphis on roots of peach-trees from United States; *Erisoma pyri* on roots of pear-trees from United States; *Phylloxera* on roots of grape-vines from United States.

Root-borers.—*Sanninoidea exitiosa* in peach-trees from United States; narcissus-fly larva (*Merodon equestris* and *Eumerus strigatus*) in narcissus bulbs from Holland and United States; *Nematode* eel-worm and bulb-mite in narcissus and hyacinth bulbs and gladiolus corms from Holland.

Diseases.—Anthracnose crown-gall, sour-sap infecting fruit-trees and seedlings from United States; hyacinth yellows (*Bacteria hyacinthi*) infecting hyacinth bulbs from Holland; hardrot (*Septoria*) and scab infecting gladiolus corms from Holland; *Fusarium* rot infecting crocus bulbs from Holland.

ARGENTINE CORN.

Large quantities of Argentine corn arrived in the Province by direct boats during the year and some of the shipments were considerably infested with moth-beetle and weevil. The particular pests in evidence were as follows: Mediterranean flour-moth (*Ephestia kuehniella*); Indian-meal moth (*Plodia interpunctella*); Angoumois moth; *Tribolium* beetle and rice-weevil (*Calandra oryza*).

Considering the large quantities of corn involved and the time and expense that would have to be incurred in fumigation, a concession was granted waiving fumigation, provided the following details were properly carried out: That all sacks containing the infested corn be emptied into elevator hoppers outside the storage buildings, the contents going directly over the screening-machines, and the empty sacks taken to the fumigation station; the tailings from the screening-machines to be burned as fast as they accumulated and the corn crushed within a short period. This procedure, though not as effective as fumigation, was the means of disposing of probably 90 per cent. of the pest.

STORAGE PRODUCTS FUMIGATED.

The quantity and kind of storage products fumigated at Vancouver and Victoria, owing to being infested with moth-beetle or weevil, is recorded on tabulated sheet attached to this report.

FUMIGATION CHAMBERS AT VICTORIA.

The Provincial Government still retains for operation the two fumigation chambers at Victoria near the Outer Wharf. They are 35- and 100-ton capacity and are leased from R. P. Rithet Company. These chambers are used for fumigating storage products only, such as rice, corn, peas, beans, dried fruit, etc. Products of that description are usually fumigated with carbon bisulphide.

All fumigation of nursery stock with hydrocyanic-acid gas is done at the Government Fumigation Station at Vancouver.

FRUIT AND VEGETABLES EXPORTED.

The tabulated lists of fruit and vegetables exported and the countries to where they were shipped give some idea of the progress being made. Export inspection certificates were issued to the effect that the products had been found apparently free from insect pests and disease and were in clean, sound, merchantable condition. Such inspection was made as compulsory as possible when shipments were going to countries demanding that procedure. It was left to the option of shipper, transportation company, or consignee regarding certificates to countries where no such inspection was required. Government inspection of perishable fruit and vegetables for export is becoming appreciated to such an extent that some of the transportation companies refuse to bill out shipments unless an inspection certificate has been obtained. In the event of a claim being made against a shipment the interested parties usually apply to the inspection office for the inspection report. So far your Department has made no charge for export inspection on the principle of not placing any handicap on the exporter, and to maintain the reputation of British Columbia products on foreign markets.

NURSERY STOCK EXPORTED.

The tabulated list of trees, shrubs, plants, and bulbs exported to fifteen foreign countries shows an increase in fruit-trees, greenhouse plants, and bulbs to that of the previous year. All the nursery stock exported was carefully inspected just previous to going out and inspection certificates were issued declaring it apparently free from insect pests or disease. By that procedure both our Provincial regulations and those of the Dominion "Destructive Insect and Pest Act" were carried into effect. In this particular work your Inspector and his staff were sometimes assisted by the staff of your Horticulturist when any of those officials happened to be situated more conveniently to the shipping-point. The same co-operation was carried out in the inspection of fruit and vegetables for export, and occasionally in the inspection of imported products.

INTERNATIONAL CO-OPERATION.

Your Inspector, representing British Columbia on the Western Plant Quarantine Board, attended the Ninth Annual Conference held on that occasion at Reno, Nevada, U.S.A., June 19th to 21st. Plant Quarantine officials from the eleven Western States, Northern Mexico, and the Hawaiian Islands were present; also U.S. Federal officials, transportation officials, nurserymen, fruit and other produce shippers. Many details concerning the work and obligations of the various representatives present were given careful attention with a view to uniform and efficient procedure.

ALFALFA-WEEVIL QUARANTINE.

At the close of the Western Plant Quarantine Conference your Inspector, with A. C. Fleury, of the California Division of Plant Quarantine, investigated the alfalfa-weevil infested area involving three counties in California situated between the Sierra Nevada Mountains and the State of Nevada. The investigation was made with the view of justifying the Dominion Division of Foreign Pest Suppression in allowing ground alfalfa-meal to be imported from California into British Columbia under special restrictions; a report of which you have already received. The Dominion regulations give the names of the other States from where alfalfa-hay is prohibited.

DOMINION ENTOMOLOGICAL CONFERENCE.

As a collaborator in the administration of the Dominion "Destructive Insect and Pest Act" in connection with the Division of Foreign Pests Suppression, your Inspector attended a conference of the Dominion Entomological Branch, Department of Agriculture, at Ottawa, November

23rd to 26th. The conference arranged by the Dominion Entomologist was for the purpose of reviewing the work of the several divisions of his Branch in order to ensure uniform and efficient administration. The opportunity for the officials to become better acquainted and discuss each other's problems was very much appreciated.

"EGGS MARKS ACT."

Judging by the tabulated statement attached to this report recording the quantity of eggs imported into and through this Province, the Provincial "Eggs Marks Act" appears to have worked automatically. The list includes eggs from the United States and China, with dates of arrival, during the year 1927.

Out of a total of 542 cases of fresh eggs from the United States, only ten cases remained in British Columbia, the others being imported for ship's stores aboard ocean-going boats. Other eggs from the United States that remained in British Columbia were 501 cans frozen shelled eggs; 5 cans frozen yolks; 142 cans frozen whites. From China there were 992 cases eggs in shell preserved in mud; 820 cases being for exclusive use of Chinese in Vancouver and the balance for Chinese east of British Columbia. Also 700 cans frozen shelled eggs for points east of British Columbia and 55 cans dried yolks, 33 for Vancouver and 22 for points east of British Columbia, and eleven cases dried whites for Vancouver.

OFFICE ROUTINE.

The office of your Inspector, situated in the Court-house at Vancouver, is headquarters for all matters dealing with plant quarantine and inspection work in connection with imported or exported plant products within the Province of British Columbia. Daily reports are received from the several transportation companies regarding the arrival of miscellaneous plant products by boat, train, express, or mail, all of which receives the prompt attention of the staff. All details of inspection are carefully recorded. Certificates are issued and inspection fees collected. Inspection reports are issued to consignees, shippers, or transportation companies who request them in order to settle claims. All correspondence is attended to with care and dispatch.

Records and reports are also received from the Quarantine Officers stationed at ports of importation within the Province other than Vancouver. Such reports consist of monthly remittance of inspection fees collected during the month, with all details regarding them. These are recorded and filed and the fees paid in to the Court-house cashier and paymaster, who also receives the fees collected in Vancouver.

All copies of Dominion permits to import nursery stock are on file and are checked upon the arrival of the stock to which they refer. Emergency permits are also issued to consignees entitled to them. Dominion export inspection certificates are on hand for use when nursery stock for export is inspected by your Inspector or his staff.

Record report sheets of plant products imported into Canada by way of British Columbia are forwarded to the Division of Foreign Pests Suppression at Ottawa and also those recording exports. Your Inspector is assisted by two lady clerk-stenographers in addition to other members of his staff, and a recording officer supplied and paid by the Dominion Entomological Branch, Ottawa.

All Provincial, horticultural, and agricultural bulletins are on hand for public distribution to those who care to come and get them. People coming for information always receive prompt and courteous attention.

The office is also shared by J. W. Eastham, Provincial Plant Pathologist, and G. E. W. Clarke, District Horticulturist, who also assist in dispensing information when present. J. A. Grant, Prairie Markets Commissioner, is also accommodated with desk when in Vancouver. The official correspondence has increased during the last few years. Incoming letters in 1927 numbered 1,778, and outgoing, 2,184.

Respectfully submitted.

W. H. Lyne,
Inspector of Imported and Exported Horticultural and Field Products.

REPORT OF PROVINCIAL PLANT PATHOLOGIST, VANCOUVER.

J. W. Eastham, B.Sc.

Dr. D. Warnock, O.B.E.,
Deputy Minister, Department of Agriculture, Victoria, B.C.

Sir,—I have the honour to submit herewith my annual report for the year 1927.

POTATO-WORK.

The Dominion Experimental Farm at Agassiz again placed at the disposal of the Department sufficient land to carry on a number of experiments on potato-diseases. Preparation of the land and subsequent cultivation of the crop were done by the farm staff, to whom acknowledgments are due for the courtesy extended.

Owing to lateness of planting and the hot, dry weather of July and August, potato yields were low and some of the foliage symptoms not so easily observed as in a more normal season.

Spindle-tuber.

Owing to this somewhat obscure virus disease having been found to be widely prevalent in the United States, although only described for the first time a few years ago, it was thought desirable to procure authentic material from outside sources for comparison with what appeared to be the same disease in British Columbia.

Material was obtained from the Central Experimental Farm, Ottawa (Irish Cobbler); the Dominion Plant Pathological Laboratory, Fredericton, N.B. (Green Mountain); and Professor Werner, University of Nebraska (Bliss Triumph). All these were of the round or oblong type and the characteristics of the disease were quite marked in the tubers supplied. The plants produced from these different samples, however, showed the disease in markedly different fashion. None of them, also, are varieties grown extensively in this Province. Numerous plants in the variety plots showing somewhat similar habit and foliage symptoms produced normal tubers. In the case of the Irish Cobbler and Green Mountain the few tubers produced were sent back to Ottawa, but a quantity of the Bliss Triumph has been kept for further study next year. Material believed to show spindle-tuber in Netted Gems from the Interior of British Columbia has also been collected for comparison next year.

In addition to the above, a quantity of off-type tubers, collected by Inspectors and growers at the time of bin-inspection as being probably due to spindle-tuber disease, were grown and both the plants and tuber from them studied. Very few of the plants from these showed spindle-tuber nor did the resulting tubers. It would seem, therefore, that most of the off-type tubers about which growers have been alarmed as indicating the presence of disease are due to physical or other causes.

Witches'-broom.

This is another disease supposed to be of a virus nature, characterized by the production of an excessive number of small spindly shoots, with small smooth leaves. Rather curiously, it is found in British Columbia chiefly in the most northerly potato-growing area—i.e., in the Canadian National Railway Belt. A plant grown on the experimental plots at Agassiz in 1926 had about 100 shoots and produced about 100 tubers, many above ground and none larger than a good-sized filbert nut. At planting-time most of these had dried up or rotted, but the six largest and soundest were planted. The plants from these were exceedingly small and weak, not reaching a height of more than 3 inches. They had died down completely by the end of August and produced no tubers. It seems likely, therefore, that this disease is to a certain extent self-limited by the dying-out of affected plants, although such plants may serve as infection centres if the proper vectors are present.

Mosaic.

A considerable number of lots of tubers from known mosaic plants of 1926 were planted. The season, however, was not favourable for the study of mosaic symptoms. Moreover, the yields even from healthy plants were much lower than last year, so that the project of collecting data on comparative yields from healthy plants and those with certain types of mosaic was abandoned. Material, however, was saved for 1928 testing.

Streak.

While "streak" has not been considered as a separate disease in the potato-seed certification standards, it has been the practice of the Inspectors to count "streak" plants in the mosaic virus group. In 1926 a number of potato-plants scattered through the certified-seed variety plots, which were showing leaf-streak on August 20th, but otherwise vigorous and healthy, were staked and the progeny saved. This material was planted out by hills in tuber units. In some cases every plant from a marked hill showed mosaic, often severe, while in all cases some plants showed mosaic. As the 1926 plants were not caged, the evidence is not absolutely conclusive, but as the "streak" plants developed in plots from certified seed and therefore contained only a small proportion of mosaic, it seems to justify the practice of counting "streak" plants as equivalent to mosaic in making field inspections.

Seed-disinfection.

The method generally adopted in British Columbia is the cold corrosive sublimate (mercury bichloride) method. This is effective, but slow, and at times causes considerable injury to the seed, and hence reduces the yield. In recent years much attention has been given, both in Europe and America, to the production of compounds of mercury with organic (coal-tar) derivatives which would be powerful disinfectants against fungi and bacteria, but without the strong corrosive action of mercuric chloride. In 1926 a number of these preparations, put out by the Dupont de Nemours Company, were tested, but the only one giving results in the control of *Rhizoctonia* (one of the chief troubles of the certified-seed grower) at all comparable with corrosive sublimate was Dust No. 37 Bel. This was again tested in 1927, together with Dusts Nos. 12 Bel, 21 Bel, and Semesan Bel. The soil on which the tests were made had not grown a crop of potatoes (except possibly on a small portion) for many years. The seed used (Netted Gem) was heavily affected with *Rhizoctonia sclerotia*, being tubers thrown out for this disease in grading a crop for certification. It was therefore of good vigour and free from virus disease. It was all from the same lot. The plots were arranged in three parallel series of twenty-five, each plot of twenty-five hills. Nine check-plots of clean untreated seed (from the same stock), nine of diseased untreated, and nine of diseased treated for one and a half hours with 1–1,000 cold corrosive sublimate were distributed through the test plots.

At the time of planting (June 16th–17th) the tubers were much sprouted but quite firm. The sprouts were rubbed off in all cases before treatment, or before planting in the case of untreated seed.

At harvest-time the plots were dug by hand and the yield from each plot washed free from soil before being examined for *Rhizoctonia*. They were then sorted into three grades—clean, lightly affected with *Rhizoctonia sclerotia*, and heavily affected. These three lots were weighed separately. Percentages in all cases are based upon weight of tubers, not on number. Tubers an inch or less in diameter were discarded.

The nine plots planted with clean untreated seed gave respectively 57.3, 43.8, 89.9, 35.2, 33.3, 53.6, 55.4, 51.1, and 78 per cent. of the tubers entirely free from *Rhizoctonia*. The low figure in some of these probably indicates where last year's potato land overlapped on the area of experiment, with resulting soil-infection. The average of nine plots is 55.3 per cent. clean. The nine plots of diseased untreated tubers gave respectively 48, 6.3, 74.5, 17, 26.5, 36.3, 12.8, 10.8, and 43.8 per cent. clean tubers, or an average of 30.7 per cent. The nine plots with standard corrosive sublimate treatment gave 87.9, 100, 100, 94.8, 90.6, 91.1, 79.7, 84.4, and 100 per cent. clean tubers, an average of 92.1 per cent.

Of the organic mercury compounds, three gave results scarcely better than from untreated seed, but No. 37 seems more promising. It was applied in several ways, each method in triplicate, one plot in each of the three parallel series, but differently placed. Used at the rate of 2 oz. per bushel, dusted on the tubers before cutting, the results were 96.8, 64.1, and 77.3 per cent. clean tubers, or an average of 79.4 per cent. Applied to the cut sets, after the cut surfaces had dried, at the rate of 3 oz. per bushel, the results were 70.2, 75, and 73 per cent. clean, an average of 72.7 per cent. The cut sets were also dipped in mixtures of the material with water at the rate of 1 part in 15, 20, and 40 by weight. The average results of these plots of each were 57.2, 35.9, and 31 per cent. clean tubers, a result giving a lower percentage of clean tubers as the strength of the dip was reduced, but none being nearly so good as the application of dry

dust. This, no doubt, was due to the smaller amount of the substance retained on the surface of the tubers, the method being to immerse the cut sets in the liquid, remove at once, drain and plant. The best average result of any treatment with Dust No. 37 was 79.4 per cent. control as compared with the 92.1 per cent. average of nine plots treated with corrosive sublimate. This in itself would certainly not indicate that the newer method would be likely to replace the older treatment, but to get a complete comparison it is necessary also to consider the effect of treatment on yield. It may be first noted that all yields were low, due to rather small sets, late planting, and unfavourable growing conditions. The plots of clean untreated seed had an average yield of 12¾ lb.; diseased untreated, 10⅓ lb.; corrosive sublimate, 9½ lb. (all average of nine plots). The three plots each of Dust No. 37, 2 oz. per bush before cutting, 3 oz. per bush after cutting, and 1–15 dip, gave an average yield respectively of 14½, 16½, and 15½ lb. Those plots which received the organic mercury treatment had in all cases a higher yield than the corrosive sublimate or diseased untreated plots, and also over the clean untreated. As compared with corrosive sublimate, the increase was from 50 to 70 per cent., a very striking difference.

The greater vigour of growth in the organic mercury plots was noticeable from the first and even the untreated plots did not catch up in 1927, although in 1926 towards the end of the growing season the untreated and organic mercury plots could no longer be distinguished. The plots treated with corrosive sublimate could be picked out at any time during the season, even by casual observers, by their retarded growth and numerous weakling plants.

Taking both *Rhizoctonia* control and yield into consideration, the Du Pont 37 Bel certainly gave better results than corrosive sublimate with sprouted sets under the conditions of the experiment last season.

(Full records of the results of these experiments are given in tabular form in the Appendix.)

The wet weather in late summer apparently favoured the appearance of the *Corticium* stage of *Rhizoctonia* and an attempt was made to correlate this with prevalence of *Rhizoctonia* on the tubers at harvest-time. An examination of each plant in one series of twenty-five plots (each of twenty-five plants) was made on September 2nd and the number of plants showing *Corticium* recorded. Comparing this with the results of tuber examination there is a certain degree of correlation. Every plot which yielded 70 per cent. or more of clean tubers showed no plants with *Corticium*.

Plots showing 13, 11, 9, 9, 9, 8 plants out of 25 with *Rhizoctonia* had only 19.4, 9.6, 37.7, 5.5, 25.8, and 22.5 per cent. of clean tubers.

TULIP-FIRE (Botrytis tulipæ).

Owing to the cold wet spring this disease was very severe on tulips. Even at the Vancouver Tulip-show it was difficult to find an exhibit that did not show the disease on the blooms. Among the measures that are valuable in reducing the extent of this disease are the rejection of diseased bulbs for planting, stripping off and destroying the outer scales before planting, and rotation. One exhibitor, whose blooms were exceptionally free from the disease, attributed much of his success to applications of lime to the soil before planting his bulbs.

GREENHOUSE DISEASES.

Considerable attention was given to diseases in greenhouse plants, especially tomatoes and cucumbers. Root-rot was perhaps the trouble about which inquiries were most commonly made. In some cases this was apparently due to too heavy dressings of insufficiently rotted manure, or excessive watering, whilst in other cases the predisposing factors were more obscure. Steam sterilization has helped in preventing this trouble where it could be carried out, but it is expensive. It is proposed to test out soil-treatment with some of the recently introduced organic mercury compounds for these troubles next season. A case of *Sclerotinia sclerotiorum* attacking cucumber-vines high up above the ground-level without much collar-rot being present was noticed.

SCLEROTINIA STEM-ROT OF ARTICHOKES.

In previous years a stem-rot and wilt of sunflowers due to *Sclerotinia sclerotiorum* (Lib.) Mass.=S. libertiana Fcl. has been recorded from various sections of the Province, though never causing serious loss. What is evidently the same disease occurring in the Jerusalem artichoke was brought to my attention by Mr. Munro, of the Field Crop Branch. The disease was noticed

at Victoria and Nanaimo, although not causing any appreciable loss. With a more extensive use of artichokes as a field crop, however, it is possible that the disease might become destructive. In the New Zealand *Journal of Agriculture* for 1927 is an account of serious injury caused by this disease on artichokes in New Zealand. Control measures recommended in the *Journal* are the abandonment of fields already infected, which should be put under grass for at least two years; use of disease-free tubers for new plantings, seed-disinfection having given negative results; while the pink varieties seem highly resistant to the disease.

APPLE-SCAB.

The continued wet weather when the apple-crop was maturing, and at picking-time, resulted in serious loss from apple-scab, especially in the Kootenays. In many cases McIntosh and other susceptible varieties became heavily infected around picking-time, but the disease did not become noticeable until later, after the fruit had been packed. This in some cases necessitated the repacking of the entire crop, with much resultant loss and wastage of labour. In some cases such fruit showed 200 to 300 pin-head spots of scab. The appearance of such fruit was so unusual that some growers maintained it was not scab at all but a form of mildew. It would have been necessary to apply sprays much later than usually given, and perhaps even up to two or three weeks before picking, to prevent loss under such conditions. In view of the fact that no similar situation has arisen during the past twelve years, it is doubtful whether late sprayings as a regular orchard practice would be profitable over a series of years.

Respectfully submitted.

J. W. EASTHAM,
Provincial Plant Pathologist.

REPORT OF ASSISTANT ENTOMOLOGIST, VERNON.

M. H. RUHMANN, B.A.

Dr. D. Warnock, O.B.E.,
Deputy Minister, Department of Agriculture, Victoria, B.C.

SIR,—I have the honour to submit herewith my annual report for the year 1927.

The Entomological staff during the past year consisted of: Max H. Ruhmann, Assistant Entomologist in Charge; Miss C. M. Bigland, Junior Laboratory Assistant.

CODLING-MOTH (CYDIA POMONELLA L.).

Since the cessation of Government quarantine measures against the spread of the codling-moth the growers appear to be taking a greater interest in regard to the identification of the worm. This is demonstrated by the fact that nearly 200 wormy apples were submitted by growers for identification of the cause of injury; in none of these cases was codling-moth injury found. Four specimens of codling-moth worms were submitted, however, for identification by Department officials, one being from Willow Point, Nelson, one from Keremeos, and two from Peachland. These are three districts not previously infested. A difficulty has arisen in the Vernon District due to the importation of cull apples for processing from infested areas; it is hoped that arrangements may be made to minimize the risk of infestation from such shipments in future.

ONION-MAGGOT (HYLEMYIA ANTIQUA).

The Okanagan onion-crop suffered severely from the attacks of this fly. In one section greater injury was caused by wireworms than by the onion-maggot. Injury was also caused by rains at harvest-time which prevented the proper curing of the bulb.

The use of bichloride of mercury for the control of the onion-maggot is not as generally used as it should be. This is the most satisfactory method of control which we can at present recommend for the Interior of British Columbia and is giving very satisfactory results where it is properly applied. The bichloride of mercury solution was used this year for the first time

on onion-sets and promises good control when thorough applications are made at the proper time. Several growers used the bichloride treatment for the onion-maggot for the first time this year and report excellent results.

WIREWORMS (ELATORIDÆ).

Wireworms have become a serious problem on the truck lands of the Okanagan, and in view of the fact that tobacco-growing is likely to become an important factor in this valley, considerable attention was given to the control of this pest. A great deal of investigational and experimental work has been, and is being, done on the control of wireworms both in the United States of America and Canada. The results so far do not warrant any very satisfactory general recommendations for control. Under laboratory conditions wireworms have proven to be very resistant to poisons. In the year 1917 it was observed that Japanese onion-growers in the Kelowna District were using roasted rice shorts or rice-bran baits for trapping wireworms, apparently obtaining some success. The late R. C. Treherne, of the Dominion Entomological Laboratory at Vernon, supervised some tests with these baits during 1918. The results appeared to be quite satisfactory and were published in the *Agricultural Gazette*, Vol. 6, June, 1919; this article was reprinted separately for general distribution. Although this method has been generally advised to growers the method has not come into use. Owing to the seriousness of the wireworm situation it was decided to make further tests of these baits. Two fields were selected at Kelowna which were known to be heavily infested and tests were conducted on these.

As neither rice shorts nor rice-bran was obtainable in the valley, a sack of rice shorts was obtained from the Imperial Milling Company, of Vancouver, and about 20 lb. of this material was roasted. This and about 10 lb. of unroasted shorts were taken to Kelowna on May 11th. The baits were prepared on the field in which they were planted. This field had been seeded to onions and at this time was showing a fair stand. A block of onions was selected which had been most severely affected the previous year. The rows in this block were 160 feet long; eight rows of bait were planted, the baits being placed 10 feet apart and spaced—one row of bait to each three rows of onions. The rice shorts were divided in eight approximately equal portions and prepared as follows, per row:—

(1.) Shorts, unroasted.
(2.) Shorts, unroasted, plus amyl acetate.
(3.) Shorts, roasted.
(4.) Shorts, roasted, plus amyl acetate.
(5.) Shorts, roasted, plus sodium fluoride.
(6.) Shorts, roasted, plus amyl acetate and sodium fluoride.
(7.) Shorts, roasted, plus paradichlorobenzine.
(8.) Shorts, roasted, plus paradichlorobenzine and amyl acetate.

The ingredients were thoroughly mixed with the dry shorts, then moistened with sufficient water to make a firm dough. Each lot of dough was divided into sixteen balls about the size of small oranges and planted about 6 inches deep, using a marked wire for spacing, the same wire being used when the baits were taken up for examination, thereby avoiding the use of stakes or other markers which might interfere with cultivation. The baits were examined on May 21st and 24th, with the results of worm-captures as follows:—

Row No.	Bait No.																Total.
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	
1	11	24	20	9	19	26	78	58	50	38	48	49	14	34	10	16	504
2	26	12	27	30	49	58	93	121	73	59	47	35	50	54	57	23	814
3	28	26	9	16	18	27	25	64	73	74	66	36	17	35	44	57	615
4	19	19	12	22	30	19	93	120	138	83	50	40	29	30	29	41	774
5	1	0	2	5	0	8	6	12	10	5	9	5	8	2	1	4	78
6	1	0	0	5	0	1	5	13	11	1	4	1	0	3	0	3	48
7	18	5	2	5	1	23	50	21	34	17	38	32	8	21	4	38	317
8	31	25	12	13	16	32	44	34	34	61	45	40	26	1	0	18	432

Wireworms captured, 3,582.

Averages—

Row No.	Bait.	Average.
1.	Shorts, unroasted	31.5
2.	Shorts, unroasted, plus amyl acetate	50.9
3.	Shorts, roasted	38.4
4.	Shorts, roasted, plus amyl acetate	48.4
5.	Shorts, roasted, plus sodium fluoride	4.9
6.	Shorts roasted, plus sodium fluoride and amyl acetate	3.0
7.	Shorts, roasted, plus paradichlorobenzine	19.8
8.	Shorts, roasted, plus paradichlorobenzine and amyl acetate	27.0
	Total average	28.0

On May 21st the baits in Rows 1, 2, and 3 were taken up, the wireworms removed from them and counted; the baits were then replaced as recommended in Mr. Treherne's paper. This process was found to be very slow and it was decided to return and replace the remaining baits with fresh material; this was done on May 24th. Removing the old baits and replacing with fresh could be accomplished quite rapidly. For the purpose of making the count of captures, each of the old baits was separately wrapped in paper and numbered and the counts made in the laboratory.

On this day the second field, which had just been planted to tomatoes, was baited. Ten rows of baits were planted, using nine baits to each row. Unroasted rice shorts were used, made into a stiff dough with water; no further addition was made to these baits. A bait was planted between the third and fourth, sixth and seventh, tenth and eleventh, etc., tomato-plants in each row, using the same direction as cultivation was to be done, so that deep cultivation would not interfere with the baits. Due to my absence from this district after this date examination of these baits was not made until June 17th; on this date all baits were removed from both fields.

Field 1 (Onion-field).—Cultivation and irrigation had been discontinued on account of crop-failure due to wireworm-injury; consequently all the baits had dried up, and although showing considerable evidence of wireworm-attack, none remained in the baits and all had retreated to more moist soil conditions.

Field 2 (Tomato-field).—This field was in excellent cultural conditions; no difficulty was experienced in digging up the baits, although no stakes were used to locate position of baits. The counts of captures with these baits were as follows:—

Row No.	Bait No.									Total.
	1.	2.	3.	4.	5.	6.	7.	8.	9.	
1	9	16	61	56	49	74	9	81	37	392
2	7	21	23	93	27	61	13	54	65	364
3	19	11	11	64	11	83	46	11	32	288
4	11	4	9	103	18	17	41	18	29	250
5	47	9	3	247	64	35	67	26	17	515
6	94	48	27	79	92	94	38	32	52	556
7	79	67	32	163	75	59	29	7	21	532
8	48	101	63	52	84	72	43	16	98	577
9	67	82	41	17	178	43	72	9	64	573
10	34	42	14	9	93	27	93	23	33	456

Total wireworms (90 baits), 4,503; average per bait, 50 wireworms.

Observations on Bait-control of Wireworms.

Field 1 (Onions).—The roasting of rice bran or shorts is a tedious process unless special facilities are available for this purpose.

The difference in captures made with rice shorts roasted and rice shorts unroasted is not sufficient to warrant the time and expense of roasting.

The addition of a small quantity of amyl acetate to the bait (1 fluid oz. to 20 lb. of shorts) appears to be a good attractant.

Sodium fluoride used as a poison (1 oz. to 20 lb. of shorts) was a decided deterrent even with the addition of amyl acetate.

Paradichlorobenzine was also a decided deterrent even with the addition of amyl acetate.

All wireworms found in baits to which sodium fluoride or paradichlorobenzine had been added appeared to be in normal healthy condition.

Baits examined ten days after planting were in a heated condition due to fermentation. Such baits were found to be considerably enlarged by the addition on the outside of the bait of moist earth in proportion to the number of wireworms attacking the bait. Trapped wireworms were found mostly in the moist soil immediately surrounding the baits, a few were partially embodied in the baits, and occasionally a few were found entirely embedded. Many wireworms were also found in the soil in the immediate vicinity of the baits.

Baits examined and replaced after the removal of trapped wireworms showed but slight evidence of further attack by wireworms as against fresh baits.

Onions in the baited area appeared to be as severely injured by wireworms as those in the unbaited area.

Field 2 (Tomatoes).—Baits were examined on the twenty-fourth day after planting; all fermentation had ceased and mould had developed on the outside of the baits. The moisture condition of the baits was excellent, due to the good cultural conditions maintained. The majority of the wireworms trapped with these baits were entirely embedded in them. Tomato-plants at the time of collecting the baits gave no visible appearance of any difference in condition between the baited and non-baited areas which might be attributed to wireworm-attack or protection therefrom.

Recommendations.

Owing to the urgent demand for information regarding satisfactory control of wireworms it has been deemed advisable to include tentative recommendations for use on truck lands in the recently revised edition of British Columbia Department of Agriculture Bulletin 68, "Diseases and Pests of Cultivated Plants." The recommendations are based on the results of the preliminary tests above described. The cost of material is comparatively small—$1 per 100 lb. at Vancouver; the labour entailed in preparing, planting, and lifting baits is not great.

Thorough commercial tests will be made to ascertain the amount of material required and actual cost of application. Other materials will also be tested. No satisfactory recommendations can be given for treatment of other than small truck areas. On no account should a bulb or tuberous-rooted crop be grown on land that is to be baited, as such crops are in themselves very attractive to wireworms. Such crops as cabbages, tomatoes, cucumbers, or similarly spaced crops can be satisfactorily grown while baiting. It is probable that tobacco might be satisfactorily grown on wireworm land which is thoroughly baited.

CRICKET (Anabrus simplex).

Early in the spring there was considerable evidence of the possibility of a serious outbreak of this cricket over the same areas as were affected during the summer of 1926. Many of the growers in this area did not seed their crops on this account. Due to cold and wet weather during the greater part of the spring and summer the crickets failed to mature and were practically eliminated from the affected area.

WOOLLY APHIS OF THE APPLE (Schizoneura lanigera).

This aphis was again much in evidence and is a serious problem in affected orchards.

LESSER APPLE-WORM (Enarmonia prunivora).

Several orchards were considerably affected by this insect, resulting in loss of fruit.

LEAF-ROLLERS (Archips rosaceana and Archips argyrospila).

These insects gave little trouble this year. *Archips argyrospila* is no longer a serious menace, due to the efficiency of our oil sprays in its control.

BLISTER-MITE (Eriophyes pyri).

Infestations of the blister-mite were quite general; in some instances quite severe. Efficient control methods are available; their application not difficult.

GENERAL PEST CONDITIONS.

Minor pests gave little trouble during 1927. Growers fully realize the importance of spraying for pest-control and little urging is needed. The problem at the present day is more a financial matter. Spraying is a costly matter when the probabilities are that the crop returns will not meet cost of production, as has been the case for a number of years.

The improved conditions in the crop marketing this year will be quite an encouragement to growers and will revive a thorough interest in efficient orchard-work.

A combined entomological exhibit was displayed by the Dominion and Provincial Branches at the New Westminster Exhibition for the first time. This exhibit appeared to be greatly appreciated and the attendants were kept busy answering inquiries regarding pest-control and explaining the various items in the exhibit. A section of this exhibit was later shown at the Salmon Arm Fair.

Respectfully submitted.

MAX H. RUHMANN,
Assistant Entomologist in Charge.

REPORT OF MARKETS COMMISSIONER, CALGARY.

J. A. GRANT.

Dr. D. Warnock, O.B.E.,
Deputy Minister, Department of Agriculture, Victoria, B.C.

SIR,—I beg to submit my report for the year 1927.

In presenting a report of the Markets Branch for the season of 1927, your Markets Commissioner finds that to diverge a little from the activities of his office and review the conditions surrounding the growers and shippers, and incidentally the brokers and jobbers, would furnish a better record of events that have had an unusual bearing upon the problems of marketing.

The introduction of orderly marketing under a Committee of Direction furnished an innovation which differed from the usual seasonal differences, some over which we had no control and some we could control, but through the "human element" upsetting so-called "gentlemen's agreements" we failed to do so.

The marketing season of 1927 was affected by a shortage of supply in stone-fruits, due to frosts in all districts that usually supply the Prairie markets. It was also hampered by adverse weather conditions during the marketing season of berries, cherries, cantaloupes, apples, and onions. In the berries, cherries, and cantaloupes it affected their shipping condition, causing moulds and cracks in transit. In the apples and onions it caused break-down through excessive moisture previous to and at the time of harvesting. This superabundance of moisture affected the Prairie roads and retarded distribution, also retarded Prairie farmers in harvesting a bumper crop.

Commenting upon the Committee of Direction, it has been said that their task was easy because the fruit-crops were light. So far as stone-fruits are concerned, this statement is correct. It should be borne in mind that British Columbia does not grow sufficient stone-fruits to take care of the Prairie needs, and this is especially true of peaches, where only one-sixth of the Prairie needs are grown in British Columbia. It should also be borne in mind that the apple-crop, although slightly below normal, produced over 4,000 cars, and that the Prairies and home markets have so far only consumed about 2,750 cars, leaving the balance for Eastern Canadian and export markets. In other words, the shortage of the apple-crop did not affect the Prairie market as they were supplied to their fullest buying capacity, which this year has been in excess of any previous year. As an offset to physical conditions the Prairie buying-power was excellent and the outlook for 1928 is very bright.

Your Markets Commissioner visits all the Prairie cities regularly and is impressed with evidence of prosperity on all hands. Several good crops harvested by Prairie farmers and the development of the natural resources are adding materially to the wealth of the Provinces. The population is increasing and great building activity is noticeable in every Prairie town. We also

notice marked changes in marketing conditions at the distributing end, chiefly due to motor transit to districts surrounding cities and to the growth of chain stores, with large buying-power, who are demanding recognition as wholesale buyers. Also that the jobbing trade are organizing to buy at shipping-point in an effort to offset brokerage charges.

WHAT THE MARKET NEEDS.

By reference to previous annual reports a full review will be found in this respect. Conditions have not changed, excepting perhaps that owing to a heavy planting of apricots in the Oliver District. Further planting of apricots should be discouraged for that district and the encouragement of greater acreage of Winesap apples and peaches of the varieties formerly recommended by our Horticultural Branch.

MARKETS BULLETIN.

The Markets Bulletin has been enlarged, and from lists of new names forwarded by the Brititsh Columbia Fruit-growers' Association the circulation for 1928 will near the 4,500 mark. It is sent to all members of the British Columbia Fruit-growers' Association, to all jobbers of fruit on the Prairies, and to buyers of British Columbia fruit in Eastern Canada, the United States, and the British Isles. During the season of 1927 f.o.b. shipping-point prices in British Columbia were omitted, as the Committee of Direction issued these prices and they were copied and published in the daily and weekly press in all fruit-growing districts in British Columbia. Last season the first Bulletin was published on June 18th and the last on November 12th.

VISITS TO OTTAWA.

Your Markets Commissioner attended two meetings of the Canadian Horticultural Council at Ottawa. On the first visit the matter of national advertising was discussed. It was decided to apply for $20,000, part of $100,000 voted to Department of Trade and Commerce for overseas advertising. This is conditional that a like amount be contributed by the industries making application to take advantage of this vote. They decided that all export fruit must be inspected. A recommendation was passed to spend $40,000 per year for five years on domestic advertising, if it is found possible to interest the Department of Agriculture to the extent of fifty-fifty in fruit-producing Provinces, the trade and the growers to contribute the other half. The matter of taking over the Mutual Brokers under supervision of the Canadian Horticultural Council was also discussed, and so also was the "Sales on Consignment Act." In the second matter it was found that the Mutual Brokers did not contemplate selling out to the Canadian Horticultural Council, and as no other condition of supervision appealed to the Board the subject was dropped. In the matter of the "Sales on Consignment Act," a sharp difference of opinion was found to exist between the jobbers and the shippers or growers' representatives. After full discussion an amendment was drafted embodying all the salient features of the Act as drawn up by Lewis Duncan and removing from it what jobbers thought were unworkable features. This amendment was accepted by the Executive of the Canadian Horticultural Council and will be recommended by them to the Legislatures in the three Prairie Provinces and Ontario. It is possible, also, that the Attorney-General of British Columbia may be approached with a view of amending the British Columbia Act to conform with the other Provinces, providing they accept the amendment.

On the second visit the Canadian Horticultural Council placed their case for seasonal tariff before the Tariff Commission Board. Mr. Black, Chairman of the Committee of Direction, filed a statement with the Board of the first year's operation of his committee. Your Markets Commissioner pointed out to the Board that when the tariff was revised, over forty years ago, some fruits and vegetables, such as asparagus and apricots, were not grown commercially in Canada. Apparently for that reason they were placed for duty at a very low rate. As these fruits and vegetables are now grown on a commercial scale, the Board was requested to recommend that these commodities receive equal protection as is offered other similar fruits and vegetables.

BERRY SITUATION.

There was very little demand for canning and jam berries in the early part of 1927. Growers found difficulty in placing their surplus that is usually grown for jam at low prices. The reason for the lack of demand was the heavy carry-over of the 1926 pack. Seattle reported enough

DEPARTMENT OF AGRICULTURE EXHIBIT AT T. EATON COMPANY'S SOIL PRODUCTS EXHIBITION AT WINNIPEG, FEBRUARY, 1928.

frozen raspberries on hand in April to take care of the normal 1927 demand, without taking any of the 1927 crop, and in British Columbia the amount of frozen raspberries in the hands of growers' organizations and canners was about sufficient to do them without reference to their 1927 crop. For this reason growers were practically without jam contracts at the opening of the season.

Weather during the season was wet and many cars of soft, wet berries had to be rolled to Prairie points and played havoc with the market there, especially in creating a feeling in the minds of jobbers that British Columbia had no good berries. Just as the weather settled jam-manufacturers were getting orders from Ontario and bought up several cars for freezing. Good weather helped the market for about a week, and later it got bad again, leaving the market in a demoralized state at the finish. The demand from Eastern manufacturers continued until all the strawberries and raspberries in both Washington and British Columbia were cleaned up.

For several years L.C.L. shippers of berries on consignment to concerns that had a doubtful financial standing was the means of transferring the price-setting factor to these commission-houses. Their supplies were usually secured by attractive advertisements just before shipping season. The jobbers who purchased their supplies through organized channels of trade at a price set for the day by market conditions were compelled to take heavy losses because of the consignment merchants offering same quality goods for sale at about 25 cents per crate less than their buying-price.

We pointed out this condition from time to time in the Bulletin, and pointed out that it was the Japanese shippers on the Lower Mainland who were the chief offenders. Several Japanese organizations who were not guilty complained that they were being blamed for something that only a few of their countrymen were guilty of, and requested my services in a campaign of education and organization. In complying with their request, I was ably assisted by the Japanese managers of organizations, also the Canadian Japanese Association. The result of many meetings held, where my remarks were interpreted, was the organization of the Japanese into a consolidated body during the strawberry-marketing of 1927. This organization functioned so well that the L.C.L. shipments were almost entirely handled by the jobbing trade through brokers, and in spite of poor quality of berries, due to wet weather, good prices were realized.

This position was not possible in the raspberry deal, as in their marketing the L.C.L. uncontrolled shipments controlled the price. Added to this, mouldy and wet berries that had no other outlet at shipping-point were forwarded to Prairie cities, making the raspberry deal a very unprofitable one. The result of the failure in raspberry-marketing and the success of the strawberry deal has been to arouse raspberry-growers, who are now making an almost united demand to come under the provision of the "Marketing Act."

The following are the complete shipments of berries forwarded from British Columbia to Prairie points in car-lots for the year 1927:—

Strawberries.—Victoria, 49; Wynndel, 18; Haney, 14; Salmon Arm, 3; total, 84.

Raspberries.—Lower Fraser Valley, 64; Salmon Arm, 6; total, 70.

Late in the year a visit was made to the Eastern canners and much valuable information as to their future needs was gathered. This information will be of considerable assistance to the berry-growers in British Columbia who had only the canning and jam-manufacturers and fresh-fruit-market demand, while in Washington the growers had recourse to cold pack and freezing in barrels, and for this reason their loss in distant shipments was very little. It appears at time of writing as though British Columbia growers would put up about 500 tons out of an approximate crop of 4,000 tons. The berries will be processed either in cold pack, two plus one, or in frozen state.

FORMATION OF COMMITTEE OF DIRECTION.

Towards the close of marketing the 1926 bumper crop of fruit grown in the Interior of British Columbia it became evident to both independent and co-operative shipper that an orderly approach to all markets was essential to securing the limit of distribution and a fair price. Negotiations were conducted to form a federated Board of both interests with this end in view, and by the time the British Columbia Fruit-growers' Association held their annual meeting this plan was well under way. When it became apparent that the marketing problems

would constitute the chief discussion at their annual meeting, the Executive of the British Columbia Fruit-growers' Association decided to hold it in Kelowna instead of in Nelson, as originally intended.

The annual meeting held in January, 1927, at Kelowna almost unanimously decided for orderly control, also that the growers' rights should be more protected than was shown by the plans submitted to the convention by the shipping organizations. Committees were named to present the matter to the Legislative Assembly, and for some time these committees held the attention of the Agricultural Committee of the House. Finally a Bill was drafted and passed and a Committee of Direction was appointed, one member named by the Associated Growers, one by the independent shippers, and the chairman was appointed by the Minister of Agriculture. This committee immediately got down to business and their first work fell to marketing the cherry-crop. It was evident to the jobbers that orderly marketing under control would have a decided effect upon regulating the market supply, and prices realized for cherries proved satisfactory to both jobbers and shippers. The office of the Markets Commissioner in Calgary was made full use of by the Board as a means to secure the angle of the jobbers and the conditions prevailing on each market.

It was in marketing the cucumbers and tomato-crop that the real test of control was first made under an oversupply. The results were surprisingly satisfactory and the confidence given to jobbers by the control of the Board was the greatest stimulant to distribution. Prices were low and supplies moved into consumption at a fast pace. The actual outcome was improved pack of tomatoes and satisfactory returns all round, better in many cases on the average than returns obtained in years of undersupply.

If the cucumber trade is to be held the quality and grade must be greatly improved. While the tomato grade and quality has in general been good, thanks to the Dominion standard set in the "Fruit and Vegetable Act," we cannot say a good word on the grade of cucumbers that are being shipped. There is not 25 per cent. of the cucumbers arriving on the Prairies that have been selected to conform with the grade they are shipped under. Gherkins and dills are especially faulty. We would recommend that instead of shipping so many ungraded cucumbers, especially in a year of heavy production, grades be established for slicers, picklers, and dills as recommended in Bulletins Nos. 12 and 13. Freight costs are too heavy to ship indifferent stuff to distant markets.

This office furnished the committee with reports on violations and registered complaints made by jobbers on offenders against their ruling, with the result that quick corrective action followed in many cases. Many mistakes were made that can be remedied by the light of experience. The power of the orderly control lies in giving confidence to buyers with the assurance that the markets will not be swamped with supplies at one date and starved soon after, also that jobbers are assured of stability of quotations.

The removal of the uncontrolled consignment factor has done more to stimulate a healthy distribution than any other factor. The substitution of an order that must be obeyed, for a "gentleman's agreement," effaced the "human element," and while orderly marketing is still in its infancy, it appears to meet most of the difficulties in placing perishable products profitably.

Marketing of the apple-crop brought out the advantage of orderly marketing to its fullest extent. The assurance was given that Duchess apples would clean up before the Wealthy apples rolled and that prices on Duchess would be sufficiently low to ensure a healthy movement, and that each succeeding standard variety would be allowed a given time to clean up before an overlapping variety rolled. The jobbers were very complimentary to the Committee of Direction because of the efficient way they withheld the McIntosh Red apple until the Wealthys had cleaned up. Their action in so doing gave the trade a well-coloured, mature McIntosh at a price that met with the jobbers' approval. This was well proven by the scramble that took place amongst jobbers in placing orders for McIntosh apples, as nearly all the Grade C offered for Prairie consumption were booked up during the first week of the offering. On the whole, the work of the Committee of Direction was satisfactory and resulted in returns to growers that justified their representatives at the 1928 annual meeting of the British Columbia Fruit-growers' Association in almost unanimous endorsement. The work of control is likely to spread under the present committee's jurisdiction as well as to the berry-growers and hothouse industry under other Committees of Direction.

The following are the total shipments of fruit and vegetables shipped from British Columbia for the year 1927, with 796,250 to be added to the apple total for storage and exported apples:—

Commodity.	B.C.	Alberta.	Sask.	Manitoba.	Ontario.	Eastern Canada.	Total.
	Boxes.	Boxes.	Boxes.	Boxes.	Boxes.	Boxes.	Boxes.
Apples	264,971	550,992	693,077	335,175	177,994	108,250	2,150,459
Pears	11,118	35,765	35,143	17,615	152	3,350	103,143
Apricots	8,159	12,513	10,307	7,071	50	.....	38,100
Cantaloupes	10,716	4,465	2,120	1,863	1,335	.....	20,499
Cherries	7,917	17,470	12,490	3,460	22	.....	41,359
Peaches	13,136	33,288	34,129	9,450	1,296	.....	91,299
Crab-apples	4,401	38,103	57,709	9,086	17,541	652	127,465
Plums	5,200	21,038	18,536	5,010	25	.....	49,809
Prunes	5,613	74,214	72,084	14,049	3,900	.....	169,860
Cucumbers	3,590	94,837	55,586	2,562	.....	.....	156,575
Tomatoes, green	382	19,478	14,303	239	.....	.....	34,402
Tomatoes, ripe	23,771	107,643	77,677	12,657	.....	.....	221,748
Sundry boxed vegetables	2,216	9,568	8,224	732	.....	.....	20,740
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Beets	13	21	9	.....	.....	.....	43
Carrots	29	64	35	6	.....	.....	134
Cabbage	44	178	226	12	.....	.....	460
Celery	46	265	272	262	.....	.....	845
Onions	1,498	2,268	2,404	1,060	135	.....	7,365
Potatoes	6,763	1,627	497	98	7	.....	8,992
Sundry sacks vegetables	102	107	60	.....	.....	.....	269

POTATOES.

This year the three Prairie Provinces harvested a record crop of potatoes. Alberta, the greatest potato-producer, had a bumper crop and was successful in harvesting most of it in good condition. British Columbia formerly supplied a greater portion of the Prairie cities' needs than it does at present. The wet, soggy specimens that gave the home-grown potatoes a bad reputation have been overcome to a great extent by selection of suitable varieties, and the future outlook for a market for the British Columbia surplus on the Prairies is very poor. Excepting for a supply of Canada A Drybelt potatoes and early potatoes, there will be a very small demand. Exception can be made to a year when severe frosts early in harvest may destroy the Prairie crops, and this will happen from time to time.

Our potato-growers would be well advised to produce for a more stable demand; usually Prairie potatoes are quoted at about $10 per ton less than British Columbia quotations, and this sum represents the freight charge from many British Columbia points to Alberta.

The new potato market demand is large. The first supply comes from Texas. There was an embargo on California-grown potatoes coming into other Western States and Canada. This embargo has been lifted to produce that has undergone the required fumigation test, and it is possible that California-grown potatoes may be seen on Prairie markets in the near future.

New potatoes are quoted at high prices, due to the high freight rates and the usual duty. Early points in British Columbia, such as Vancouver Island and Lower Mainland and districts south of Penticton, can supply the Prairies at least a month before any Prairie-grown potatoes reach the market. The price of new potatoes, when the first British Columbia grown are offered here, is usually 7 to 8 cents per pound and the demand is heavy at that price. The new potato shipping from British Columbia is badly managed, and within a week of the first shipments arriving on the Prairies, quotations are usually as low for new potatoes as the average price for the potatoes when they are fully matured. Orderly marketing, if applied to new potatoes, would bring growers of new potatoes prices that would encourage them instead of the unprofitable returns now received by shippers.

TRANSPORTATION.

Several concessions were made during the year 1927 by the express companies. These concessions were chiefly given to the berry-growers, although cherries and other fruits benefited by them. The switching-charges were removed at Vancouver, making a considerable saving to

the Victoria growers; and routing privileges were extended, so that berries originating on the main line could get the same routing as those originating at Vancouver. The express rates on car-lots were quoted from Victoria for the first time; formerly, Victoria shippers had to bill by freight to Vancouver and express from Vancouver to destination. Another valuable concession was that of quoting a $2.81 rate to Canadian National points on the Prairies, replacing the old prohibitive rate of $3.50. At $2.81 it was found possible to ship to northern towns formerly unsupplied and created an extra demand for several cars of berries. Several points were added to the flat rate of $2.40 that formerly cost $2.70 to reach, and early in 1928 the express companies have decided to eliminate switching-charges at shipping-point on all car-lots of berries.

We feel that these concessions will make for a greater distribution and greatly encourage the shipping organizations who ship in car-lots, as before these concessions were made the L.C.L. shippers could ship to Calgary cheaper by the crate than in car-lots.

Respectfully submitted.

J. A. Grant,
Markets Commissioner.

REPORT OF LIVE STOCK COMMISSIONER, VICTORIA.

Dr. A. G. Knight, V.S.

Dr. D. Warnock, O.B.E.,
Deputy Minister, Department of Agriculture, Victoria, B.C.

Sir,—I beg to submit herewith the annual report of the Live Stock Branch for the year ended December 31st, 1927.

Conditions affecting the live-stock industry have, as a whole, been favourable to the stockmen. The live stock, including both beef and dairy cattle, came through the winter of 1926–27 in fair condition. The opening of spring weather was early and was followed by frequent rains, which promoted good growth of forage-plants and grass, producing an abundance of feed for the grazing season. The extra fall of rain somewhat handicapped the farmers in cutting and curing their hay and grain crops, but on the whole there was not a heavy loss, although the quality was somewhat impaired. The yields of hay and grain were well up to the average, roots and silage-crops being well above the usual run throughout the Province.

A noticeable feature in connection with our dairy sections was the acreage put to soil and crops to enable the dairymen to carry a greater number of stock per acre and to provide extra succulent feed during the dry period when pastures are low—peas, oats, vetch, and early corn being the main crops for such purposes. Artichokes are being tried out in a small way, but to date have not proved to any advantage over the standard type of grains for silage purposes.

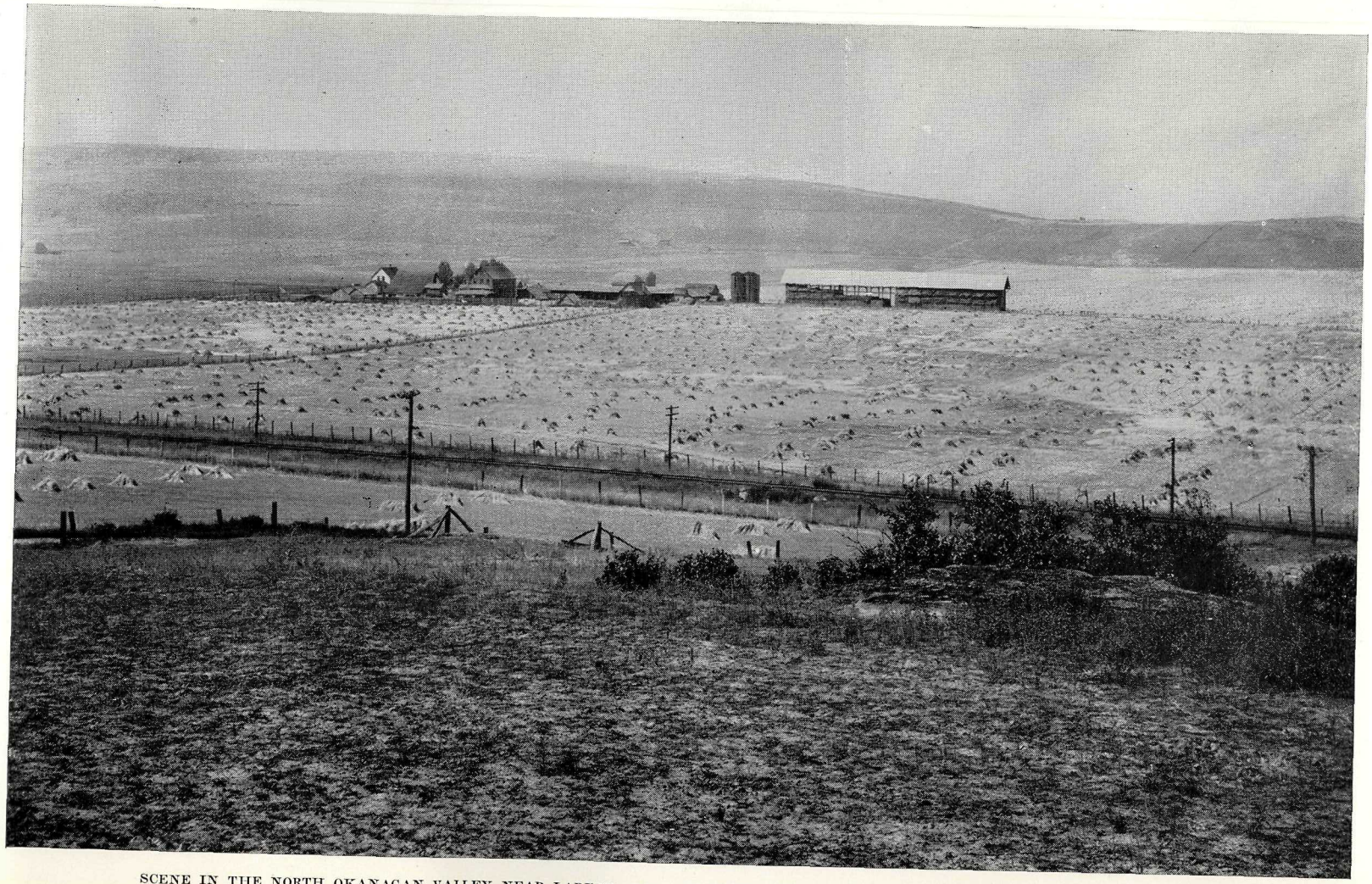
The winter of 1927–28 set in early. This, with the severe weather at times, necessitated the heavy feeding of stock, with the probability that little surplus feed will be carried over.

HORSES.

There has been little change in the horse situation. Some little movement has taken place in the markets in our Coast cities, in that there were some shipments from the Interior to points on the Coast, the market absorbing horses from 1,200 to 1,700 lb. in weight. Prices ranged from $300 to $400 per team of the lighter weights, well broken; $800 being paid for heavier horses or horses from 1,700 lb. and up, per pair.

Attempts were made to organize districts into clubs for breeding purposes under the Dominion Government scheme, but it was found impossible to obtain a stallion of sufficient weight and quality for club purposes. Parties in the Lower Fraser Valley have recently placed an order in Scotland for a Clydesdale stallion. The services of this stallion will be available to farmers interested in horse-breeding.

Some little time was taken up in assisting the purchase of horses by representatives of the Russian Government. Owing to the standard and specifications set by the Russian delegation, only a small percentage of the horses rounded up were purchased. Also the prices offered proved a handicap in getting the owners of horses to round them up. Some 300 horses were purchased at an average price of around $19 per head.



SCENE IN THE NORTH OKANAGAN VALLEY NEAR LARKIN, B.C. AN INCREASING QUANTITY OF GRAIN OF HIGH QUALITY IS BEING HARVESTED EACH YEAR IN THIS PART OF THE INTERIOR OF THE PROVINCE.

Considerable movement of horses from the Prairie Provinces to Ontario, Quebec, and the Maritime Provinces is in process, and although British Columbia does not contribute horses to these shipments, indirectly it influences and stabilizes our local markets.

There is a slight increase in our horse population. In 1926 the returns gave 61,158 horses, and in 1927, 62,114, made up as follows: Stallions, 2 years old and over, 728; mares, 2 years old and over, 26,808; geldings, 2 years old and over, 27,879; and colts and fillies under 2 years, 6,689.

The lowering of the type and quality of horses on our ranges is due to the influence of scrub stallions running at large. Owing to the nature of the country it is a difficult matter to do away with this evil. Local stock associations situated throughout the Interior could materially assist in the elimination of these stallions by obtaining a licence under the provisions of section 18 of the "Animals Act, 1924," which permits the shooting of unbranded stallions running on Crown and public ranges.

The curtailment of breeding operations on the Coast is now being felt, as the supply does not equal the demand, making it necessary to purchase horses in the Interior for both farm and city use; this phase of the industry following the Eastern Provinces. Where formerly the farmers in the older districts of the Province produced horses for export and city trade, they are to-day importing horses from the Prairie Provinces. The breeding of heavy horses of good quality and weight would prove one of the most profitable branches of the live-stock industry, but the quality and weight can only be secured by using suitable foundation stock.

BEEF CATTLE.

We have in the Province to-day approximately 219,000 head of beef cattle, made up largely of Hereford, Shorthorn, and Aberdeen Angus grades. Beef prices took a substantial rise of around 3 cents per pound over 1926 prices. This has materially stimulated interest in beef cattle. There is a tendency of the consuming public for a higher grade of beef, which will necessitate better-finished animals. This will react favourably to the pure-bred business, because producers of beef cattle are convinced that the better the breeding the greater the profit.

The future prospects for the cattlemen look bright. After several years of low prices and discouraging markets they are looking ahead with an optimism that means well for the industry. There may be a tendency for some to cash in on some of their breeding stock while prices are high, to recuperate from results of the low prices in the past, but this trend will not be general.

Some interest is being shown in feeder cattle, but this phase of the industry will be slow in developing, as we have few farmers who are in a position and who have sufficient equipment to handle this line of stock, and also prices for this class of stock are not sufficiently high to compensate for the higher cost of production.

At the Kamloops Bull-sale, held in the early spring of the year, 127 head were offered, made up as follows: 8 female Shorthorns, 71 Shorthorn bulls, 30 Hereford bulls, 17 Aberdeen Angus bulls, and 1 Red Poll.

The increased price of commercial cattle will encourage buyers to pay a higher price for quality bulls, which in turn will improve the type and quality of our beef stock.

The total number of cattle and hides shipped from various districts is as follows:—

	Cattle.	Hides.
Cariboo and South	8,549	966
Kamloops and Nicola	10,683	4,920
Okanagan, etc.	1,691	6,666
South-east British Columbia	663	3,953
Central British Columbia	856	2,233
Totals	22,442	18,738

Appended table shows in detail the shipments of beef cattle and hides during the months of the year from various shipping centres.

DAIRY CATTLE.

Dairy cattle show an increase from 107,537 head in 1926 to 118,360 in 1927, an increase of 10,823 head. Prices have remained stable throughout the year, with an increase in price of around 10 per cent. over 1926. This applies both to grade and pure-bred stock.

The influence of the Cow-testing Associations is becoming more and more apparent. Unprofitable animals have been weeded out and more careful attention given to selective breeding, until the general average of grades belonging to members of these associations is very little below the general average production of pure-bred cows. The Cow-testing Associations are carrying on excellent work among our dairymen by lending advice as to breeding, feeding, and the rearing of dairy cattle. The dairymen are recognizing more fully the necessity of using pure-bred sires with authentic production backing the ancestors of such sires; also the value of the proven sire. Instead of the latter being sent to slaughter they are being sought after. The action of our Fair Boards in providing classes for proven sires and in stressing performance and type in the progeny of such sires is to be commended.

The Dairy Cattle Committee under authority from the Live Stock Branch, Ottawa, has opened up an advanced registry for dairy bulls, two standards being adopted, Classes AA and A. Under this policy a number of pure-bred dairy bulls have been graded in this Province by officials appointed by the Dairy Committee at Ottawa. The list as received from Ottawa gives the following results:—

Ayrshires, 12 bulls graded Class A, 3 bulls graded Class AA.
Guernseys, 5 bulls graded Class A, 2 bulls graded Class AA.
Jerseys, 44 bulls graded Class A, 6 bulls graded Class AA.
Red Polls, 2 bulls graded Class AA.
Holsteins, 14 bulls graded Class X, 15 bulls graded Class XX.

NOTE.—Class A bulls are graded on a basis of individual merit as to type and record of ancestry. Class AA bulls are graded on type, individual records of milk and butter-fat production of ancestry, and type and production of progeny.

The grading of these bulls may be taken as a step to eliminate the undesirable pure-bred sire which is off-type and which has a low standard of producing ability of ancestry, and also to eliminate the scrub sire.

SWINE.

Considerable interest has been taken in the production of swine in spite of the fact that the market for finished hogs has not been of the best. Judging by the number of inquiries for breeding stock, farmers are optimistic as to the future. The overproduction in the European countries and the consequent flood of the British market has curtailed the export of bacon from Canada. The result has been that the Canadian producer has had to seek new markets which were not immediately available, with the consequent congestion of the home market and the lowering of the price, which has been felt throughout Canada. Had it not been for the Coast market south of the Line absorbing considerable numbers of the Alberta production a more severe slump in British Columbia would have been experienced.

British Columbia is somewhat handicapped in extensive swine production by the high cost of grain, which is essential for the successful finishing of hogs for the market. Where farmers can economically produce grain and have pasture for young hogs there is still a profit at present prices. During the past year a number of hogs for breeding purposes have been sent to New Zealand.

The hog population for 1927 was given as 51,070, as compared with 40,813 for 1926. We still import 2,171,806 lb. of pork per year.

Your Live Stock Branch is endeavouring to promote and encourage swine production throughout British Columbia, giving special attention to those districts adapted for this purpose. To encourage the raising of more swine in British Columbia the ton-litter competition was inaugurated by this Department, and the Department of Agriculture offers the following prizes for litters of pigs, to be known as "ton-litters," under the following rules:—

Each litter to be not less than eight pigs.
All pigs in litter to be earmarked or tagged before weaning.
Not less than four litters to compete in each district.
Litters to be farrowed not later than April 15th.
Pigs should be of desirable weights around 6 months of age, 190 to 220 lb.
Litters to be judged on the basis of: Weight, 60 points; type, 15 points; finish, 15 points; quality 10 points.
Prizes offered: First, $30; second, $20; third, $10; fourth, $5.

The competition is open to any one interested in hog-raising.

Swine-breeders in the Province have in view the establishment of a British Columbia Swine-breeders' Association. The organization will probably come into effect early in 1928, the object being to organize the breeders in the Province, establish channels of trade and general extension of the swine industry, and to conduct educational work in the raising of swine.

Owing to the high cost of grain in European countries, therefore cutting the profits to a narrow margin, the production of swine in these countries will no doubt be curtailed; also the higher cost of beef will lead to the consumption of more bacon. Therefore the future prospects for swine-breeders are better than the past year and we may look forward to some improvement in prices.

SHEEP.

When final returns are given on the census of the sheep population the results will show probably the largest increase for one year in breeding stock in the history of British Columbia. Figures to date show an increase of between eight to ten thousand head of breeding ewes, the bulk of these being imported from Alberta and carrying Rambouillet blood. Approximately 8,000 were imported, with an increase of around 2,000 breeding ewes in domestic flocks. To date the sheep population stands at 130,132, as compared with 102,853 in 1926, the greatest increase occurring in the Interior of the Province.

The importance of good sires in the economical production of high-quality lamb and mutton is recognized by the breeders of sheep. Breeders of commercial sheep are seeking and demanding better sires from our pure-bred breeders. A number of farmers have purchased foundation stock for the purpose of supplying pure-bred rams for use on grade flocks and during the past year a small flock of Rambouillet was installed at the University of British Columbia.

Lamb and mutton prices have been well maintained, running a slight margin over 1926, the bulk of the lamp-crop going to market at 10½ and 11½ cents per pound, live weight. Early lambs marketed in June and July brought from 14 to 15 cents on foot.

The wool market was much more active during 1927 than 1926, the supply being cleaned up at better prices. The market prospects for wool for the coming year are encouraging and our sheepmen are looking forward to better returns on their wool. The British Columbia Wool-growers' Association handled 265,324 lb. of wool in 1927, as compared with 210,000 lb. in 1926. Out of the total handled only 13,529 lb. were classed as rejected, which is a comparatively low percentage of rejects.

A series of sheep meetings were held during April and May with the sheepmen on Vancouver Island, the Fraser Valley, and Interior points, the subjects dealt with being breeding, feeding, handling of farm and range flocks, diseases of sheep, and demonstrations in shearing and the preparation of wool for the market. Also the killing and dressing of carcasses. These meetings were well attended and considerable interest shown in the subjects.

An official of the Dominion Government was sent to the Province for the purpose of grading the pure-bred rams. During the coming year it is expected that the ewe members of the flocks will also be graded. This should ensure greater uniformity and standardize our pure-bred flocks in type and quality.

Under the "Sheep Protection Act," which came into force during the past year, claims have been paid on the loss of 341 sheep and 85 poultry, making a total of $2,670 paid for losses through the depredations of dogs.

The first district sheep fair was held at Duncan in conjunction with their annual fall fair. Approximately 400 sheep were exhibited and a number were offered for sale, including pure-bred rams and ewes; also a number of grade animals.

GOATS.

This phase of our live-stock industry shows a steady increase in numbers. At present we have approximately 12,000 goats in the Province, made up of 800 pure-breds and 11,200 grades, the three breeds represented being Saanens, Toggenburgs, and Nubians, and about 150 Angoras.

Some very creditable milk records have been established, which shows the progress in breeding and care of the animals. There is an active demand for goat's milk and good prices are obtained. Requests have been made to the Dominion Government for the appointment of an official to supervise the weighing and testing of the milk on similar lines as the record of performance of cattle.

The British Columbia Goat-breeders' Association has a membership of 412.

PURE-BRED MALE ANIMALS FOR FARMERS' INSTITUTES.

Under the policy adopted for the supplying of pure-bred animals to members of Farmers' Institutes for breeding purposes, this Department has selected and placed a number of animals during the past year in the following districts: Salmon Arm, 1 Guernsey bull; Cariboo, 1 Guernsey bull; Lower Slocan, 1 Guernsey bull; Chilliwack, 1 Holstein bull; Colleymount, 1 Shorthorn bull; Jaffray, 1 Red Poll bull; Turtle Valley, 1 Hereford bull; South Bulkley Valley, 1 Oxford Down ram; Columbia Valley, 1 Oxford Down ram; Creston, 1 Oxford Down ram; Baynes Lake, 2 Suffolk rams; East Sooke, 1 Suffolk ram; Moyie Valley, 1 Berkshire boar; Sooke, 1 Berkshire boar; Kersley, 1 Berkshire boar.

BRANDS.

The number of brands recorded during the past year are: Horses, 131; cattle, 143; horse-brands renewed, 269; cattle-brands renewed, 392; hide licences issued, 67.

BOYS' AND GIRLS' CLUBS.

There has been an increased interest in Boys' and Girls' Club work. Eight Swine Clubs were organized in the Province during the spring of 1927, containing 116 members. This shows an encouraging increase in clubs and number of members. The members of the clubs are to be commended on the quality of the pigs when finished for the market and exhibited by them at their local fairs, this feature creating considerable interest at the exhibitions. It is gratifying to note the growing appreciation of the work.

Clubs were formed in Courtenay, Coombs, Cranbrook, two at Grand Forks, Midway, Rock Creek, and Salmon Arm. For uniformity and quality of pigs Midway was first, Courtenay second, and Coombs third, the prizes for these clubs being donated by the Provincial Government, the Dominion Department, and the local organization, each contributing one-third of the prize offered.

EXHIBITIONS.

The exhibition of all classes of live stock was very commendable, particularly the class of dairy stock, all four of the chief dairy breeds being represented. Probably no feature of our live stock has shown as great an improvement as our dairy cattle. This has been brought about by the breeders adhering to quality and type set year after year by the judges at our exhibitions, a commendable feature being the stressing of production and type of our dairy animals. Uniformity of type of all classes of live stock is also more pronounced, which indicates constructive and consistent policy in breeding.

The Holstein Association of British Columbia made an exhibit of twenty-three head of cattle at the Toronto Royal Fair, held in November. These representatives of the breed made a very commendable show record, capturing in all around twenty-six prizes. As there was extremely strong competition in all Holstein classes, this record is highly creditable from the Provincial standpoint, as practically all animals exhibited by this Province were British Columbia bred.

Respectfully submitted.

A. G. Knight,
Live Stock Commissioner.

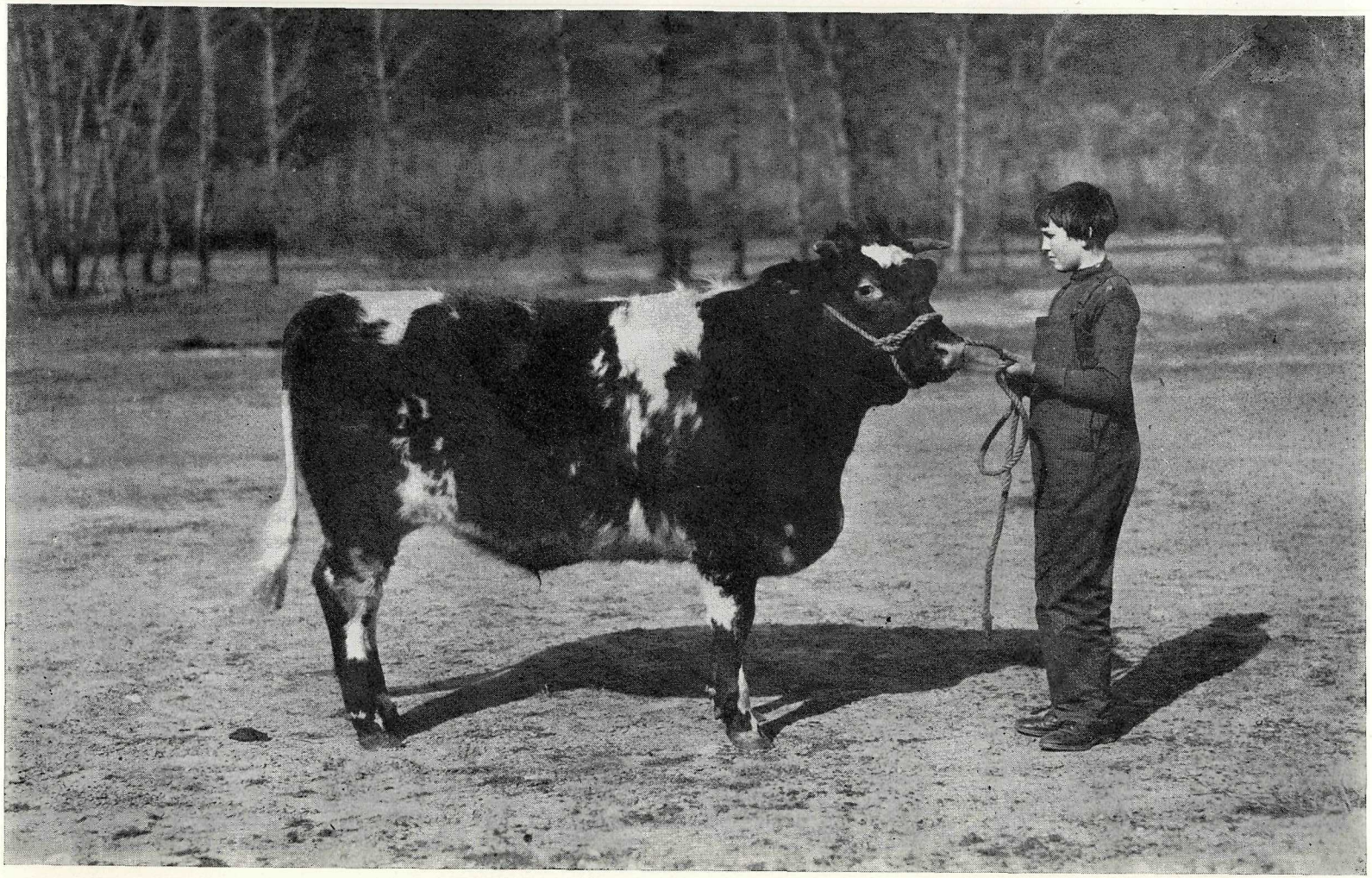
REPORT OF CHIEF VETERINARY INSPECTOR, VICTORIA.

Dr. A. G. Knight, V.S.

Dr. D. Warnock, O.B.E.,
Deputy Minister, Department of Agriculture, Victoria, B.C.

Sir,—I herewith submit the report of the Veterinary staff for the year ended December 31st, 1927.

During the year there have been no serious outbreaks of disease to cause any particular concern. Your staff has from time to time investigated various diseases which have been reported by stock-owners, but on examination found in the great majority of cases no serious trouble.



ANNIE TURNER, 11-YEAR-OLD DAUGHTER OF JAMES TURNER, VICTORIA, B.C., WHO WON FIRST PRIZE WITH HER FAT STEER AT THE KAMLOOPS BULL-SALE IN 1927. THIS ANIMAL AFTER WINNING PRIZES AT CALGARY WAS SOLD TO THE HUDSON'S BAY CO. FOR 56 CENTS PER POUND LIVE WEIGHT.

PLANT-POISONING.

Specimens have been received from various points throughout the Province of plants which have been reported to have been the cause of death among domestic animals. The most common of these appears to be water-hemlock, and this is reported more often from Central British Columbia, especially from farms adjacent to the smaller lakes with marshy borders; also from certain sections where drainage is necessary. As the result of eating water-hemlock is so rapidly fatal, little can be done in the way of remedial measures. Our general advice to stockmen who have reported such losses is to adopt precautionary methods by keeping live stock off such marshy land until other fodder is available.

Various other plants have from time to time been reported as the cause of losses among sheep and cattle, but these have been of a minor nature compared with the losses occurring through the plant first named.

Larkspur in some sections has been the cause of small losses among domestic stock, especially cattle. In some cases owners have fenced off the area where this plant has been growing *en masse*, but as a rule this plant is rather scattered over certain pasture land and the cattle do not eat enough at any one time to cause serious trouble.

This also may be said of lupines, although sheep and cattle as well as horses have been allowed to eat this indiscriminately with apparently no bad results. The chief trouble appears to be where concentrated masses have been cut for hay when the pods have been fairly well formed. Lupines in this particular stage appear to be more poisonous to stock than when cut earlier.

Astragulus campestris, which is found on certain range lands fairly well distributed throughout the Province, is causing some little trouble, but as the stockmen become more or less familiar with its habits they are adopting means to avoid pasturing stock where this plant is prevalent until such time as it is past its dangerous period.

Only one case of poisoning by horsetail (*Equisetum arvence*) has been reported during the past year. Although this plant is somewhat prevalent in certain sections it has not caused any serious trouble in the past.

HÆMORRHAGIC SEPTICÆMIA.

This disease appears to be more prevalent during the past year than for some years past. It has been reported and investigated by your Inspectors at different points throughout the Coast section as well as the Interior. Considerable losses have been reported from certain sections of the Interior where quite a large number of calves were affected. The serum treatment was adopted and applied by a private practitioner with, I believe, encouraging results. Although this disease is liable to attack animals of all ages, in this Province our experience has been that it attacks chiefly calves or animals under 1 year of age, with only an occasional animal affected above the ages mentioned.

The onset of the disease is rapid, and where noticed to be prevalent in a herd or flock of sheep we find it advisable to use precautionary methods in the way of inoculation or segregation. Medical treatment appears to be of little or no avail, and our hopes lie in the direction that the serums may be so perfected that they will be a reliable prophylactic measure.

ACTINOMYCOSIS.

Very few cases of this disease were brought to our attention during the past year. It appears to be more prevalent among the beef animals on certain ranges than among cattle in the Coast District. Where it attacks dairy cattle it is usually noticed in the primary stages and the iodine treatment has proven quite efficacious in controlling the trouble; while, in the case of beef cattle, it is usually in an advanced stage before it is observed, and too far gone to adopt remedial measures. The general advice in the advanced cases is to destroy the animal, which has been carried out on the advice of this Department, or when reported by police officers, such officers have seen to the destruction or quarantine of the animals.

SHEEP-DISEASES.

A number of cases of outbreaks of disease among sheep have been reported from time to time, but on investigation these have proven to be caused by internal parasites, either the stomach-worm (*Hæmonchus contortos*) or liver-fluke (*Fasciola hepatica*).

Stomach-worms may be controlled quite successfully by the use of copper sulphate, the following dose being found quite effective: 2 oz. copper sulphate dissolved in 1 gallon of water. Lambs, 6 months to 1 year, 2 oz. of the solution; and mature sheep, 2½ to 4 oz., the dose depending somewhat on the size and breed of sheep.

Lugoe's solution of iodine has proven quite successful, but probably not to quite the extent of the above-mentioned remedy. The above remedy is also quite effective for tapeworms.

In regard to liver-fluke, certain experimental stations have had fair success with a remedy known as carbon tetrachloride, 1 cubic centimeter administered in capsules. This has not been tried in this Province, but should the opportunity offer it may be well to give it a tryout.

A few cases of respiratory trouble have been reported from time to time, but on investigation these generally proved to be weakened old ewes recently shipped in closed cars.

A form of nodular disease due to parasitic infection has been reported from time to time, in which case the sheep are usually found running on low, swampy ground, and on changing to higher ground no further cases have occurred.

On December 10th a member of the Veterinary staff inspected a flock of sheep in the Interior. These were found to be suffering from an ulcerated condition of the mucous membrane of the mouth. These animals were being drifted or driven from the station to a distance of about 30 miles. On account of the deep snow they were forced to feed on tumbleweed and other rough herbage found along the way. From the eating of coarse fodder injury was caused to the mouth and infection had set in. Medical remedies were advised to treat the affected sheep and also advice rendered as to the proper handling and feeding of animals while in transit. Some 300 head of sheep died before they reached their destination, but this was chiefly owing to the climatic conditions and to the poor or no feed which they subsisted on while being drifted from the station to the farm for winter-feeding.

As there has been an active demand for breeding ewes, prospective purchasers should guard against buying diseased or decrepit old sheep, and also inquiry should be made about the locality from which they are purchased. We have been remarkably free from diseases affecting sheep in this Province, and by the breeders of sheep exercising ordinary care it would go a long way in safeguarding their interests.

SWINE.

No infectious or contagious diseases were reported to this Department during the past year.

TUBERCULOSIS.

During the past year the Dominion Inspectors retested what is known as the Lower Fraser Valley T.B. Restricted Area, covering approximately the same number of horses and cattle as in 1926. Three members of your Veterinary staff assisted the Dominion Inspectors in the way of providing transportation, collection of reactors, etc. The time occupied by your Inspectors on this work was from around March 1st to July 31st. I am pleased to note that the number of reactors was very greatly reduced in comparison with the first test made in the restricted area, the percentage in 1927 running about 1½ per cent.

The Provincial Inspectors have been actively engaged in the inspection and T.B. testing of dairy cattle throughout the remainder of the Province. Outside of the restricted area there have been 1,053 herds tested, comprising 8,848 cattle, and 339 reactors were uncovered, or 3.83 per cent. With the exception of two cases, these reactors have been destroyed and compensation paid, the two remaining reactors being in quarantine.

Where reactors are uncovered in a herd your Inspectors have from time to time revisited these infected herds, usually within sixty or ninety days. This is more especially true where the infected herds are closer in to the centres and your Inspectors have a greater opportunity to revisit these herds from time to time. In this way we have been able to clean up a number of infected herds.

Your Veterinary Inspectors have also carried on the sanitary inspection of dairies under the new "Milk Act," which came into effect on September 1st of the past year. To date there have been, within the Lower Fraser Valley T.B. Restricted Area where the cattle have been T.B. tested by the Dominion Inspectors, 533 premises inspected, and 9,027 head of cattle have been given a physical examination. Grade of premises: A, 191; B, 283; C, 59. In addition to these and comprising those herds and premises where your Veterinary staff have inspected cattle for tuberculosis, the premises have been graded as follows: A, 116; B, 335; C, 602.

The inspection of dairy premises and herds under the new "Milk Act," although entailing considerable time and delay, has proven advantageous in effecting greater cleanliness in the care and handling of dairy products. A good many barns and stables have been remodelled and new dairies built since the Act came into effect, and I am pleased to report that a good number of our dairies are obtaining a very creditable score in regard to their sanitary arrangements.

I would beg to draw your attention to the standing of the dairies in the vicinity of Nanaimo, where out of forty-one dairies from which milk is supplied to the City of Nanaimo twenty-seven have graded A. To obtain this result is probably partially due to the harmony and working conditions existing between the city health authorities and your Veterinary staff and is a feature to be commended to other cities throughout the Province.

I herewith attach Appendix giving the districts in which T.B. testing and inspection of stables and dairies have been carried out throughout the Province.

Respectfully submitted.

A. KNIGHT,
Chief Veterinary Inspector.

REPORT OF DISTRICT AGRICULTURIST, COURTENAY.

E. R. BEWELL, B.S.A.

Dr. D. Warnock, O.B.E.,
Deputy Minister, Department of Agriculture, Victoria, B.C.

SIR,—I beg to submit my report as District Agriculturist at Courtenay for 1927 for your consideration.

LIMESTONE.

During 1927 I gave considerable time and assistance to the Comox Limestone and Fertilizer Company, Limited, which had a fairly good year. The business was new to everybody connected with it and naturally many mistakes were made, but these were rectified and the plant was in good shape by the end of the year and was being operated more efficiently and economically. During the year 1,100 tons of lime rock was brought in from Blubber Bay, Texada Island, and pulverized; 750 tons of this was sold, which included about 30 tons of limestone chicken-grits which was screened out. Nine car-loads, consisting of about 300 tons of the amount sold, was shipped to points on the Esquimalt & Nanaimo Railway, as a very cheap rate had been put into effect by the railway. The company has over 300 tons on hand at the beginning of 1928, but expect to need from 700 to 1,000 tons additional to meet the demand this spring. Five hundred of the 1,100 tons of rock brought in was brought over in the fall, but on account of the exceedingly wet fall, which delayed work and made the land almost impossible to get on, only about one-third of it was sold, leaving a large carry-over.

SOIL-TESTING AND FERTILIZERS.

Several hundred soil tests were made to determine the amount of limestone required to correct acidity and advice given *re* limestone and fertilizers. Some valuable fertilizer and limestone tests were carried out and the value of limestone and fertilizers was fully demonstrated.

FIELD-DAYS.

A potato field-day was held in July, which was fairly well attended. J. W. Eastham, W. Downes, and H. S. MacLeod were present and a profitable day was spent. There was also a field-day at Alberni, at which I assisted in judging growing-crop competition.

LIVE STOCK.

During the year there has been a lot of live stock sold and shipped out of the district. I assisted in several instances in finding out where available or surplus stock was and put buyer and seller in touch with each other. Several shipments of cattle were made, and it is estimated that close to 150 dairy cows and heifers were shipped out of the district.

The supply of hogs became too great for local consumption and a glut was apparent, so I inquired and found there was enough surplus to make up a car-load, which brought 10½ cents per pound here. As soon as they were gone I learned of several more, and a week later a second

car was loaded, which included the pigs of the Boys' and Girls' Pig Club, which I had assisted in forming. These also brought 10½ cents per pound. Prospects are good to reorganize this club, and probably one or two more, as the children were well satisfied, as good prizes were secured individually and the club secured second prize in the Provincial inter-club competition. One hundred and sixty pigs went out in these two car-loads, which were bought and handled by the Vancouver Live Stock Exchange.

There was also a large number of sheep and lambs shipped out of the district during the year. If the number of sheep, pigs, and cattle could be doubled in the district, a monthly live-stock market-day could be established and regular shipments sent out, which would be infinitely better than the present method of trying to make up shipments when it is apparent there is a surplus.

MARKETING PROBLEMS.

During the past season I did considerable work for the various producers' associations and finally succeeded in getting the potato-growers, fruit-growers, and vegetable-growers to amalgamate under the name of Comox Growers' Co-operative Association. This organization did not handle any produce during 1927, as it was felt that they could not carry on with the limited support available, as several other parties or organizations were in the same business. After considerable discussion it was decided that before satisfactory progress could be made in marketing farm produce it would be necessary to get a pool established for each commodity in order to eliminate dumping and glutting the market. In this way a fair price could be secured for the producer. Steps are being taken to circulate a petition asking for the establishment of an educational marketing board to go thoroughly into this matter.

JUDGING AT FAIRS.

During the summer and fall I judged at the following fairs: Lazo School Fair; New Westminster; Mission; Matsqui; Cobble Hill; Saanichton; and attended the sheep fair at Duncan and winter fair at Vancouver. I also assisted in arranging four small flower-shows in this district and with ploughing-match held in October; also short courses held under the auspices of the Farmers' Institute in January and November.

MEETINGS.

I addressed meetings in Cedar, Parksville, Alberni, Denman and Hornby Islands, and Comox districts during the year. Considerable time was also spent in encouraging trial plots of tobacco, which grew fairly well for the poor season.

A supply of bulletins is always kept on hand, which are always in demand. Mornings were usually spent in the office and afternoons visiting farmers, making inspections of soil, stock, crops, or on drainage problems.

A large number of letters were received and answered, giving information about the district, etc.

Respectfully submitted.

E. R. Bewell,
District Agriculturist.

REPORT OF DISTRICT AGRICULTURIST, KAMLOOPS.

G. W. Challenger, B.S.A.

Dr. D. Warnock, O.B.E.
Deputy Minister, Department of Agriculture, Victoria, B.C.

Sir,—I beg to submit herewith my report as District Agriculturist in the Kamloops District from October 1st to December 31st, 1927.

On April 1st of this year George C. Hay, District Agriculturist for the Kamloops District, resigned to take over the position of manager of the Vancouver Live Stock Exchange, and was succeeded on June 1st by Angus L. Hay, former District Agriculturist in the East Kootenays. On September 1st Angus Hay also resigned to take over the position of manager of the dairy-farm of the Consolidated Mining and Smelting Company, Marysville, B.C. A feeling of regret at the loss of these two men is general throughout the district and one cannot help but see that

they have had considerable influence on the agricultural progress of the Kamloops District during their work here. Best wishes for their future success in their new lines of endeavour have been expressed on every hand. Your Agriculturist assumed the duties of that office on October 1st and found that the work was being carried on in good order.

FIELD-WORK.

The first six weeks were spent in becoming as well acquainted as possible with the district and the various farmers and ranchers within. A study of the files and correspondence occupied some little time. The remainder of the fall was spent on the road in making personal calls on as many farmers as possible and discussing with them their various problems. It was a case of getting over the whole area as quickly as possible, and with bad weather coming on only a limited number of the men could be visited in this way. The snow coming the second week in November greatly hindered much further travel by car in the outlying sections. During the period from October 1st to November 11th the following districts were briefly covered: Nicola, Merritt to Aspen Grove; Savona, Ashcroft to Clinton; Heffley Creek, Louis Creek to Barriere; Grande Prairie to Vernon; Armstrong, Enderby to Salmon Arm; Pritchard, Chase to Notch Hill.

An attempt will be made by personal calls on as many farmers as possible during the coming season to cover the whole district in as thorough a manner as possible, thereby creating a bond by personal contact between the men on the various farms and ranches and the Department.

INSTITUTE MEETINGS.

Calls were received to attend several institute meetings throughout the district this fall, where addresses on live-stock subjects were given. Among the institutes attended were: Armstrong, October 22nd, 30 members present; Carlin, October 26th, 25 members present; Salmon Arm, October 28th, 20 members present; Armstrong, December 28th, 30 members present; Carlin, December 31st, 40 members present.

In some instances speakers for these meetings were arranged for and a good turnout of the members was usually obtained.

LAND SETTLEMENT BOARD.

Assistance was given the work of the Land Settlement Board during November by checking up with R. A. Hunt some of the outstanding loans in the district by personal calls on the delinquents, with the hope of encouraging them to overcome these deficits wherever possible. It was felt that by encouraging these men along the lines of better farm practices they could look forward to the substantial reduction of these loans as time goes by.

LIVE-STOCK WORK.

The Ninth Annual Provincial Bull-sale and Fat-stock Show was held at the Arena, Kamloops, March 23rd to 25th, 1927, and a successful sale was reported. The Bull-sale Committee of the British Columbia Stock-breeders' Association is working on the tenth annual sale, which is to take place March 28th and 29th of this year. Your Agriculturist has attempted in every way possible to assist in the work of the above committee.

The Vancouver Winter Fair, held December 7th to 10th at Hastings Park, was well supported by farmers and stockmen from this district. Your Agriculturist endeavoured to encourage this work by acting in an advisory capacity to those who were preparing cattle and other products for the fair, and, while attending the exhibition, assisted in the judging and sale work.

The placing of pure-bred stock, both for the prospective buyer and also for the breeder, has been done as much as possible.

BOYS' AND GIRLS' WORK.

The encouragement of the feeding and fitting of calves for the coming Kamloops Bull-sale by the boys and girls of this district through correspondence and personal visits has occupied considerable time and many of the young people are taking up this work.

The success of one of the young men of this district at the recent Vancouver Winter Fair is noteworthy. Master Joe Bulman, Westwold, fed and exhibited the grand champion fat animal of the show. This steer weighed 1,295 lb. when sold, was 19 months of age, and brought the top price of 55 cents per pound, selling to Jackson Bros., Vancouver. This animal was also

first in the senior calf class and grand champion in the boys' and girls' section, winning the Dominion Shorthorn Breeders and other special prizes. He was sired by the registered Shorthorn bull "Sir Bruce," 122364, owned by A. D. Paterson, M.L.A., Ladner, B.C. The showing made by young Joe Bulman with this fat steer is noteworthy, in that the work of feeding, grooming, and exhibiting was all done by himself, and that he was competing against some of the outstanding veteran showmen of the Province.

MISCELLANEOUS.

During the fall encouragement was given to exhibiting of seed-potatoes for the Vancouver Winter Fair, and an endeavour was made to put on a district potato display at that time. No district display was arranged, but several of the growers entered individually and took a good number of prizes, including first in the seed class and third in commercial lot. Several prizes were also won in the small-grain section.

A check was made on the quantity of grasshopper-bait on hand throughout the district at the request of the Entomological Branch, Vernon, B.C.

OFFICE-WORK.

An extensive study of the files and correspondence in the office has been conducive to a better knowledge of problems and conditions in the district. The office is being used not only for the obtaining of information along agricultural lines, but as a meeting-place where discussion along various lines takes place and which undoubtedly is of considerable help to the men in their farming operations. In addition, the British Columbia Stock-breeders' Association has seen fit to hold its committee meetings in the office here, where the correspondence and files are kept.

The correspondence carried on by the office is of considerable volume and shows the interest taken in the work of the Department by the farmers and stockmen generally.

Respectfully submitted.

G. W. Challenger,
District Agriculturist.

REPORT OF DISTRICT AGRICULTURIST, CRANBROOK.

H. S. French, B.S.A.

Dr. D. Warnock, O.B.E.,
Deputy Minister, Department of Agriculture, Victoria, B.C.

Sir,—I beg to submit herewith my report as District Agriculturist for the East Kootenay District for 1927.

GENERAL.

Your Agriculturist having been notified on June 22nd that he had been appointed District Agriculturist for the East Kootenay District, with headquarters at Cranbrook, immediately made preparations for the move, first making a trip to Victoria to confer with officials there concerning all particulars relative to the position which he is now assuming. Having ascertained the necessary information, he then returned to Vernon, this being on June 27th. After making arrangements regarding settling-up of all affairs at Vernon and attending to shipment of furniture, etc., to Cranbrook, he found it convenient to leave Vernon in time to be able to arrive in Cranbrook on July 9th. He was then able to assume the duties of District Agriculturist of the East Kootenay District.

Being unfamiliar with the greater part of the East Kootenays, your Agriculturist felt that his first work would be to endeavour to become acquainted with the district and also the people dwelling there. The first few days were taken up getting affairs straightened up around the office and attending to any outstanding correspondence, as well as having various interviews from different farmers who called at the office.

After having a little work done on the car, your Agriculturist then spent considerable time out around the district, meeting various farmers engaged in different branches of agriculture.

WEATHER AND GENERAL CONDITIONS.

Weather conditions throughout the season were for the most part of a fairly cool nature, with ample rainfall; in some cases the rainfall was so extensive that harvesting of grain-crops, field crops, and hay-crops was in some cases considerably retarded. The crops this year for the most part were exceptionally good for this district. The ranges were better than they have been for years, the most of the range stock being in excellent condition.

LIVE STOCK.

The live-stock work this year consisted, first, in coaching boys' and girls' stock-judging teams in preparation for going to the Coast; classes in this case being instructed at Golden, Windermere, Cranbrook, and Natal. Teams were entered from Golden and Natal at both Vancouver and New Westminster Exhibitions, and in both cases they gave a very satisfactory account of themselves. Your Agriculturist did not go to the Coast this year, as due to the short time at his disposal, and also to the fact that the teams entered had been receiving instructions from very capable instructors previous to his appointment here, it was only fair and just that these men take their teams down themselves.

Owing to the fact that there are very few herds of pure-bred stock in this district, an attempt has been made to get more people interested, especially in regard to cattle, sheep, and hogs. Although very little headway has been made this year, a lot of time has been taken up in regard to buying, exchanging, and disposing of various pure-bred cattle, hogs, and sheep. Every assistance has been given to the secretary, British Columbia Wool-growers' Association, in regard to supplying names of people in this district requiring sheep for breeding purposes. Several lots of sheep have been brought in from the Prairies.

LAND SETTLEMENT.

At various times during term of office calls have come from the Land Settlement Board for reports and appraisals of properties, some from intending purchasers and others concerning settlers in arrears. For the most part a special effort has been made to visit these settlers who are badly in arrears. Every assistance has been given to these men in an advisory capacity to encourage them to make an endeavour to try and reduce their loans. This work all entails considerable travelling around, but for the most part it has been carried on in conjunction with other work where conditions permit, and there is other work at the same time Land Settlement work comes up in any particular district.

FARMERS' INSTITUTES.

At different times Farmers' Institute meetings have been attended, and when called upon usually gave a short talk on some phase of agricultural work. Among these meetings was the annual field-day held at the Invermere Experimental Farm, also the annual convention of District Institute I, held in Cranbrook on November 2nd and 3rd. At this meeting your Agriculturist was appointed secretary to fill the position until recently held by Mr. Hay. Pertaining to this position there appears to be considerable correspondence and other work to be dealt with and every assistance is given when called upon.

FALL FAIRS.

Your Agriculturist acted in the capacity of judge at the following fall fairs: Fernie, Nelson, Grand Forks, and Cranbrook. At the latter, as your Agriculturist has been appointed secretary of the Agricultural Association, considerable work naturally fell to him in regard to fair matters. It was very pleasing to note that the Cranbrook Fair managed to come out ahead by $150 after expenses had been paid. The bad weather just prior to holding this fair no doubt had a detrimental effect on the fair financially. In addition to judging the fall fairs, your Agriculturist also acted as judge at the Women's Institute Flower-show held in Cranbrook in August.

POTATO-WORK.

The potato-work was again carried out this year under the supervision of Mr. Dennys. Very good work was done in this control-work; the only difficulty being encountered was chiefly in getting the Chinamen to put the dust on systematically, and due to the excessive rainfall this season additional applications had to be made. Your Agriculturist gave all possible assistance

to any seeking advice. The growers are gradually becoming convinced of the severity of this pest and are doing all in their power to try and eradicate it. It is expected that Mr. Dennys will include all matters of importance regarding this work in his report. The poison distributed through this office was approximately 16,590 lb., there being approximately 4,000 lb. still left in storage, which will make a nucleus of a start on control-work this coming season. It has proven very evident that great care must be taken in order to successfully combat the ravages of this pest, and only by these means will this pest be controlled and prevented from spreading into other sections. The growers for the most part very much appreciate the assistance given by the Department of Agriculture in connection with having the poison supplied and the timely advice given by your Agriculturist, who has co-operated with Mr. Dennys and his assistant whenever the occasion arose.

HORTICULTURAL WORK.

The only sections in which there is much horticultural work carried on are in the Creston and Erickson Districts and the Roosville Valley. Your Agriculturist gave any assistance possible to Mr. Twigg, of the Horticultural Branch, especially in connection with fire-blight work. Assistance in locating various shippers of potatoes located in the distirct was also given to Mr. Littlejohn, Inspector of the Control Committee, stationed at Erickson, B.C.

OFFICE-WORK.

Although your Agriculturist endeavours to spend as much time as possible out around the country meeting the farmers in the field, there are times when it is very essential for him to remain in the office as being secretary of the Agricultural Association and also of the District Institute; there is considerable office-work involved in regard to correspondence, etc. In addition to this, various interviews are sought for farmers seeking information along agricultural lines, and these are always dealt with and advice given when possible concerning all their local problems which may come up.

Respectfully submitted.

H. S. French,
District Agriculturist.

REPORT OF DISTRICT AGRICULTURIST, PRINCE GEORGE.

R. G. Sutton, B.S.A.

Dr. D. Warnock, O.B.E.,
Deputy Minister, Department of Agriculture, Victoria, B.C.

Sir,—I have the honour to report as follows:—

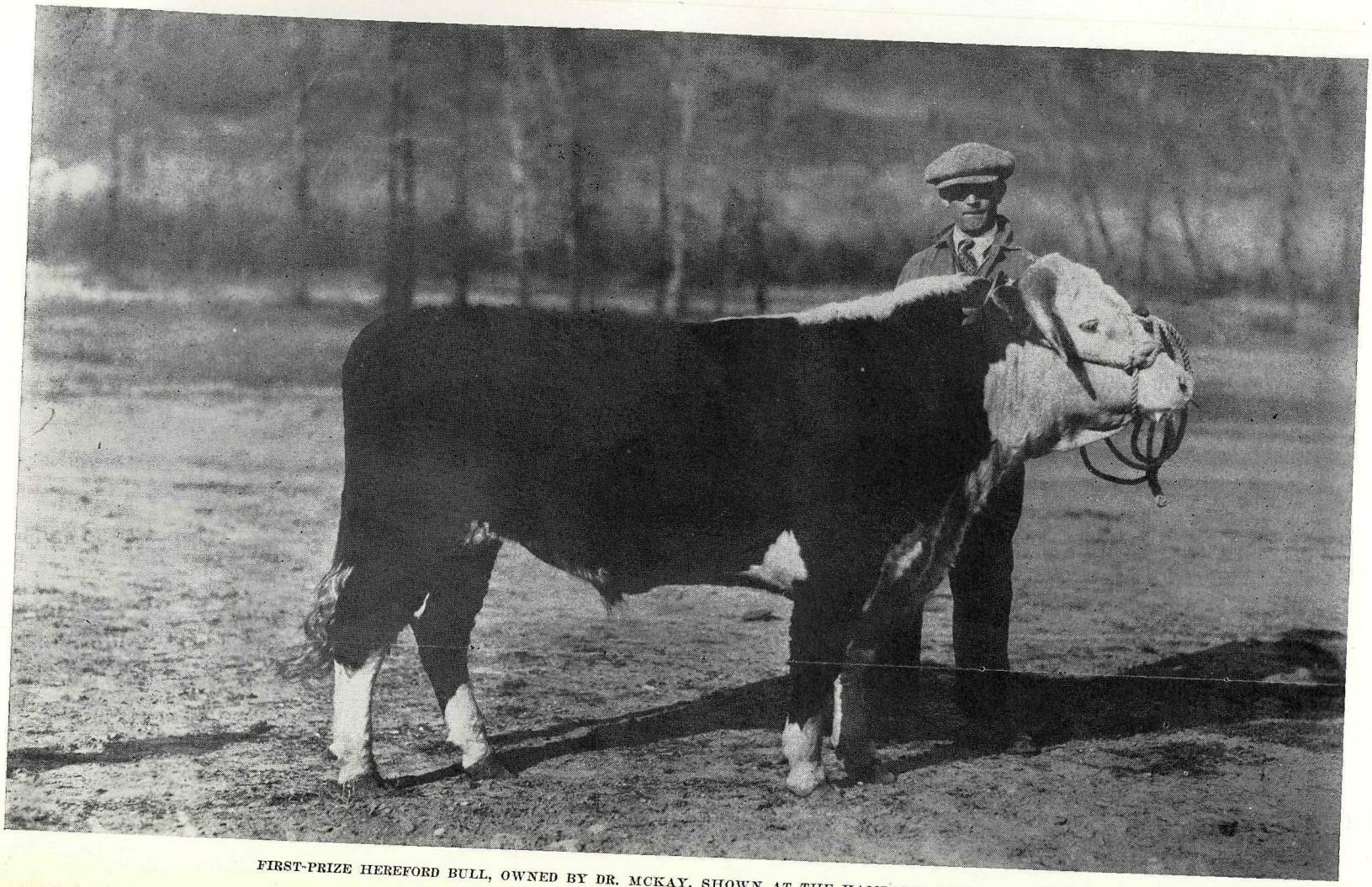
GENERAL CONDITIONS.

The season of 1927 has been marked with extremes of weather conditions, but at the same time it has proved to be generally favourable to farmers in this district. The winter was longer than usual and contained one or two periods of extreme cold. There was an average fall of snow and accordingly the cold weather had little effect on grass and clover seeding.

The spring was late and an untimely cold spell about April 20th caused a loss of approximately 15 per cent. to the old stands of clovers. Weather continued cool and showery until July. This delayed seeding until about May 15th, but provided an abundance of moisture for the hay-crop. Extreme hot weather came in July and August and this was followed by rains in September. An autumn of moderate length permitted all crops to be harvested in good condition and the usual amount of fall ploughing was done. Winter settled in about the middle of November with a fall of about 4 feet of snow, and then the end of the year was marked by unusually cold weather.

FIELD CROPS.

The hay-crop was a very heavy one, due to the abundant moisture in the early part of the season. This was more true of the eastern part of the district than the western part. A number of yields of 3 tons per acre were noted and the average of the district is estimated at better than 2 tons per acre. The crop was cut and put up under ideal conditions.



FIRST-PRIZE HEREFORD BULL, OWNED BY DR. MCKAY, SHOWN AT THE KAMLOOPS BULL-SALE, 1927.

This heavy crop had the effect of depressing the price, but also had the effect of inducing a number of farmers to save small patches of clover and timothy for seed production. Some fifteen men in all tried this experiment, some saving small fields of straight clover, some mixed stands. When ripe these were cut sometimes with a binder, sometimes with a mower with a pea-harvester attachment. A new type of threshing-machine, newly brought into the district, solved the problem of threshing and hulling the crop and did very good work. In all, about 7 tons of timothy-seed and about 1,500 lb. of red clover and 2,000 lb. of alsike were recovered.

A considerable amount of time in the early part of the summer was spent on this clover-seed work. It was necessary to keep a close watch on the crop at blossom-time so as to know if the plants were setting seed, and it is well to note that, though the weather was cool and showery during the blossom stage, there was an almost perfect set of seed in the heads. This is entirely due to wild bees as there are too few tame bees in the district to make any impression.

From time to time visits were paid to farmers who were saving crop for seed, and advice was given regarding time of cutting, method of same, and methods of curing, storing, and threshing; in short, the crop was followed from the set of the seed in the heads to the exhibition of the same at the winter fair.

As soon as the crop was threshed the Department sent in a Clipper Cleaner and the seed was all recleaned. Some time was spent in installing this machine and then in supervising its operation. Samples of the seed were sent out for test and exhibits were prepared and sent down to Vancouver. When reported on the tests ran from No. 3 to No. 1, with germination of 97 to 99 per cent. At the exhibition one entry carried off first place in red clover, another first place in alsike, and others took third, fourth, and fifth places.

The production of clover-seed is an important step for the district and one which has been constantly advocated by this office for a number of years. The district lies on the 54th parallel of latitude and has an annual range of temperature of over 150°; consequently, if clover-seed can be produced here, it will in all probability be the hardiest strain procurable in all America. In any event there is no reason why it should not become a very profitable venture for the growers. That it can be produced has been amply demonstrated this year and the quality is shown in the tests and awards mentioned in the foregoing paragraph. Already more orders for this year's crop of seed have come than there is seed to fill. It is expected that next year will see a production of several tons of the seed and in the next few years it may develop into a major product for the district.

This step has come at a very opportune time, when, because of heavy yields and increased acreage, the price of hay had dropped to a point where growers questioned if it could be produced at a profit and were looking for a new avenue of effort.

Up to this year it may be said that hay was the major crop of the district and it has been necessary to maintain a careful study of market conditions to the end that growers might be aided in disposing of their crop to the best advantage. In April last advice was received regarding a hay-shortage in some parts of Alberta, and as there was considerable hay in this district it was possible to put firms in Calgary in touch with growers here, with the result that an order for over ten cars was placed in the Vanderhoof District. This year the hay-crop is a little above the average and so far the market has been dull. However, correspondence is maintained with Alberta points and already tentative inquiries have been received. Considering the general severity of the winter, it is hoped a number of orders will come through for the 1927 crop.

Grain-crops yielded about an average this year and some wheat has moved to the terminal elevator at Prince Rupert. It has been noted from time to time that a feeling existed among the grain-dealers here that local oats and other spring grains did not mature sufficiently to make good seed. In order to offset this a number of samples were collected in the spring and sent out for test. Results showed germination tests of from 80 to 99 per cent. This information was accordingly made public.

With further reference to seed production, this office has advocated the production of seed-peas. The district is free of the pea-weavil and from observation it appears the climate will not permit of its spread; consequently growers have been advised to give some attention to this crop. It is interesting to note that samples of local-grown field peas from McBride and Prince George Districts took fourth and fifth places at the Vancouver Exhibition.

There has been no great development in the growing of certified seed-potatoes here, due probably to the steady demand for commercial stock. What certified stock has been produced

has sold readily, and the office has been able to assist both buyers and sellers and continues to keep in touch with the growers and discuss the work on the ground and at farmers' meetings.

SOIL-WORK.

As in other years, soil-study is given considerable time and attention. Advice regarding moisture-conservation, crop-rotation, and cultural methods has frequently been given. During the growing season an attempt was made to visit as many as possible of the farmers in the whole district and to discuss with them their work, on the ground. This was done to the extent of approximately one hundred personal visits.

FERTILIZER EXPERIMENTS.

Working in connection with the Soil and Crop Branch, five experiments with commercial fertilizers were conducted. This was in answer to persistent inquiries from farmers. Five separate farms, as representative as possible, were examined and selected. Four quarter-acre plots were surveyed and staked. The fertilizer was applied as early in the spring as possible. These experiments were studied all through the growing season and results observed and forwarded to Victoria.

LIVE STOCK.

There is little change in the live-stock situation in the district, with the exception that there is a little increase in the interest in both hog and sheep raising. A new move was made this year, when a team of boys was trained and entered at the stock-judging contest at the Provincial Exhibition. Considerable difficulty was experienced in finding suitable demonstration material for class-work and this lack proved a serious handicap for the contestants. The actual standing of the team at the contest was negligible, but the work resulted in being able to get in touch with nearly all the stock-breeders in the district and in discussing with them types and breeds best suited to the local conditions. It is hoped that by continuing this work a greater interest in better live stock will result and an improvement in quality will appear.

HORTICULTURE.

A little more interest each year is taken in growing small fruits. The majority of farmers making any attempt at this work have been visited, suggestions given, and in some cases assistance with actual pruning operations has been given. Several are attempting to grow tree-fruits here and these are being kept under observation, so that information regarding this will be available.

On the outskirts of this town are two or three small truck-gardens. Requests frequently come in from these regarding trouble with hotbed plants, use of commercial fertilizer, injuries to crops, and storage problems. A number of visits were made in answer to such calls and advice given.

There are four men in the district making a start in bee-keeping. The apiaries have been visited at least once during the year.

BIOLOGICAL WORK.

Throughout the district generally there is very little damage done by insects and diseases. Wireworms appear some seasons and attack the potato-crop in particular. Root-maggots damaged the cabbage and cauliflower crop last season. There was some showing of rhizoctonia and blackleg in potatoes, but no sign of blights. There was no sign of the tent-caterpillar in the woods this year. A careful watch is always maintained on crops for any evidence of injury from insects or disease. When such occurs steps are at once taken to identify the trouble and put into use control measures.

The district continues to be practically free of noxious weeds and it is hoped to keep it so. To this end close watch is maintained and whenever such weeds appear they are identified and the owners of the land advised regarding control.

FARMERS' INSTITUTE MEETINGS.

Meetings of local institutes are frequently attended and addresses given. During the summer several meetings were arranged and attended in company with officials of the Soil and Crop Branch. Later on in the fall there was something of a movement started towards the

establishment of a cheese-factory in the district. The subject was given some study and the information thus obtained was presented at the Farmers' Institutes Convention here on November 16th. The following table sums up this work:—

Date.	Place.	Time.	Attendance.	Subject.
March 2	Prince George	Afternoon	35	Review of development.
June 18	Mud River	Evening	15	Moisture-control.
,, 25	Vanderhoof	Afternoon	54	Pool organization.
,, 25	Fort Fraser	Evening	35	Vegetable-growing.
July 7	Pineview	Afternoon	55	Moisture-control.
,, 8	Salmon Valley	Afternoon	25	Moisture-control.
,, 19	Beaverly	Evening	37	Optimistic outlook.
,, 20	Hixon Creek	Evening	25	Diversified farming.
Sept. 20	Snowshoe	Evening	12	Opportunities.
Oct. 8	Longworth	Evening	35	Opportunities.
Nov. 16	Prince George	Afternoon	37	Cheese-factory.
,, 30	Pineview	Afternoon	9	Clover-seed growing.

MARKETING ORGANIZATIONS.

During the spring and summer there was a movement started in the Vanderhoof District towards the formation of a hay and grain pool. An address relative to the management of such organizations was given at a meeting of the Vanderhoof Farmers' Institute, and following that, touch was maintained with the leaders of the movement. It is gratifying to know that a pool was formed and was able to obtain contracts on approximately 80 per cent. of the grain-crop and 70 per cent. of the hay-crop. To date a number of cars of grain and a few cars of hay have been shipped and the association has been able to finance itself unassisted, up to date.

A second movement is now under way towards the co-operative selling of the 1928 crop of clover and grass seed. This will probably take the form of a pool and will include both the Vanderhoof and Prince George Districts.

MISCELLANEOUS.

The following fall fairs were visited in the capacity of judge: Smithers, August 25th; Quesnel, September 22nd.

During the summer a request came in for material for the British Columbia exhibit for the Toronto Winter Fair. By visiting a number of farms it was possible to collect a fairly wide range of wheat, oats and barley, flax and potatoes. This material was all of excellent quality and was packed and shipped. Over and above all other work there is always a volume of correspondence to answer and a number of inquiries to attend to.

LAND SETTLEMENT BOARD WORK.

Considerable time is demanded by this work. At all times parties of intending settlers must be shown over the Board's lands. Letters of inquiry have to be answered and information booklets sent out. Also, each month there is a volume of correspondence to deal with regarding land-sales and loans.

Fifteen formal loan applications were received and the properties inspected. Five land-sales were put through and supervision maintained on three farm leases.

During the summer officials of the Canadian National Railways Colonization Department were taken over the district with a view to finding a suitable location for proposed Norwegian settlement.

CONCLUSION.

The past year has been a very encouraging one and has shown much real progress. An idea of this progress may best be gained by considering some of the "high lights" of agriculture in the district, among which the following stand out:—

A start made in clover-seed production and seed awarded first place at the Vancouver Winter Fair.

A farmer picking and packing ninety boxes of apples; this in a country lying "north of the fifty-third."

Another farmer raising 35 bushels of Marquis wheat to the acre on a 40-acre field and selling at $1.60 per bushel.

Another farmer put in 2¼ acres of potatoes and harvested 22 tons; he sold the crop at $40 per ton.

Another farmer raised $1,000 worth of turkeys in his barnyard; he and his wife raised 180 birds, which sold for from 45 to 50 cents per pound.

The tendency towards more diversified systems of farming and better crop-rotations is more marked each year.

Respectfully submitted.

R. G. SUTTON,
District Agriculturist.

REPORT OF DISTRICT AGRICULTURIST, SMITHERS.

DUNCAN D. MUNRO.

Dr. D. Warnock, O.B.E.,
Deputy Minister, Department of Agriculture, Victoria, B.C.

SIR,—I have the honour to submit my annual report for the year 1927.

Owing to lack of moisture during the growing season there was an average shrinkage in the yield of timothy-hay of about 40 per cent.; in field roots and vegetables the average yield per acre was about 55 per cent. less than the previous year. There was also a decrease of 20 per cent. in the production of barley and 30 per cent. in the production of oats; wheat alone showing an increased production of 18 per cent. The average yield per acre, however, was considerably below 1926 crop. The increase in the total production is accounted for by the increased acreage sown to wheat. Although the yield in all grains was below average for the district, the quality was good. This was shown by the large number of exhibits and the outstanding quality of the grains and grass-seeds on display at the Smithers Seed Fair last November, and also the large number of awards captured by Central British Columbia at the Vancouver Seed Fair, December 7th to 10th, 1927; the credit for which is due A. E. Davey, representative of the Field Crop Branch, who worked hard and earnestly in preparing and arranging the exhibits for both fairs. It is also worthy of note that a large percentage of the wheat shipped from this district to the elevator at Prince Rupert graded No. 1 Northern.

Early in 1927 the total production of 1926 timothy-seed, amounting to 775,900 lb., had been cleaned, graded, and shipped, together with fifty-three 100-lb. sacks of meadow-fescue seed; the returns for same—i.e., $61,675.95—received and distributed among the different growers.

The total 1927 production of timothy-seed in this district is estimated at from 135 to 150 tons. Meadow-fescue seed, about 3 tons. The prospects for marketing this seed is anything but bright. The wholesale firm in Vancouver to whom the 1926 crop had been sold have a large quantity of this timothy-seed on hand. This, together with the low prices quoted in the Eastern markets, made it impossible for the growers here to find a market for their 1927 crop at anything like fair prices. Under the circumstances it was decided by the directors of both Locals of the Central British Columbia Seed-growers that cleaning operation should not be undertaken until a market for at least a portion of the seed had been secured. This action was deemed advisable in view of the fact that it was thought individual growers could provide better storage facilities on their farms than if the seed had been assembled in warehouse and subjected to the usual destruction by mice.

As in former years, considerable attention has been given to finding markets for all varieties of farm produce offering; practically all the local turkeys in this district were handled through this office; the settlers receiving 42 cents per pound f.o.b. shipping-point. We also found markets for a large quantity of dressed chicken at 30 cents per pound f.o.b. shipping-point. This is a line that should be encouraged, as practically all the feed required can be produced locally and, I believe, at a less cost than in older-settled sections of the Province, where land values are very much higher than they are in this district. Besides, we are not producing and

marketing more than 5 per cent. of the turkeys and chickens consumed in Prince Rupert and other northern towns.

More encouragement should be given settlers by placing within their reach hatching-eggs and day-old chicks of good laying utility stock; preferably hardy strains, as the average settler is not equipped with housing facilities to handle the lighter breeds.

It seems to me that the first requisite in a new district is to encourage new settlers to produce and prepare, in so far as possible, the foodstuffs necessary for home consumption, such as cheese, butter, ham, bacon, etc. The canning of fish should also be encouraged, as the rivers, lakes, and streams abound, at certain seasons of the year, with salmon, char, whitefish, as well as a large number of varieties of trout; all of which make splendid winter foods. If this were practised it would enable a new settler with small capital to advance more rapidly than if he were to purchase these articles, or their substitutes, from the local merchants, which to a very large extent is the present practice.

It may be stated, however, that some progress has been made along these lines. For instance, in the Ootsa Lake District, I think I am safe in saying that most of the settlers produce and cure, over and above home requirements, a surplus of ham and bacon sufficient, I should say, to supply the needs of the prospectors, miners, and trappers operating in the country contiguous to Ootsa Lake.

Sheep-raising, a better grade of bacon-hogs, and beef bulls should be encouraged. This is essentially a mixed-farming district, and specializing in the production of any one commodity, so far as this district is concerned, in my opinion, is economically unsound.

In the past quite a number of settlers devoted practically all their time and energy to the production of timothy-hay, resulting in a large surplus, while consumption decreased with the introduction of trucks, tractors, and automobiles to replace the horses. The situation, however, was somewhat relieved in 1926 by converting the timothy-hay into timothy-seed, for which was found a ready and profitable market.

At present there is an overproduction of timothy-seed—i.e., to supply the demands of British Columbia—and it would appear as though we are unable to reach the Eastern Canadian markets owing to the fact that American seed is permitted to enter Canada on a duty of 10 cents per 100 lb., while Canadian-grown seed entering the U.S.A. is subject to a duty of 2 cents per pound.

Samples of the 1927 crop of timothy-seed were submitted to a number of the leading seed-houses, both in Scotland and England, which received very favourable comment from some of the largest houses. Upon investigation, however, we found that it was practically impossible to compete with American seed in these markets owing to the high cost of carrying charges, as follows:—

Bulkley Valley to Vancouver, $1 per 100 lb.; wharfage, Vancouver, 50 cents per 2,000 lb.; handling, Vancouver, 65 cents per 2,000 lb.; unloading, Vancouver, 65 cents per 2,000 lb.; cargo rates, 15 cents per 2,000 lb.; insurance, 63 cents per $100 value on an estimated valuation of $100 per ton; rate, Vancouver to United Kingdom, $1.25 per 100 lb.; making a total carrying charge, Bulkley Valley to the United Kingdom, of $2.37½ per 100 lb., which appears to be prohibitive in competition with American seed, which can be transported from Atlantic ports to the United Kingdom at a much lesser rate.

Notwithstanding the shrinkage in grains, grasses, field roots, and vegetables, conditions generally throughout the district show a marked improvement over previous years. This can be attributed, to a very large extent, to the increased activity in mining, cedar poles and ties, and lumbering; the estimated pay-roll of which for 1927 amounted close to $700,000.

Mining throughout the district has made forward strides in the past year in excess of any previous year. The Duthie Mine at Smithers installed a 50-ton oil-flotation mill and increased its rate of production, while at the same time development-work has revealed ore-bodies more extensive than had previously been known in this mine.

Important developments have also taken place in the Topley section, where the financing of the development of the Topley-Richfield Mine was satisfactorily arranged this winter through Vancouver interests. The result is already being felt in the increased amount of work going on. In the Babine Range, Eastern capital is coming in to try out properties there that have waited long for necessary capital, while on Hudson Bay Mountain, immediately adjoining Smithers, new development and new discoveries of importance have occurred in several places.

In conclusion, I am thoroughly convinced that the marketing problem is the greatest handicap to the development of this district, and special encouragement should be given settlers to produce the commodities for which a ready and profitable market can be found.

Respectfully submitted.

DUNCAN D. MUNRO,
District Agriculturist.

REPORT OF DISTRICT AGRICULTURIST, WILLIAMS LAKE.

C. C. KELLEY, B.S.A.

Dr. D. Warnock, O.B.E.,
Deputy Minister, Department of Agriculture, Victoria, B.C.

SIR,—I have the honour to submit the first annual report from the Districts of Lillooet and Cariboo.

GENERAL.

The early part of the growing season of 1927 left little to be desired. Rainfall was intermittent and abundant until July 15th, after which dry weather extended almost continuously to the last week of August. This in turn was followed by wet weather, which did some damage to hay-crops then being harvested. Barring the loss of some hay in the field, succeeding dry weather ensured the recovery of all other crops. The dry weather in July and August so affected the cultivated crops grown under dry-farming conditions that the resulting yield can only be described as average. Hay-crops, on the other hand, escaping this dry weather, gave high yields per acre.

Range conditions over most of the country were very good, with the possible exception of certain areas in the Chilcotin that were bared by the inroads of grasshoppers. The cattle reached winter quarters in good shape.

Cattle-feed supplies may or may not be adequate for the winter. Winter-feeding began earlier this year than usual. Permanent snow came in the latter part of October and has been steadily increasing in depth as the season progresses. This may cause a hay-shortage on some of the cattle-ranches before spring.

INSECTS.

Having reached this district for the first time on July 1st, 1927, your Agriculturist was at once occupied with grasshopper outbreaks in several localities. At that time the entire crop was threatened in the Springhouse District, no bait was available, and the farmers were unschooled in the mixing of the poison formula. Due to the prompt action of the Department, supplies were forthcoming immediately and active aggression against the grasshoppers was possible within a week. While waiting on supplies the farmers were visited individually in the infested areas, their several problems worked out, and they were given instruction with regard to the mixing and distribution of the poison bait. After the arrival of the first shipment of supplies the outbreak was put down with dispatch, and to the entire satisfaction of those concerned.

Subsequent plans were drawn up, with the assistance of the Entomological Branch, to handle any future outbreaks that may occur.

During the summer the grasshopper problem on the Chilcotin range, near Riske Creek, has been subject to personal observation by the Entomological Branch and will be entered in their report.

Other insects of economic importance noted during the year were the imported onion-maggot and a surface-feeding cutworm of uncertain classification, probably a species of *Peridroma*. There is good reason for the belief that both of these insects will damage garden crops again next year. The cutworm was very prevalent in the early part of the season throughout the district, many farm gardens having to be replanted several times. The imported onion-maggot did similar damage in the onion-plots over a large area.

Since the widely scattered nature of some of the farming communities is not conducive to the arrangement of meetings for the discussion of insect- or fungus-pest problems, much individual work must be done and each individual farmer's problem must be worked out for him.

When these localities become organized and more settled this method can be superseded by the meeting plan.

In gardens where the cutworm was still active when your Agriculturist came to the district, some success was achieved by the use of grasshopper-poison distributed in the evening about the roots of the young plants.

ORGANIZATIONS.

Extending from Lillooet to Quesnel, farming is carried on in isolated localities, some of which are approachable by road only under the best weather conditions and during the most favourable times of the year. At other times many of these localities may be reached by railway.

During the summer work was carried on in the interests of farm organizations of a nature that will begin to be evident next year. The first year's work was mainly concerned with propaganda in the interests of the future. However, one new institute was organized at Roe Lake, near Lone Butte, and several others are on the way.

The farmers in unorganized areas have been given to understand that a point of contact is necessary between each locality and the Department, and that that point of contact must be the secretary of a local organization.

In the past co-operative enterprise has lacked stimulus, with the exception of several localities centred about Quesnel, where there are three active Farmers' Institutes, a Potato-growers' Association, and a co-operative creamery. Your Agriculturist has visited these farmers' organizations whenever possible, to give talks on agricultural topics.

A system of circular letters has also been devised to distribute information as it comes to hand that is considered of direct interest to Farmers' Institutes. In this way the institutes are at all times in close touch and in working harmony with the Department.

LAND SETTLEMENT BOARD.

Throughout the year considerable work was carried on in the interests of the Land Settlement Board, in the form of appraisals, inspections, and reports on previous loans, and in investigating applications for new loans. As these loans have been made over a widely scattered area, a large amount of travelling was done.

ECONOMIC.

Agricultural conditions that were necessary in the past in the Cariboo District govern conditions to an unwarranted extent at the present time. In the days of horse traffic over the Cariboo Wagon-road a huge demand for garden vegetables and horse-feed was stimulated by the artificial prices paid during the various placer-mining booms in the Quesnel District.

In consequence a system of agriculture that is primarily intensive in its mode of cultivation came into existence and depended on local demand for its market. When this type of farming became thoroughly established the mining camps were on the wane, but construction-work had started on the Pacific Great Eastern Railway. Farming conditions were again stimulated along the old lines for a few more years until the rail-head reached Quesnel, where it has remained uncompleted.

When railway-construction ceased the farmers in this area found themselves without a market for their surplus production. The type of commodity that they were in the habit of growing was not the type that lends itself to shipment and finds profitable sale in distant markets.

The coming of the railway and the fall in local consumption brought a change in conditions, but, unfortunately, little change in farming methods. The farming population have not reacted to the change in marketing conditions as fast as one might suppose, and although public opinion is turning in that direction at the present time, the greater amount of production is still designed for consumption on a local market. Local competition is therefore a discouraging factor, and the people following agricultural pursuits in this part of British Columbia will need every assistance that the Department is able to give until local agriculture is put on a more business-like basis.

OFFICE.

In due time arrangements were made for office-space in the District Court-house at Williams Lake, in which headquarters for this district were established, and the collection of suitable materials for an information bureau was begun.

Owing to the widely scattered nature of the settlements and the size of the Cariboo and Lillooet Districts, much time and expense is saved by correspondence. In the future, work of this nature will become the most important service of this office. The steadily increasing volume of correspondence bears witness that the agricultural population are appreciating the importance of this newly formed Branch, and are beginning to use it intensively as a source of information with regard to markets, crops yet untried, purchase and sale of pure-bred live stock, inquiries about farm equipment, poisonous plants, etc.

A large collection of classified native plants has been loaned to this office for identification and duplication purposes. Arrangements have been made for a suitable cabinet to contain them, and duplication will be commenced with the next growing season.

Respectfully submitted.

C. C. KELLEY,
District Agriculturist.

REPORT OF DAIRY COMMISSIONER, VICTORIA.

H. RIVE, B.S.A.

Dr. D. Warnock, O.B.E.,
Deputy Minister, Department of Agriculture, Victoria, B.C.

SIR,—I beg to submit herewith my report as Dairy Commissioner for the year 1927.

The season was not particularly favourable to the industry. Spring weather was cold and backward. Early summer conditions were better, with good rains everywhere, but the late summer was extremely dry. During September and October much wet weather was experienced, causing the utmost difficulty in harvesting the last cuttings of alfalfa and the late grains.

At the end of the year feed-supplies are fairly abundant. Silage and early hay-crops were good. Roots, in general, fair.

Throughout the year milk-supplies fluctuated greatly with the condition of pastures and the temperature. During April and May a decrease of at least 20 per cent. from the production of the previous year occurred. Production in June was much in advance, but with the coming of exceedingly hot weather in July, again dropped considerably.

DAIRY-FACTORIES.

There are in operation in this Province thirty-two creameries, three condenseries, one powdered-milk plant, and three cheese-factories. Thirty-four dairy plants, including many of the above creameries, manufacture ice-cream, some twenty-four for the wholesale trade. In addition, there are fourteen others not othewise in the dairy business making and retailing ice-cream. There are also two experimental farms and five farm dairies making cheese.

The area of greatest manufacture is the Lower Mainland, and following in order, though far behind, the Islands, the Okanagan Valley, the Kootenay and Columbia Valleys, and the rest of the Interior.

TABLE No. 1.

	Lower Mainland.	Islands.	Okanagan.	Kootenay and Columbia Valleys.	Interior.	Total.
Number of manufacturing plants.	25	15	17	10	10	77
Per cent. of total plants	32.50	19.50	22.00	13.00	13.00	100.00
Per cent. of total manufacture, value	66.00	15.00	13.00	4.00	2.00	100.00
Per cent. of total manufacture per plant, value	2.84	1.00	0.76	0.40	0.20	.....

The four last-mentioned districts manufacture chiefly butter, with some ice-cream and a very little cheese. No other manufactured dairy product comes from the factories of these districts. The Lower Mainland, however, produces, in addition to butter, ice-cream and cheese, evaporated milk, powdered milk, and casein.

CREAMERIES.

The increase in manufacture of butter is not great, but continues very steadily, subject to the demand for milk and cream for domestic purposes and for the manufactures.

Of the thirty-two creameries operating, some are exceedingly small; others there are with yields ranging from 500,000 to 1,250,000 lb. per annum.

The operating costs, therefore, vary tremendously in different creameries. The continuance of this condition of affairs can be understood only by a realization that all stages of progress in the industry (from that of pioneer development to a modern specialization) are represented in these factories.

The creameries of the Province, with a few exceptions only, are to be regarded as fairly provided with modern equipment. The drainage and sanitary arrangements are, in general, good.

Little unpasteurized creamery butter is now made, the amount being about 7 per cent. of the total butter manufactured.

The grading of cream under Provincial standards and regulations has now been in effect for two years.

At most creameries the response to a stricter and more uniform system has been marked, a good improvement in the quality of butter being in evidence. In districts where close competition obtains the greatest slackness in grading is to be found, and most difficult also to remedy. Reports have been received month by month from all creameries.

There would appear to be little chance of inaugurating any different system for years to come owing to the smallness of so many of our factories. These would be unable to contribute adequately to any scheme of assessment of costs were administration of the work of the licensed graders taken over by the Dairy Branch, as is the case in the Prairie Provinces. Meantime, under regulations for the licensing of graders, there is being built up in this Province a body of graders, capable and with uniformity of standards, whose training and experience will eventually guarantee a better understanding everywhere of the modern butter-maker's requirements in cream for the churning of high-grade butter. To date fifty graders have been licensed and forty-two are still operating in British Columbia.

The work of the two Dairy Instructors and Inspectors, F. Overland and F. C. Wasson, has been very largely in checking regularly on receiving-platforms, the grading of cream being carried on at the different creameries. Time has been spent in calling on patrons for the inspection of farm dairies and to afford information as to the best methods of caring for milk and cream. About 900 such calls were made during the year.

Inspections of city manufacturing plants have also been made periodically. Besides instructional work in the grading of cream, assistance in regard to general methods of control has frequently been given.

During the year the cream received showed the following percentages of the different grades: Table, 2.3; Special, 55.3; No. 1, 38.1; No. 2, 4.3.

TABLE No. 2.—DISTRIBUTION OF HUMAN POPULATION, DAIRY PLANTS, AND DAIRY CATTLE.

	Lower Mainland.	Islands.	Okanagan.	Kootenay and Columbia Valleys.	Interior.	Total.
Human population	346,500	115,000	38,500	56,000	26,000	582,000
No. of dairy cattle	42,000	23,000	17,000	9,500	2,500	94,000
Per cent. of dairy cattle	44.75	24.50	18.00	10.00	2.75	100.00
Cows per plant	1,680	1,533	1,000	950	250	1,220
Cows per 100 persons	12	20	46	17	9.6	16
Persons per plant	13,860	7,666	2,265	5,600	2,600	7,558

CONDENSERIES.

The Fraser Valley Milk Producers' Association condenseries at Ladner and Delair (Abbotsford) and that of the Borden Company at South Sumas operated as usual during the year. An increase in production of several thousand cases of evaporated milk is noted.

MILK-POWDER AND CASEIN.

Increases in the amounts of milk-powder and of casein produced during 1927 over amounts of previous years occurred. The demand for these products is good.

CHEESE-MAKING.

Very little change from the situation of former years is to be recorded in respect to the manufacture of cheese. Some five farm dairies are manufacturing as many varieties for sale, but no general interest in this work is manifest. The two existing factories have dealt with another four varieties intermittently. No disposition to any sudden increase of output appears, nor is such likely till a reasonable certainty as to the most suitable variety and its probable reception by the market is obtainable.

ICE-CREAM.

A very good percentage gain in output from ice-cream factories took place during the season, except in Vancouver.

Several new firms have made their appearance amongst the wholesalers.

The *per capita* consumption of ice-cream in British Columbia is very probably close to 1 gallon per white person. For the entire population it is nine-tenths of a gallon. The amount consumed by Indians and Orientals is difficult to arrive at.

As a profitable outlet for surplus milk every encouragement should be given for its manufacture.

An amendment to the "Food and Drugs Act" of 1927 (Dominion Statutes) requires that the net contents of packages of ice-cream be clearly and conspicuously stated. The Chief Dominion Analyst, H. M. Lancaster, states: "While it is preferable that this statement be made in terms of weight, it is necessary to recognize trade practice and to accept statement of net contents in terms of volume, such as pints, gallons, etc. It is hoped there will be general conformity in 1928."

Although provision has been made for the appointment to this Branch of an ice-cream instructor, it has not yet been possible to do so. Much difficulty is being experienced in securing the properly qualified man of experience this position demands.

COW-TESTING—MILK RECORDING.

The work of the Cow-testing Associations continues with well-sustained interest on the part of members in its results and developments.

The report of the assistant in charge, G. H. Thornbery, states:—

"A greater number of herds have been tested during 1927 than in any previous year. An association has found it necessary to employ a second supervisor to accommodate the large number of dairymen who were waiting their turn to become members. This makes a total of ten routes in operation within the Province at the present time. There are now nine Cow-testing Associations in operation in the Province. Six of these are located in the Fraser Valley and one in each of the following districts: The Comox Valley, which takes in some herds around Nanaimo, the Okanagan, and the Bulkley Valley.

"During the past year the testing centres at Cowichan, Mount Lehman, and Ladner, also Poplar and Peardonville, have continued to be of service to dairymen in the surrounding districts. These centres afford the means whereby settlers in these outlying localities can get much valuable information about the merits of the individual animals in their herds.

"The number of milking-periods completed during the year which qualify for certification is 1,116. This is a considerable increase over those of the previous year. It brings the total number of certified records during the six-year period that it has been in operation to 3,682. The plan of certifying records is much appreciated by members of Cow-testing Associations. It affords an added inducement to continue testing from year to year, as a single record qualifying for certification has not as great a value as several records over a period of years from the

same animal. Dairy Circular No. 14 has been issued, giving particulars of 896 milking-periods completed during 1926, which qualified for certification.

"In the past very little benefit was derived by members of Cow-testing Associations from the recording of the amounts of various foods consumed by individual cows in their herds each month. No uniformity existed in the values that were placed on foods. Members who were forced to buy a portion of the ration fed to their cows required such foods to be charged at market prices. Others, more fortunate in this respect, would value the food at prices somewhere near cost of production. As both market values and costs of production varied in each association, and to a greater or less extent on every farm, no food records were on a comparable basis. This prevented any comparison being made between cows, herds, or associations as to the average amount of food required to produce 100 lb. of milk or 1 lb. of fat.

"Many plans have been given consideration in the search for some suitable method that would be uniform in all associations. Finally, the food-unit system was decided upon, as it alone possesses the essential features particularly suited to Cow-testing Association work. Each food has a unit value based on its actual value to a cow in the production of milk. As the relative values of foods on the unit basis are uniform in all associations, therefore the food requirements for a given amount of milk or fat are comparable. This enables a herd or a whole association's herds to be compared with any other or others on the basis of economical production.

"Reports of milking-periods completed during the year received from all associations numbered 2,002. The average production of all completed milking-periods for 1927 is 8,044 lb. of milk containing 330.7 lb. fat. This represents an increase of 16 lb. of fat over the average of last year, or 65.5 lb. of fat over a twelve-year period."

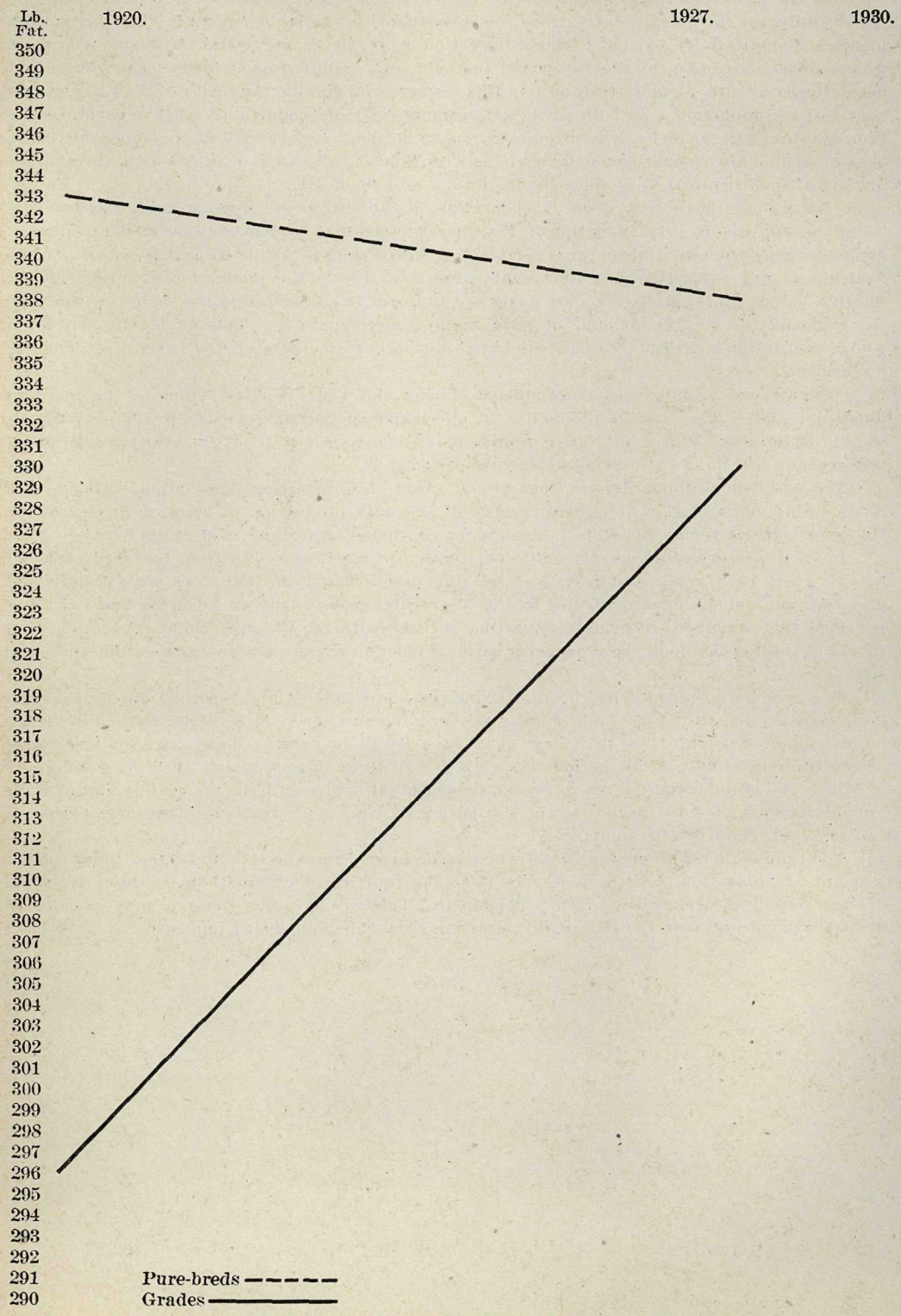
The conclusions to be drawn from fifteen years of Cow-testing Association work, with a considerable accumulation of annual records of the milk production of cows of this Province, show very clearly to-day the steps necessary for continued improvement of grade herds.

In such improvement the systematic elimination of worthless cows from the herd plays, at first, a great part, with, obviously, a decreasing practicability as time goes on. Weeding-out may continue, though unaccompanied by the spectacular results that attended the first evictions, provided that standards are raised from time to time with the progress made. Assuming that care and feeding methods are reasonably good, further progress then depends on the pure-bred sire.

The average butter-fat yield of all milking-periods completed and recorded during 1927 has been stated herein to be 330.7 lb. of fat. Of herds on test, over 20 per cent. have an average annual fat production of 350 lb.; 5 per cent. have 400 lb. or over. The average fat production of the grade cows during this period was 328.8 lb.; of those of pure blood, 337.9 lb., a difference of 9 lb. The grade cows' figures represent since 1920 an increase of 11 per cent., or an average annual increase of 4.075 lb.; those of the pure-bred cows a decrease for the same period of 1.45 per cent. and 0.675 lb. annually.

The time is therefore close at hand when grade herds can expect, as to further improvement in point of production, a little assistance from the practice of elimination, but none from the average pure-bred sire acquired from a neighbour. This sire is in fact likely to prove a cause of disappointment and loss, the risk of retrogression from this point being immense.

TREND OF AVERAGE BUTTER-FAT PRODUCTION OF PURE-BRED AND GRADE DAIRY COWS IN COW-TESTING ASSOCIATIONS FOR YEARS 1920–27.



The policy of increasing to the utmost the number of owners of pure-bred dairy cattle in British Columbia is of very doubtful wisdom. It is true that there is thereby offered to older breeders a market for the culls from their herds. These animals are not necessarily unworthy dairy cattle, but are naturally inferior to the others of the herds they have left. Were the new owners simply dairy-farmers little harm to dairy communities could occur, but the temptation to consider themselves breeders on the strength of their new possessions is apparently great. Thus begins the distribution to neighbours throughout the country of sires of pure-blood surely, and duly registered, but frequently of most ordinary and mediocre ancestry as regards production.

The popular cry of nowadays for the use of "pure-bred sires only" can be most economically and disastrously complied with by means of bulls of this class.

The performance of many grade dairy herds in this Province to-day is too good to be imperilled by the use of sires nominally superior, but incapable, by reason of inferior ancestry, of raising in the slightest degree their milk or butter-fat production. There is required a very strict weeding-out of the pure-bred dairy cattle of the country also. There are needed registration requirements that will ensure a high measure and quality of performance in all pure-blooded registered dairy stock, and that will by non-registration eject into the ranks of the grades those of the blood found wanting. These are matters for adjustment by the various Dominion Dairy Cattle Breed Associations.

The work of the Provincial Cow-testing Associations in indicating the performance of individual cows is likely to fall short of its aims in the continued improvement of dairy herds without supplemental instruction in respect to bulls. Not only must suitable sires be of pure blood and good type, they must be of worthy ancestry and capable of increasing the yield of daughters over dams, or the improvement of the dairy herd is non-existent. Every incapable, unworthy sire means not only a loss of money, but a frightful waste of time in the building-up of profitable dairy herds.

TESTERS' LICENCES.

Thirteen applicants were examined during the year. Sixty-nine licences were issued. (For the list of testers holding licences during 1927 *see* Appendix No. 25.)

CREAM-GRADERS' LICENCES.

Forty-three licences to cream-graders were issued. One was a single licence; the other forty-two were combined cream-graders' and milk-testers' licences. Five were temporary only, subject to further examination. (For the list of cream-graders so licensed *see* Appendix No. 26.)

DAIRY AND CREAMERY LICENCES.

Licences for a dairy or creamery were issued to fify-four persons, firms, companies, or associations buying milk or cream on the basis of butter-fat. (For the list of creameries and dairies so licensed *see* Appendix No. 27.)

LEGISLATION.

No changes have occurred in existing legislation, nor has there been enacted anything new directly affecting the work of this Branch.

The "Milk Act," administered by the Veterinary Branch, underwent revision and the grading of dairy-farms now takes place according to the prescribed score-card. The standards for dairy-farm buildings, etc., formerly part of the "Contagious Diseases (Animals) Act," are now in the regulations under the revised "Milk Act."

FAIRS.

The usual duties in connection with the dairy classes at Victoria, Vancouver, and New Westminster Exhibitions were carried out.

E. W. Light, Dominion Grader at Saskatoon, judged at Vancouver and Victoria; K. G. McKay, Chief Dominion Grader, Winnipeg, judged at New Westminster.

CREAM-GRADERS' LICENCE COURSE.

The next course has been arranged for the dates of January 9th to 28th, inclusive, at the premises of the Fraser Valley Milk Producers' Association, Vancouver. In addition to the samples of cream provided for class purposes at this place, cream shipments to Vancouver during

these weeks are to be viewed and graded on arrival, through the kind co-operation of D. Spencer, Limited (Creamery Department), and P. Burns, Limited (Vancouver Creamery and Woodland Drive).

THE BRITISH COLUMBIA DAIRYMEN'S ASSOCIATION.

The work of this association continues in the encouragement of the various phases of dairying. Prizes for R.O.P. and C.T.A. records have been offered and in the creamery-run competition for butter-makers, instituted last year. An ice-cream competition is to be held at the time of the next annual convention, which takes place in Nanaimo, February 20th and 21st, 1928.

PUBLICATIONS.

Publications during 1927 consisted of: Dairy Circular No. 14, "Annual List of Certified C.T.A. Records"; reprint of circular on "Varying Butter-fat Tests"; and a poster for the use of dairy-factories, "Why Cream Tests Vary."

OFFICE.

The correspondence of the Branch grows steadily. Market reports to the number of several thousand were sent out and as many dairy bulletins and circulars. Cow-testing Association affairs are demanding more time from the staff. The applications for certificates of production are now received in such numbers during the winter months that further assistance may have to be secured next fall in the busy months.

Respectfully submitted.

HENRY RIVE,
Dairy Commissioner.

REPORT OF CHIEF POULTRY INSTRUCTOR, VICTORIA.

J. R. TERRY.

Dr. D. Warnock, O.B.E.,
Deputy Minister, Department of Agriculture, Victoria, B.C.

SIR,—I have the honour to submit herewith the report for the year 1927.

GENERAL CONDITIONS.

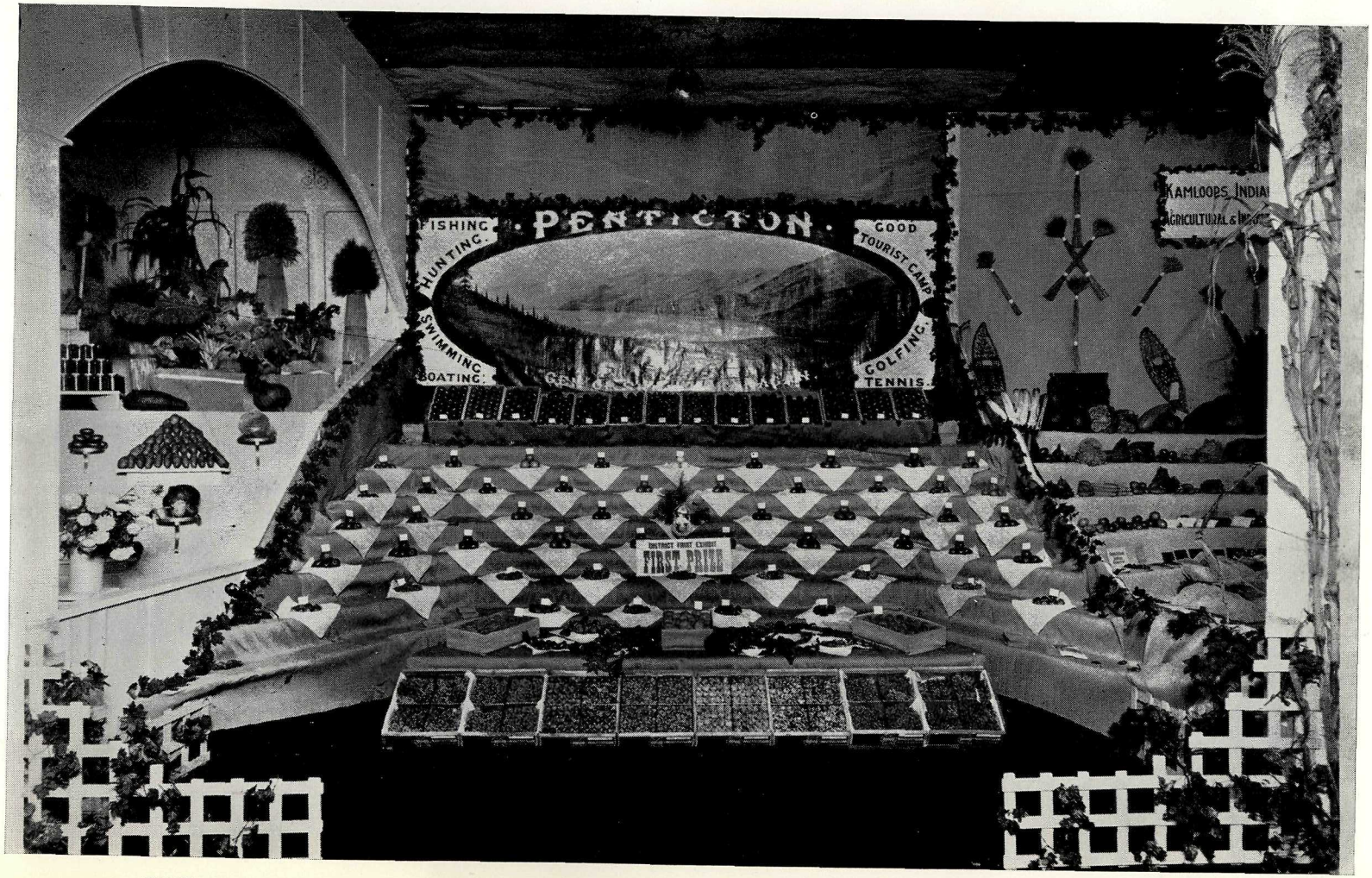
The past year was a banner one as far as total production of eggs was concerned. If it had not been for the extraordinary losses among chicks up till 12 to 16 weeks of age, the production in the fall would have been enormous. Owing to winter setting in early in the East the egg production there was kept lower than usual; this enabled wholesalers to ship out our fall and winter surplus to eastern portions at a more remunerative price than obtained in 1926. Nearly 200 car-loads of eggs were exported during the season, and there is no doubt that, with increasing prosperity evident in the Province here, many more eggs were consumed than formerly during this period.

The price of poultry-meats kept about on a level with the preceding year. As in previous years, quantities of dressed fowl were marketed, particularly during the Thanksgiving and Christmas holidays. It would appear that more breeders in the Province are beginning to turn their attention to the production of general utility poultry rather than those breeds noted for egg-laying. The popular heavy-weight breeds, such as Reds, Wyandottes, and Rocks, are among those receiving attention.

The practice of selling pullets from 8 to 12 weeks of age was extended during the year. A great increase is noted; the prices received were from 65 cents to $1.50 each.

Day-old-chick sales netted an average of about 20 cents per chick, ranging from 15 cents per chick for the later-hatched ones up to 50 cents per chick for earlier and higher-grade hatches.

Poultry feedstuffs were again expensive during the year. There does not appear to be any likelihood of much change in the price of stuffs while the demand is for mixtures containing expensive ingredients. It is possible that later on it may be found profitable to feed less nitrogenous rations, even if less eggs result. With mortality increasing from ovarian trouble, it will soon be time to call a halt and revise and reconsider feeding problems.



PROVINCIAL EXHIBITION AT NEW WESTMINSTER, B.C., 1927. THE FIRST PRIZE FOR THE BEST DISTRICT FRUIT EXHIBIT WAS WON BY THE PENTICTON DISTRICT.

The following is a comparison of prices (wholesale) from 1905–1927, inclusive:—

	Cents.		Cents.
1905	24½	1917	41
1906	29½	1918	50
1907	31	1919	60¼
1908	31½	1920	57½
1909	33¾	1921	39½
1910	34¼	1922	32½
1911	34¾	1923	28
1912	41	1924	32
1913	35	1925	32
1914	35	1926	30
1915	32½	1927	29
1916	34		

In addition to the many car-loads of eggs shipped to large Eastern centres, the small consignment shipments were in excess of previous years.

IMPORTS.

From Canadian Provinces the dressed-poultry imports totalled 793,667 lb., valued at $268,112.

The total number of eggs received from the Eastern Provinces was 127,470 dozen, valued at $43,714.

The total imports from foreign points of dressed poultry and eggs were valued at $22,435, being a decrease of $10,900 for the year.

The number of day-old chicks brought in was 14,265, at an average price of 12½ cents.

EXPORTS.

Poultry exports were sent out to the value of $2,203,856, an increase of $1,716,182 for the year, being made up mostly of a tremendous increase of eggs exported. Of this total, live poultry accounted for $76,806, the number of birds being 24,131, and the dressed poultry followed at $24,614.

WEATHER CONDITIONS.

With average winter temperatures obtaining, winter egg production was possibly above the average. Hatching results might be classed as medium, but mortality was about the heaviest experienced since the spring of 1917, following the very severe winter of that year. That much of the heavy losses were due to utilizing eggs from stock lacking in maturity and vitality cannot be gainsaid. According to the number of chicks reported sold, it is evident that many early-hatched pullets must have been pressed into service.

BREEDING OPERATIONS.

The Provincial Record of Performance Association, assisted financially by the Department, again reports a large increase of business done, mainly through previous stock sold and systematic advertising in likely parts of the world.

Private breeders and hatcheries report increased sales of stock, chicks, and hatching-eggs during the season.

DEPARTMENTAL WORK.

The Instructors, from their various locations, systematically visited all parts of their districts during the year. The Instructor for the Interior and Northern portions of the Province reports a great incease in fowls kept, particularly referring to the group of turkeys. During the fall a demonstration car was fitted out and toured a section of the Interior District. A full account appears farther on in this report.

Owing to the Interior portions of the Province being less mild during the winter than the Coast sections, the majority of fowls kept are of the heavy-weight varieties. For the first time since the formation of Boys' and Girls' Clubs eggs from birds in the Interior were secured for the clubs located near by. The results were gratifying enough to induce the continuance of this practice.

During the year the imports of storage eggs into the Kootenay District, as reported by the District Instructor stationed at Nelson, continued. Owing to repeated representations by the various organizations concerned, the Federal authorities are shortly appointing an Egg Inspector to enforce regulations in the Interior.

Poultry-breeding in the district concerned shows gratifying increases, with an estimated total of about 100,000 hatching chicks imported by breeders there. At the Nakusp Fall Fair a week's egg-laying contest was again inaugurated with the District Instructor in charge. The effort deserves recommendation, especially as the district is rather sparsely settled and not ideally located as far as transportation is concerned.

The Lower Mainland District, with the Branch Instructor located at New Westminster, easily holds premier place as poultry-raising section in the Province. Practically every village or centre of population reports a great increase over previous years. It would appear that, coincident with the growth of large centres, a larger proportion of the population seems to desire to go into poultry-rearing. With Vancouver and its environments approaching metropolitan status, ever-increasing numbers of its residents yearn for country life. In an endeavour to satisfy this craving several poultry communities were started on the Lower Mainland. The glamour of the advertising certainly accounted for many beginners taking up poultry-rearing in the Lower Mainland District. The advice given last year to all those taking up poultry-rearing anywhere in the Province still holds good. The quotation is as follows: "It behoves the beginner to seek advice and experience before launching heavily into a business that demands more than the average amount of knowledge as to live-stock rearing, salesmanship, and executive ability." Turkey-rearing in the district increased slightly and many breeders took up duck-raising. With a fairly large market in the big centres of population there is room for a reasonable number of competent duck-raisers. After hatching, the matter of rearing is comparatively easy, and unless one is prepared to hatch and rear earlier than usual there is trouble of the market being flooded, with the result of tremendous drop in prices.

PROVINCIAL POULTRY ASSOCIATION.

The annual Provincial Poultry-show was held at Vancouver and, despite a heavy snow-storm, proved one of the best-attended shows ever held. The entries showed a gratifying increase over previous years and there was a higher percentage of quality birds than in the past. The Dominion Government again offered valuable cash prizes for exhibits of dressed fowls. The exhibits in this class were certainly equal to those ever seen by the writer in the famous Eastern fairs. At the conclusion of the fair an auction of dressed poultry was held and very high prices were paid for exhibits. The turkeys averaged 60 cents per pound and the dressed cockerels 65 cents per pound. Particular mention should be made of the first prize exhibit of twelve milk-fed roasters. This prize was won by a young lady amateur fattener in competition with the best professional fatteners in the Lower Mainland. The twelve cockerels, which were cross-bred, weighed 100 lb. and sold by auction for $65, which is presumably the highest price ever paid in the Dominion.

The live-bird exhibits at the Provincial Show were very representative as to breed types and many sales were reported. As usual, the Branch staff were in attendance and assisted in judging many of the exhibits. The poultry-judging competition held by the association in connection with the three fall fairs of Westminster, Vancouver, and Victoria were again held. The contests were largely entered and brought out the fact that the children are gradually getting better trained in their work, with the result that the standings this year were far higher than in the past. Slight changes were made in the methods of judging and will be inaugurated in the future.

WORLD'S POULTRY CONGRESS.

The association, aided by a Government grant of $2,000, financed an exhibit collected by a committee known as "The Provincial Committee of the World's Poultry Congress." The committee held several meetings and arranged for the free transportation and care of 250 of the best birds in the Province, both utility and exhibition bred. Owing to the Record of Performance Association deciding to send a separate car, less than the number arranged for was taken in the official car. An ex-president of the Provincial Association was selected to care for the birds, and with the assistance of the Provincial president, auditor, and secretary, who accompanied the car, the entire exhibit, both as to shipment and exhibition, was a success and credit to the Province.

As a matter of record the following sent birds:—

W. Hollingworth	Chanticlers.
S. S. Martin	Black Minorcas.
A. Wallach	Black Minorcas.
A. I. Dawson	White Rocks.
Wace & Reason	White Rocks.
H. & C. Williams	Light Sussex.
O. H. Kimball	Old English Game.
T. W. Currie	White Wyandottes.
W. A. B. Paul	White Wyandottes.
W. Heads	White Wyandottes.
J. Walker	Barred Rocks.
R. H. Fortune	Barred Rocks.
H. D. Reid	Rhode Island Reds.
D. Russell	Rhode Island Reds.
F. W. Appleby	White Leghorns.
A. Bennie	White Leghorns.
J. Butterfield	White Leghorns.
R. & W. Chalmers	White Leghorns.
E. Flowerdew	White Leghorns.
A. Georgeson	White Leghorns.
M. L. Homan	White Leghorns.
A. E. Powell	White Leghorns.
Wace & Reason	White Leghorns.
W. Heaton	White Leghorns.
J. A. Grant	White Leghorns.

Of the World's Poultry Congress, held at Ottawa, July 27th to August 4th, it may be stated that it was the most successful of any of those ever held. With royalty attending and over 115,000 people visiting the fair, including delegates from forty-three nations, it can be imagined the advertising effect of such an undertaking. In addition to the official exhibit, the Provincial Record of Performance Association entered several hundred birds of production type. This exhibit almost filled one room and was the cynosure of all eyes. Many of the birds were sold and many prospective buyers interviewed.

It should be mentioned that over 6,000 exhibits, containing birds from all parts of the world, were exhibited at the Congress. A full report has already been published by the association's auditor, covering the whole of the exhibits at the Congress.

BOYS' AND GIRLS' POULTRY CLUBS.

The past season was the banner one as regards this work. A grand total of fifty-three clubs was organized. Mission City District, with twelve clubs of six different breeds, again headed the list, with Salmon Arm closely following. As usual, the Okanagan District clubs were most numerous. In this locality about half of the clubs of the Province are situated. Several new districts appear among the list this year—Burtondale, Revelstoke, Vimy, and Pender Island.

The total number of eggs supplied the clubs was 5,280, made up of 406 settings of the following breeds utilized: Barred Rock, White Wyandotte, Rhode Island Red, White Leghorn, Buff Orpington, and Black Minorca.

The success as a commercial poultryman of a former competitor in the Boys' and Girls' Clubs is recorded from Vancouver Island. A young man claimed that his interest started when he won second prize in the club competition about six years ago. At the present time he operates a poultry-farm of 1,200 birds and is making the venture a splendid success.

TURKEYS.

Another good year is to be recorded in connection with turkey-raising. Each year breeders are importing better-class breeding males from other sections of the Dominion, with the result that a better class of bird is being produced, particularly as to size and appearance. Breeders in all sections of the Province reported good average hatchings and rearings. Turkeys reared in parts of the Province with a rainfall exceeding 60 inches in the year appear to have come through with less than normal mortality.

DUCKS.

The increased interest in water-fowl rearing, which, according to last year's report, assumed boom proportions, appears to have subsided somewhat. Quite a few breeders found to their cost the danger of rearing large quantities of fowls before securing a profitable market. The increase seemed to be particularly confined to the Pekin breed, although quite a few breeders have taken up the breeding of a light-weight duck, mainly for egg production. A large quantity of ducks also was produced for market purposes by crossing Muscovy ducks with Pekin or Mallard. Some of the new breeds making an appearance in the Province were the English breeds, Khaki-Campbell, and Magpies (a black-and-white duck of medium size).

GEESE.

A steady increase in production of this type of fowl is again to be recorded. As mentioned in previous reports, where plenty of grass and creeks or streams are available geese can be profitably raised. As with ducks, however, it is advisable to ascertain the probable market demand before going extensively into the business. Where there are any Hebrew, Dutch, or German populations there will generally be found a good market for geese. Very little attention is being taken with the breeding of white geese for the production of feathers and down. The largest proportion of geese in the Province is of the Toulouse variety.

RABBIT-REARING.

During the year the Provincial Rabbit-breeders' Association was registered, followed by another one shortly after chartered for the same purpose. Up to the present there appears to have been little co-operation amongst these organizations. Nevertheless, there are several strong organizations in the Province, as follows: Victoria Rabbit-breeders' Association; The Saanich Fur Association; The Vancouver Rabbit-breeders' Association; The Grand Forks Rabbit-breeders' Association; and the Chinchilla Association of Vancouver. Quite a few more breeders have been added in the Province since the last report. This has been accompanied by a slight change in the fashions of the breeds kept. There appears to be large interest evinced in the keeping of Angoras, mainly for wool production. The rabbit-breeders of the Province sent an excellent display of pelts and made-up articles for exhibition at the World's Poultry Congress, and many Provincial breeders now show regularly in Pacific Coast shows. As a result of their winnings a steady export trade is being worked up in available breeding stock. It is to be trusted that the standard of stock sent out may not deteriorate with the increased demand. There seems to be an unlimited market for high-class breeding stock in the United States, and Provincial breeders appear to have a stranglehold in supplying this demand. The Branch again published directories for rabbit-breeders and many thousand of hutch record-cards were distributed free. Owing to the big demand for hutch-cards by breeders outside the Province the Branch has been compelled to make a small charge.

DISEASES.

The losses from coccidiosis and white diarrhœa were the worst to be recorded. The calls for expert assistance were insistent during March, April, and May, and in many cases losses as high as 40 per cent. in thousand lots of chicks were recorded. The cases of worm-infestation were about normal. With regard to the chick losses mentioned above a very serious word of warning is needed. Breeders, particularly those with very little experience, are taking too many chances when they endeavour to rear chicks in thousand lots in permanent brooder-houses where the yards are, in some cases, insufficient in size and infected with deadly germs. More than the usual number of dead birds were sent in to the members of the Branch for post-mortem examination. As in the past, the majority of birds examined were affected with ovarian trouble. It is pleasing to report that very few cases of tuberculosis were discovered. With a little more care and attention this disease should soon be non-existent.

OFFICE-WORK.

Officials of the Branch attended to many matters involving interviews in the respective offices and attention to the large number of communications, many of which asked for personal visits or for circulars or bulletins. During the past year a large increase in the number of trap-nest record forms issued is to be recorded. Although many of those taking up trap-nesting

work fall by the wayside after a few months, yet it is pleasing to report the above increase, showing that more care and attention is being paid to breeding matters. A much larger number of lectures and demonstrations were given than in any other previous year, the Kootenay member of the Branch being particularly active in this respect. Killing and plucking, caponizing, and post-mortem examinations were given at suitable centres and the members of the staff again acted as judges at the fall fairs and poultry-shows.

Shortly after the fall fairs the Branch inaugurated an innovation as far as is known in connection with poultry-instruction matters. A Ford truck was secured and stocked with breeding cockerels of the leading varieties and many handy appliances generally used for demonstration purposes at the three big fairs only. In addition, a full supply of bulletins and egg-record sheets and charts were carried around for distribution. The section selected was the North Thompson River. The trip was arranged so that afternoon meetings were held in each place and the time in the mornings utilized in visiting the poultry-ranches and giving demonstrations before moving on to the next centre. The first meeting was held at Barriere; then followed Chinook Cove, Louis Creek, Clearwater, Birch Island, Vavenby, and Avola. The largest attended meeting of the trip was held at Birch Island, where nearly a hundred people were present. On the return journey the live cockerels were sold at purchase price for the betterment of stock in the district. At nearly all the centres visited killing and plucking demonstrations were given, the ranchers supplying the fowls for demonstration. En route, wherever possible, the demonstrators stopped at ranch-houses and gave demonstrations beside the truck. There appears to be need for this class of work, particularly in regard to instructing the farmers as to the real value of good, strong, vigorous cockerels from heavy laying stock. Many ranchers cannot see the force of paying as high as $5 for a good cockerel. The Instructor for the Northern Interior, accompanied by the writer, made the trip.

During the year the Branch clerk-stenographer relinquished her post to take up work in connection with another branch of the Department.

In conclusion, the uniformly good work and efficiency of the three Instructors and the clerk-stenographer is again appreciated.

Respectfully submitted.

J. R. Terry,
Chief Poultry Instructor.

REPORT OF PROVINCIAL AGRONOMIST, VICTORIA.

Cecil Tice, B.S.A.

Dr. D. Warnock, O.B.E.,
Deputy Minister, Department of Agriculture, Victoria, B.C.

Sir,—I beg to submit herewith the annual report of the Field Crop Branch.

GENERAL CONDITIONS.

The season of 1927 was a peculiar one. Spring work was greatly retarded owing to adverse weather conditions and lateness of season caused the farmers much concern. Heavy rains made the working of farm lands, particularly those poorly drained, very difficult.

Pasture and hay crops were slow in making growth early in the season, due to the cold weather. As soon as the land warmed up, however, the hay and forage crops grew very fast, and as a result exceptionally large crops were cut in many districts. The grain-crop was also good, but considerable difficulty was experienced in harvesting and threshing, due to the wet weather. A considerable quantity of grain was damaged in the stook, due to the existing climatic conditions, and much of it was a total loss. Root and potato crops benefited by the late rains and some very good crops resulted. Unfortunately, however, heavy rains later on caused flooding of the land and considerable difficulty was experienced in harvesting operations. As a result of this many tons of potatoes were not dug and consequently they rotted in the ground.

SEED PRODUCTION.

Considerable progress has been made in the development of the seed industry during the year. This work is carried on in co-operation with the Dominion Seed Branch, but is supervised by the Provincial Field Crop Branch. In the general plan for the development of the seed

industry in this Province it is the duty of this Branch to organize production. In this connection an official was again placed in Central British Columbia, since this portion of the Province promises to become an important field-crop seed-producing centre. In the southern portion of the Province our efforts were chiefly confined to the encouragement of mangel-seed growing, since the conditions here are particularly favourable for the production of this seed.

Timothy-seed.—The production of timothy-seed is confined to Central British Columbia and more particularly to the Bulkley Valley. Due to the low prospective price and the adverse weather conditions the acreage saved for timothy-seed was much smaller than in 1926. Approximately 175 tons of seed were harvested, as compared with 385 tons the previous year.

A combined field-crop and cleaned-seed competition was conducted in connection with this crop, for which there were twenty-nine entries. By this means the attention of the growers was drawn to the importance of weed-control and to the necessity for a suitable rotation in maintaining the highest possible grade and yield of seed.

It is desired to draw attention to the fact that the acreage of timothy in this part of the country is too great if an efficient system of agriculture is to be built up. For this reason every effort is being made to introduce other crops, chiefly cereals, and an increasing amount of sod is being broken every year. It is interesting to note that an exhibit of timothy-seed sent to the International Hay and Grain Show, Chicago, by Mrs. A. V. Fisher, Telkwa, captured third prize.

Meadow-fescue and other Grass Seeds.—The prospects for producing other grass-seeds are very good at the present time in Central British Columbia. In view of the fact that large quantities of certain grass-seeds, among which is meadow-fescue, are imported annually, encouragement in the growing of these grasses is desirable.

This year some 20 acres of meadow-fescue were harvested, with an estimated yield of 1,800 lb.

Red-clover Seed.—The production of red-clover seed in the vicinity of Prince George is assuming importance and promises to become a profitable industry. In view of the superiority of Canadian-grown seed over imported seed, this would appear to be another branch of seed-growing worthy of considerable attention.

Swede-turnip Seed.—Small lots of swede-turnip seed were issued to twenty-one farmers in Central British Columbia. These lots totalled 6¾ lb., which was the remaining amount of a supply of seed which had been distributed the previous season for the purpose of seed production. This seed was distributed among several farmers in the Skeena and Bulkley Valleys and the Lakes District.

The crop grown from the seed distributed in 1926 suffered badly from the very low temperatures of September of that year, with the result that only five growers, and these all in the Bulkley Valley, had any roots with which to plant a seed-bearing plot this year. Of these, but two had plots of any size (about $^1/_{10}$ acre;) the balance growing a small number of plants.

The crop produced on these plots was harvested with varying success. However, some 50 lb. of good seed was obtained and samples of the cleaned seed were forwarded to the Vancouver Winter Fair, where they both were awarded prizes.

A. E. Davey, who had charge of the work, states: "It appears that the production of swede-turnip seed in commercial quantities is scarcely advisable as yet, owing to lack of facilities for proper handling of the crop and the lack of competent help." In the southern part of the Province, stock seed of swede turnips, produced at the University of British Columbia, was distributed among five farmers, also 1 lb. of a special strain of seed obtained from the Experimental Farm, Nappan, Nova Scotia, was sent out. As a result of this it is expected that a considerable quantity of swede-turnip seed will be offered for sale next year. Your official wishes to point out that the stock seed distributed in 1926 in the southern part of the Province produced satisfactory roots, which were set out last spring, with the result that a quantity of turnip-seed was produced this year. A sample of this seed has been received in the office of the Field Crop Branch and appears to be of excellent quality. Some of this same seed was exhibited at the Provincial Winter Fair and captured prizes.

Mangel-seed.—In the early part of the year stock seed of the Yellow Intermediate variety secured from the University of British Columbia, MacDonald College, and the Ontario Agricultural College was distributed. In this connection it should be stated that it takes several years of very careful work to produce seed which can be satisfactorily used for foundation stock.

It is expected that a considerable quantity of mangel-seed will be produced next year from the small roots (stecklings) which have been grown this year.

It is interesting to know that a quantity of mangel-seed has been produced this year from the stock seed distributed in 1926.

SEED-DRILL SURVEYS.

In order to ascertain the kind of seed being sown by the farmers of the Province a seed-drill survey was conducted by this Branch, working in co-operation with the Dominion Seed Branch. This survey consisted of taking 1-lb. samples of seed direct from the grain-drill at the time of sowing the seed. Sixty-six samples were collected in the southern part of the Province and twenty-seven in Central British Columbia. (Appendix No. 31 gives the results of this survey.)

It is apparent that farmers generally are not paying sufficient attention to the kind or varieties of seed they sow. In our efforts to prevent the spread of weeds in the Province it would seem that a campaign to educate the farmers to use clean seed would be a step in the right direction.

WEEDS.

As far as time has permitted the attention of farmers has been directed to the necessity for controlling weeds, particularly those coming under the heading of noxious weeds. In view of the encouragement being given to seed-growing in this Province, it is particularly desirable that every effort should be made to prevent serious weeds from spreading. There is nothing that will hurt our seed industry more than the prevalence of bad weeds.

SOIL INVESTIGATIONS.

The policy of visiting farms and giving first-hand information on soil problems was continued this year. More than 600 farms were visited and soil conditions investigated. In all cases farmers were given advice on soil management and crop production. The necessity for crop-rotation and inclusion of leguminous crops was urged in most cases. Where mixed farming is not practised and raw materials are being marketed, the growing of green manuring crops was generally recommended as the best method of adding to the humus-supply, which is usually deficient where live stock is not kept. There were seventy-six samples of soils, fertilizers, and lime submitted to the Provincial Analyst and reports on all of these have been received. (*See* Appendix No. 33.)

J. B. Munro, Assistant Agronomist, reports as follows: "Further observations made this year convinced us of the necessity of subbing the soil. The hard-pan which underlies much of the arable land, especially in the Coast districts and on Vancouver Island, prevents the penetration of roots of ordinary field crops to any considerable depth and does not allow water to percolate down into the lower strata. By breaking up the subsoil the water is allowed to pass downward and the roots are able to penetrate deeply. Subsoiling and underdrainage are two important practices that have been neglected, especially in the Coast districts."

FERTILIZER DEMONSTRATIONS.

The work with fertilizers which was started in 1926 in co-operation with the Fertilizer Division of the Dominion Seed Branch was continued this year. The only differences were that no lime was used and the work was carried on in the form of demonstrations, and not as competitions. Ten different districts with five farmers in each district came under this system. The districts were Alberni, East Sooke, Rocky Point, Metchosin, Saanich, Mount Lehman-Bradner, Nechako-Upper Fraser Valley, Fire Valley, White Creek Valley, East Kootenay, and Grand Forks. One acre of land devoted to either silage, root-crops, or potatoes was used in each case. A ¼-acre check-plot was left unfertilized, while phosphoric acid was used on the next ¼ acre; another ¼ acre received an 0–12–10 mixture at the rate of 800 lb. per acre, and the last ¼ acre was given an application of a complete fertilizer containing 3–10–7 at the rate of 800 lb. per acre. The following report, covering the experiment carried on in the Grand Forks District in co-operation with P. C. Black, gives an idea of the scope of the work, the detail that was required in following the experiment to a proper termination, and the value of the fertilizer itself in increasing crop production in a fairly uniform soil area:—

CHEMICAL ANALYSES OF SOILS.

Name.	No.	Type.	Nature.	Nitrogen.	Potash.	Phos. Acid.	Lime.	Iron.	Ins.
Hughes, E. J.	214	Clay loam	Neut.	0.10	0.33	0.13	0.95	7.5	85.8
Heaven, C. C.	213	Clay loam	Neut.	0.08	0.34	0.16	0.85	6.9	86.3
Pennoyer, A. H.	212	Sandy loam	Alkn.	0.04	0.32	0.14	0.90	7.6	85.9
Lawrence, J. T.	211	Sandy loam	Slit. alkn.	0.09	0.28	0.15	0.80	6.7	87.3
Ralph, B. J.	210	Gravelly loam	Alkn.	0.29	0.30	0.21	1.60	10.9	74.6

POTATO YIELDS PER ACRE ON ABOVE SOILS.

Name.	Applied Fertilizer.	Planted Crop.	Check-plot.	800 lb. Super-phos.	800 lb. 0–12–10.	800 lb. 3–10–7.
			Lb.	Lb.	Lb.	Lb.
Hughes, E. J.	April 25	May 3	15,380	18,660	20,380	25,380
Heaven, C. C.	April 22	May 3	25,308	29,672	30,488	36,552
Pennoyer, A. H.	April 8	May 12	16,600	15,820	18,500	25,900
Lawrence, J. T.	April 22	May 4	14,008	8,644	15,744	14,084
Ralph, B. J.	April 11	April 18	14,040	14,508	17,320	19,392

The analytical data show that these soils were all somewhat deficient in nitrogen. This fact may account for the consistent increase in yield over the check-plots secured from the plots receiving the complete fertilizer. The plots receiving only superphosphate or superphosphate and potash were in most cases superior to the check-plots. The presence of the 3 per cent. of nitrogen in the complete fertilizer proved that the findings of the analyst were valuable, in that they indicated the need of a fertilizer containing nitrogen.

The soils under experiment in the Grand Forks District are all well supplied with lime and are in good physical condition. Moisture conditions were good in spring, but after the crop was approaching maturity the autumn rains caused considerable second growth.

Every one of the fifty farms on which the fertilizer experiments were conducted was visited at least twice during the year, and conditions obtaining on the farms were carefully studied. From the check-plot of every farm on which an experiment was established an average sample of the soil was taken for chemical analysis. These soils have been analysed by D. E. Whittaker, Government Analyst, and most of the results are shown in Appendix No. 33 of this report. The examination of these soil samples helps to correlate the chemical deficiencies of the soils with the most satisfactory kind of fertilizer to be used on these soils. For example, it was found that superphosphate alone on a muck soil in the White Lake District gave an increase of more than 4 tons per acre of corn fodder over the check-plot, while a complete fertilizer applied at the same rate gave an increase of only 2½ tons. The analysis of the soil shows that this muck was almost totally deficient in phosphoric acid. (*See* No. 202 in Appendix No. 33.) Hence the increased yield when the heavy application of superphosphate alone was used, also the presence of abundance of lime in this muck caused the superphosphate to give even better results than might have been secured on a soil inclined to be acid. The fertilizer containing phosphoric acid and potash in this case was found better than the complete fertilizer, giving a yield of 3½ tons more than was secured from the check-plot. This is only one instance in which a single element or two essential elements prove more satisfactory in increasing crop production than the complete fertilizer. However, there were many instances of the complete fertilizer giving exceptionally good results where one of the simple elements or combination of two of them failed to show any marked increase. This was demonstrated on a farm in the Bradner District, where 9 tons per acre of Eureka potatoes were secured from the check-plot and 17 tons per acre were secured from the plot receiving the complete fertilizer at the rate of 800 lb. per acre. On the two plots in which superphosphate alone and the 0–12–10 mixture was used the yield was only 12 tons per acre, indicating that the addition of the small amount of nitrogen in the complete fertilizer greatly raised the yield. An attempt has been made to assemble some accurate information regarding the utility of chemical analyses of soils in working out fertilizer recommendations for the different types of soil in British Columbia.

FORAGE AND PASTURE CROPS.

On Vancouver Island and in the Coast districts it is estimated that the alfalfa acreage has doubled within the past year. It has been satisfactorily demonstrated that alfalfa can be successfully grown on practically any of our Coast soils, providing the field practice is right and the proper chemical fertilizers are used to prepare the soil before the seed is sown. It has also been found that crushed lime rock at the rate of 3 tons per acre and superphosphate of lime at the rate of 300 lb. or more per acre worked into the soil in advance of seeding-time provide the necessary conditions for getting a satisfactory catch of alfalfa. Of course it is essential that the subsoil be broken, that the land be satisfactorily drained, that good seed be used, and that inoculation be practised. In order to succeed with alfalfa in the Coast districts particular attention must be given to all these important items. Alfalfa is not a catch-crop nor will it succeed by slipshod methods in the Coast districts, but where properly sown in well-prepared soil it thrives and yields well.

JERUSALEM ARTICHOKES.

For the first time in Canadian agricultural history the Jerusalem artichoke (*Helianthus tuberosus*) has been used as a forage-crop in a field-crop competition. In the Nanaimo District this year the Farmers' Institute established a field-crop competition in which the Mammoth French White Improved Jerusalem artichoke was used. Individual farmers in that district have been growing the artichoke as a forage-crop and for its tubers for several years and they are convinced of its value. It is a rank grower, a hardy plant high in carbohydrates and fair in its other digestible nutrients, and it not only gives a forage-crop equal in weight and digestible nutrients to either corn or sunflowers, but at the same time it provides a crop of tubers that can be used as a vegetable or for feeding to pigs. The stems and leaves can be fed as a soiling-crop or made into ensilage. When used as a feed for pigs the tubers are not harvested by hand, but the pigs are allowed to root the tubers out of the ground and eat them at will. For this reason the artichoke is most satisfactory when grown on a light loam soil, on which the animals can pasture during winter and spring without detriment to the soil-texture. It is possible that the artichoke will make its greatest headway in the Coast districts, where the open winter permits of this method of disposing of the tubers. In the Interior districts, where the ground is frozen over in winter, it may be that the fall and spring season will not be satisfactory for this method of feeding.

POTATO EXPERIMENTAL PLOTS.

Two potato experimental plots were conducted during the year—one on the farm of G. A. Vantreight at Gordon Head and the other at the Dominion Experimental Farm, Agassiz.

At Gordon Head the work was chiefly confined to the testing of varieties, both from the standpoint of disease and yield. Up-to-date and Sir Walter Raleigh were the highest yielding late varieties and the Early Rose the highest yielding early variety. There were several non-standard varieties which showed considerable promise, but these will have to be tested over a period of years before it would be safe to make any definite recommendation.

The plot at Agassiz was chiefly confined to the testing of different lots of seed.

POTATO-CERTIFICATION WORK.

The system of potato inspection and certification which was instituted by this Department in 1921 was taken over by the Federal Department of Agriculture in June. However, this office has not entirely severed its connection with this work and the fullest co-operation exists between the two departments. H. S. McLeod, the new supervisor appointed by the Division of Botany, Ottawa, has his desk in the Field Crop Office. This enables him to keep in close touch with those who have been connected with the work since its inception in the Province.

During the year the services of one official and part time of another were loaned to the Federal Department to assist in carrying on this work.

BRITISH COLUMBIA CERTIFIED SEED-POTATO GROWERS' ASSOCIATION.

This Branch has continued to assist the British Columbia Certified Seed-potato Growers' Association in every way possible during the past year. Your chief official, who is now an honorary director of the Association has attended several executive meetings and given all possible advice.

CANADIAN SEED-GROWERS' ASSOCIATION.

British Columbia was highly honoured in the month of June by the Canadian Seed-growers' Association holding its annual meeting in Victoria. This was the first meeting that this association has held in British Columbia since it came into existence.

Your Provincial Agronomist is the director appointed by the Department for British Columbia. In his capacity as director, therefore, he was largely responsible for the programme of business and entertainment which was provided.

Conventions such as this do a great deal towards bringing the various Provinces closer together and gives each Province the opportunity to understand the problems of the other.

BRITISH COLUMBIA SOCIETY OF AGRONOMISTS.

The annual meeting of the British Columbia Society of Agronomists was held at Agassiz on January 19th. This society is composed of Dominion, Provincial, and University officials engaged in field-crop work in the Province. Its object is to prevent overlapping in the work carried on by the various agencies and to discuss the results of experimental and demonstration work. Your official was appointed secretary for the year.

PROVINCIAL SEED BOARD.

Meetings of the Provincial Seed Board were held whenever necessary during the year. Your official is chairman of this Board.

PROVINCIAL WINTER FAIR.

Considerable assistance was rendered by the officials of this Branch in connection with the Provincial Winter Fair held in Vancouver from December 7th to 10th. The Provincial Potato and Seed Show, which has heretofore been a separate undertaking under the management of this Branch, was this year linked up with the Provincial Winter Fair. Your official, who was appointed chairman of the seed section, devoted considerable time in assisting with the staging of the exhibits and encouraging farmers to send in exhibits.

CENTRAL BRITISH COLUMBIA SEED FAIR.

The second annual Central British Columbia Seed Fair was held at Smithers on November 5th, 1927. This fair was under the direct management of A. E. Davey, who spent considerable time during the fall months making the necessary preparations. Considerable assistance was given to exhibitors in preparing their exhibits. The entries numbered seventy-two in all, including cereals (wheat, oats, six-rowed barley, fall rye, and field peas), grass-seeds (timothy, meadow-fescue, and red-top), clover-seed, swede-turnip seed, and potatoes, both seed and commercial. The number of entries were larger than the previous year, the increase being due to the availability of better facilities for cleaning up cereals and small seeds. The potato entries, however, were fewer than last year owing to the very poor yields resulting from the general drought in the growing season. Your Provincial Agronomist attended this fair and judged the exhibits.

ROTARY SEED-GROWING COMPETITION.

This Branch co-operated with the Victoria Rotary Club in the carrying-on of a seed competition amongst boys and girls in the lower part of Vancouver Island. This contest, which was started several years ago by the Agricultural Education Committee of the Victoria Rotary Club, has been growing larger each year. This year there were thirty-two entries from Victoria, Metchosin, and Sidney Districts.

This Branch assisted in organizing the competition and arranged for the judging of the plots and the seed.

It is felt that this is a line of work worthy of every encouragement and the Victoria Rotary Club is to be congratulated for its interest in this matter.

STAFF.

The staff of the Field Crop Branch during the past year has consisted of three permanent and three temporary officials. Two of these latter men were employed on potato-inspection work, while A. E. Davey devoted the greater part of his time to seed-improvement work in Central British Columbia.

Of the permanent officials, J. B. Munro, B.S.A., has devoted considerable attention to soil investigations and forage-crop problems; while S. S. Phillips, B.S.A., has given the greater part of his time to potato-improvement work.

ACKNOWLEDGMENTS.

Your Provincial Agronomist wishes to express his appreciation of the valuable assistance rendered by the various officials, clerk, and stenographer attached to the Branch, and by D. E. Whittaker, Provincial Analyst; also for the co-operation received from the Provincial, Dominion, and University officials interested in field-crop problems.

Respectfully submitted.

CECIL TICE,
Provincial Agronomist.

REPORT OF STATISTICIAN, VICTORIA.

G. H. STEWART.

Dr. D. Warnock, O.B.E.,
Deputy Minister, Department of Agriculture, Victoria, B.C.

SIR,—I beg to submit herewith the annual report of the Statistics Branch for the year ended December 31st, 1927.

In spite of unsatisfactory weather conditions throughout the greater portion of the year, a satisfactory general increase in the total agricultural production over the year 1926 was again in evidence, the total for 1927 being $76,999,269, an increase of $5,637,060, or 7.89 per cent. The chief items showing substantial gains were live stock, poultry products, dairy products, fodders, honey, hops, and wool, while decreases in total values of fruits, vegetables, and grains were recorded.

Imports of agricultural products from other Provinces in Canada are valued at $16,648,703, as against $17,437,350 in 1926, while imports from foreign points increased from $3,622,011 to $4,593,084. The total increase in the value of all imports would therefore be $182,426.

It is estimated that the total value of exports for the year amounted to $10,025,735, this being an increase over the previous year of $1,617,095, or 19.23 per cent.

FRUITS.

The weather conditions throughout the fruit- and vegetable-producing sections of the Province during the past year have been somewhat exceptional and have to a certain extent been a contributory factor in the reduction of various horticultural crops.

The production of small fruits, particularly in the Coast sections, was on the whole satisfactory. On the other hand, the heavy rains during the shipping season in certain eastern sections of the Province reduced the marketable percentage of small fruits.

While the production of tree-fruits on Vancouver Island was practically the same as in 1926, the production on the Lower Mainland was considerably reduced, due no doubt to the backward spring and late frosts. The crop also was not as heavy in the Okanagan and the Kootenays as in the previous year, although with most tree-fruits a normal crop was harvested. An exceptionally wet summer and fall, however, reduced the total quantity which might have been placed on the market under more favourable conditions.

Apples and other tree-fruits all showed a decreased production. The net returns to the producer, however, were more satisfactory than during the last two years.

The total production of all fruits amounted to 173,962,000 lb., valued at $7,333,785, as compared with the 1926 production of 213,580,000 lb., valued at $7,585,520, indicating a decrease of 18.54 per cent. in quantity and 3.31 per cent. in value.

The production of apples alone amounted to 145,824,000 lb., being a decrease from the previous year of 16.86 per cent.

The small-fruit production amounted to 13,572,000 lb., an increase over the year 1926 of 838,000 lb.

VEGETABLES.

Weather conditions also materially affected the total production of certain vegetables. Heavy rains during the harvesting season reduced the quantity of tomatoes that were supplied to the canneries, while the very wet fall interfered with the harvesting of the onion-crop and reduced its marketability.

The total vegetable-crop of 255,669 tons exceeds that of 1926 by 4,925 tons.

The area planted to potatoes was 514 acres more than in 1926. The average yield in 1927 was 5.09 tons per acre, as compared with 4.85 tons in 1926.

There was an increase of 236 tons, or 38.06 per cent., in the quantity of rhubarb produced. The 1927 crop amounted to 856 tons, valued at $63,293.

The production of outdoor tomatoes amounted to 16,201 tons, which is 7.08 per cent. less than the previous year.

An increase of 15.75 per cent. is shown in the quantity of greenhouse tomatoes produced; the 1927 crop amounted to 1,139 tons, valued at $397,215.

GRAINS.

Weather conditions were entirely unsatisfactory for the harvesting of all grain-crops.

The area sown to grain amounted to 144,361 acres, but owing to excessive rains at harvest-time no less than 18,651 acres had to be abandoned, or was a total loss, thus reducing the area of grain for threshing to 125,710 acres.

The production of all grains amounted to 4,702,837 bushels, valued at $4,266,867, representing a decrease in quantity production of 315,575 bushels, or 6.28 per cent., and a decrease in value of $187,072, or 4.20 per cent.

FODDERS.

The area sown to fodders in 1927 was 333,660 acres, this being an increase of 12,179 acres over the previous year.

The production of all fodders amounted to 789,740 tons, valued at $10,941,733, as against 720,375 tons, valued at $10,457,459, produced in 1926.

The yield of clover and timothy was 2.12 tons to the acre, as compared with a yield of 2 tons per acre in 1926.

DAIRY PRODUCTS.

The dairy industry during 1927 continued to make progress in spite of a none-too-good season. The spring was very cold and backward, with a greatly lowered production. The early summer was more favourable, with good rains everywhere and a production well above the average. Midsummer brought extreme drought, with a rapid falling-off of milk-supplies. The fall conditions were good for pastures, but exceedingly bad for the harvesting of the late dairy crops.

Milk-supplies therefore fluctuated very greatly during the entire season. The amount of butter manufactured has increased and that of evaporated milk. A drop in cheese turned out was experienced (the total made being small) and a decline in the number of gallons of ice-cream consumed is also noted. On the other hand, the supplies of market-milk for domestic consumption are year by year increasing steadily. The increase of the year was general, the Interior of the Province contributing.

The value of all dairy products was $12,681,009, this being an increase of $1,053,709, or 9.06 per cent.

There was an increase of 363,777 lb. in butter produced, the 1927 production amounting to 6,533,553 lb.

The quantity of cheese manufactured was 128,707 lb., this being 65,363 lb. less than during the previous year.

Owing to a comparatively short summer season the consumption of ice-cream was considerably less than it would have been under normal conditions, and as a result the quantity of ice-cream manufactured was 37,439 gallons less than in 1926, when the production amounted to 542,597 gallons.

A total of 16,520,000 gallons of fresh milk was consumed, this being an increase of 745,000 gallons for the year.

The quantity of evaporated milk manufactured was 186,226 cases, valued at $802,553; this represents an increase of 13,464 cases in quantity production.

LIVE STOCK.

Live-stock statistics place the value of all domestic animals at $24,286,645, which is an increase in value of $3,534,212 over the year 1926.

Beef and dairy cattle now number 364,363, this being an increase of 26,119 over the previous year.

During the year horses increased in number by 956.

The number of sheep in the Province is now placed at 130,132, this representing an increase of 26.52 per cent. for the year.

Poultry and eggs show a most satisfactory increase. The numbers of poultry increased 13.38 per cent. The egg production amounted to 11,338,633 dozen, which was an increase of 1,382,258 dozen over the previous year; 6,785,280 dozen eggs were exported from the Province in 1927, as compared with 1,132,620 dozen in 1926.

MISCELLANEOUS.

The quantity of all meats marketed during the year aggregated 50,129,801 lb., valued at $3,332,633, as against 42,489,711 lb., valued at $2,410,461, in 1926.

An increase of 88,462 lb. is noted in the quantity of honey produced.

The quantity of hops produced amounted to 1,425,875 lb., which was an increase of 459,437 lb., or 47.53 per cent.

The quantity of wool produced amounted to 722,437 lb., exceeding the production of 1926 by 156,269 lb.

GENERAL.

The total number of letters received by this Branch during the year was 2,102, while the total number dispatched was 1,469. A total of 1,365 stencilled letters were also sent out. In addition to these, over 2,300 crop report forms were mailed to crop correspondents.

During the year the annual Statistics Bulletin for the year 1926 was compiled and published.

Monthly crop reports have been released to the Canadian press relating to the condition of grains, fodders, and root-crops during the growing and harvesting seasons. Numerous reports have also been supplied to manufacturing and financial interests both in Canada and the United States.

With the attention given to correspondence, the compilation of the June census returns, and the monthly reports of crop correspondents, as well as other routine matters, the entire time of your Statistician was fully occupied.

All of which is respectfully submitted.

G. H. Stewart,
Statistician.

REPORT OF PROVINCIAL APIARIST, VICTORIA.

W. J. Sheppard.

Dr. D. Warnock, O.B.E.,
Deputy Minister, Department of Agriculture, Victoria, B.C.

Sir,—I beg to submit my annual report as Provincial Apiarist, together with the estimated honey-crop report, the demonstration apiaries reports, and the reports of A. W. Finlay and J. F. Roberts, Apiary Inspectors, for the year 1927.

THE HONEY-CROP.

The total estimated honey-crop of the Province for the season of 1927 amounts to 986,719 lb., being 88,462 lb. more than last year's total, which was the largest on record to date. The average yield per hive was 52 lb. The total number of apiaries shows an increase of 164 and the total number of hives an increase of 1,720 over last year. (*See* Appendix No. 34.)

The outstanding feature of this year is the remarkable increase in production in the Dry Belt, which is nearly double that of last season, being 416,949 lb. as compared with 213,000 lb.

One apiarist in the Vernon District with 250 colonies reported an average yield of 175 lb. per hive, on which computation his total production would be about 21 tons.

There is but little doubt that this further goes to prove that in the irrigated districts, especially where alfalfa, sweet clover, and hairy vetch are being more largely grown, are to be found the most reliable locations for honey production in British Columbia. Since the Grand Forks District has had its irrigation system installed honey production has been noticeably increasing in that vicinity, and the same applies to the Creston area in West Kootenay. In districts where there is little or no irrigation, and the rainfall has to be depended on, vegetation dries up, so that frequently very little nectar is obtainable from the flowers by the bees during the two most important months of July and August. Irrigation considerably lengthens the period of honey production and correspondingly increases it.

In the Fraser Valley some few years ago fireweed yielded well, but 1927 was the third year in succession that this plant has failed to secrete nectar to any great extent. The total honey-crop of the Lower Mainland again shows a decrease this season, which is largely attributable to that cause.

SWEET CLOVER.

Wherever sweet clover is extensively grown honey production soon shows a remarkable increase. Circulars drawing attention to this fact and setting out the advantages of growing sweet clover, including directions for its cultivation, varieties to grow, etc., were prepared early in the year, several hundred copies of which were sent to Farmers' Institutes, bee-keepers, and others throughout the Province. Copies were also given out to the press and much publicity obtained in that way. It is claimed that 1 acre of sweet clover will produce enough nectar to occupy the efforts of at least three hives of bees.

DEMONSTRATION APIARIES.

The annual reports received from the demonstration apiaries again contain useful information. (*See* Appendix No. 35.)

Several fresh demonstration apiaries are in course of being established.

Arrangements have been completed for trials of the "Top Entrance" system of bee-keeping to be made in the demonstration apiaries next year, commencing in the spring, by which means, no doubt, much valuable data will be obtained regarding the value or otherwise of this system under various conditions and different environments, when all the reports become available at the close of the season.

FOUL-BROOD INSPECTION.

Three hundred and sixty-five colonies in eighty-four apiaries in the Province were found to be affected with American foul-brood in 1927. Comparisons for the three years 1925–27 are as follows:—

Territory.	Colonies affected.			Apiaries.			Brood-combs destroyed.		
	1927.	1926.	1925.	1927.	1926.	1925.	1927.	1926.	1925.
Lower Mainland	268	208	330	62	43	56	2,080	2,860	3,220
Kootenays	4	9	22	1	3	8	70	108	302
Okanagan	75	87	27	17	16	8	975	1,680	270
Vancouver Island	18	20	.....	4	1	.....	250	400	.....
Totals	365	324	379	84	63	72	3,375	5,048	3,792

Compensation was paid for 3,375 brood-combs destroyed.

VICTORIA EXHIBITION.

There was a good exhibit of honey at the Victoria Exhibition in August, 1927. This could not be displayed to the best advantage owing to the shortage of space. In the classes in which honey was shown by Island bee-keepers they secured all the principal awards. This honey was first rate in every respect and shows that honey of excellent quality, density, etc., equal, if not superior, to any can be produced on Vancouver Island.

APIARY OWNED BY J. D. HONSBERGER AT VERNON, B.C. THE 1927 CROP AVERAGED 175 LB. PER COLONY.

VANCOUVER ISLAND CONDITIONS.

Vancouver Island bee-keepers having received little attention, as compared with those in the other sections of the Province, for many years past, a considerable amount of time was devoted to this territory during the year. In visiting the apiaries it was found that the majority of them had very poor equipment, very little of it being standard, mainly owing to the difficulty of obtaining proper bee-supplies near at hand. This has now been remedied, so that the Island bee-keepers will be able to purchase up-to-date appliances in Victoria in future.

Demonstrations were given at a good many of the apiaries during the year, all of which were well attended. Lantern-slides and moving pictures of bees and bee-keeping operations were also shown at several centres and seemed to be much appreciated.

FOURTH EDITION OF BULLETIN No. 92.

The third edition of Bulletin No. 92, "Bee Culture in British Columbia," having become exhausted, a fourth edition has been prepared and brought up to date and is now in the hands of the printers.

All of which is respectfully submitted.

W. J. SHEPPARD,
Provincial Apiarist.

REPORT OF APIARY INSPECTOR, LOWER MAINLAND DISTRICT.

A. W. FINLAY.

W. J. Sheppard, Esq.,
Provincial Apiarist, Victoria, B.C.

SIR,—I beg to submit my annual report for the season of 1927.

GENERAL CONDITIONS.

The season of 1927 was generally disappointing to bee-keepers on the Lower Mainland. Heavy winter losses were experienced throughout the Fraser Valley owing to frequent alternating changes of temperature causing undue activity of the bees and rapid consumption of winter stores. Early spring examination revealed that many colonies were short of food, and with the continuation of cold wet weather during April and part of May a large number of these died of starvation or were too weak to build up in time to be of any value during the clover honey-flow. On the other hand, colonies that had been provided with an abundance of honey for winter stores or were well fed where found short of food in early spring came through in good condition and utilized this for heavy brood-rearing. Swarming from such colonies became general with the first settled warm weather. Excessive swarming was reported all along the Pacific North-west, with similar weather prevailing, and while this enabled bee-keepers to more than replace winter losses, it was an unsatisfactory condition for honey production.

Little or no honey was obtained from willows, fruit-bloom, dandelions, or maple. The first nectar of any importance was gathered from white and alsike clovers. Colonies in good strength brought in a fair amount from this source where it was sufficiently abundant. Districts in which fireweed is sometimes the main honey-producer report a very light crop. The plants appeared to be in good condition and bloomed freely during warm dry weather, but for some unexplained reason secreted very little nectar.

FIELD-WORK.

Special calls for inspection were received early in the season, and first attention was given to applications where bees were to be moved from one location to another, or where colonies were reported or suspected to be diseased. General inspection and other field-work was delayed later than usual on account of unfavourable weather. It is of interest to note that while the amount of disease discovered was slightly in excess of last year the greater part was found in small apiaries. The percentage of disease in the larger apiaries being less than formerly may possibly be due to the use of the formalin treatment for sterilizing diseased combs. A large part of the work of cleaning up disease was done by the Inspector, as few owners of small apiaries have sufficient experience in this work or enough interest in their bees to be depended on in carrying out instructions.

OFFICE-WORK.

An increasing amount of correspondence is handled at the New Westminster office in addition to the examination of samples of diseased comb and smears sent in for microscopic diagnosis.

EXHIBITIONS.

The exhibits of honey and apiarian products at Vancouver and New Westminster were excellent in quality and the displays original in design. They were the equal of previous years' high standard in this respect. There was, however, a noticeable decrease in the number of entries and the quantity of honey shown, due in part to a short honey-crop in the Fraser Valley and partly to unfavourable weather preceding the fall fairs that delayed bee-keepers in taking off their crop in time to prepare their honey for exhibition.

Respectfully submitted.

A. W. FINLAY,
Apiary Inspector.

REPORT OF APIARY INSPECTOR, OKANAGAN, SHUSWAP, AND THOMPSON VALLEY DISTRICTS.

J. F. ROBERTS.

W. J. Sheppard, Esq.,
Provincial Apiarist, Victoria, B.C.

SIR,—I beg to submit my report as Apiary Inspector of the Okanagan, Shuswap, and Thompson Valley Districts for the season of 1927.

The season opened up very late. The weather in the early part of the year was cold and wet and this had an extremely adverse effect on the honey-flow from fruit-bloom. Cherry-blossom yielded very little, if anything at all, and the dandelions were, more or less, spoilt by the climatic conditions. In spite of these disadvantages the bees built up very well and in every district an excellent crop of honey was obtained. Perhaps the most notable district was Oliver, where those bee-keepers who gave the necessary attention to their apiaries had exceptionally large returns. An exceptionally wet spell in June must have taken from seven to ten days from the honey-flow, as the bees were hardly able to fly at all during this period.

It is interesting to note that Vernon, which has not produced a large crop for the last two years, has more than made up for it this year. One bee-keeper in this district with 250 colonies has shipped out a straight car-load of honey. This is, I believe, the first car-load that has been shipped from the Dry Belt, or any other part of British Columbia. This apiary averaged 175 lb. per hive.

The Ashcroft District shows a large increase of colonies this year and excellent yields have been annually obtained there for some time. On making a thorough examination of all apiaries in this district everything was found to be in very good condition.

It is pleasing to note that standardization of equipment is the key-note of all the large producers, as it has been found that without this it is impossible to run large apiaries of from 200 to 300 colonies successfully. The nature of the country makes it imperative not to keep more than about seventy-five hives in one location, so that it is necessary for the large bee-keepers to have out-apiaries.

Bee-keeping in the Dry Belt appears to be going ahead in an excellent manner, as many of the larger apiarists keep adding to their colonies. Some experienced men have come into the Province here from Eastern Canada and started with fair-sized apiaries, and express themselves as well satisfied with the production they are getting.

Except in the fruit-growing areas, where two or three hives are kept by individual orchardists for pollination purposes, the small bee-keeper does not appear to be on the increase.

American foul-brood has been rather prevalent in some districts. Most districts in which the disease appeared last year are now free. It seems very diffcult to impress on bee-keepers the necessity of reporting anything unusual in the appearance of the brood. Had this been done in many cases the disease could have been eradicated in its early stages, instead of being allowed to spread through a number of colonies until such time as the Inspector finds it.

Respectfully submitted.

J. F. ROBERTS,
Apiary Inspector.

REPORT OF SUPERINTENDENT OF WOMEN'S INSTITUTES.

MRS. V. S. MCLACHLAN.

Dr. D. Warnock, O.B.E.,
Deputy Minister, Department of Agriculture, Victoria, B.C.

SIR,—I have the honour to submit the annual report of the Women's Institutes of British Columbia for the year ended December 31st, 1927.

GENERAL.

Three new institutes have been incorporated during the year—Beaver, Otter Point, and North Shuswap Lake. There have been two lapses during the year—Otter Point and Granby; and two institutes have reorganized and started afresh—Fern Ridge and Fruitvale.

In addition to these three new and two reorganized institutes, eight institutes are organized and awaiting certificates of incorporation—Prince Rupert, Terrace, Our Club of Fort Fraser, Field, Upper Camp, Westbank, Ymir, and Wynndel. Including these with the incorporated and the two reorganized institutes, 1927 has been a record year, the total membership being 3,406, as compared with 3,127 of last year, showing an increase of 278.

Increase in membership does not necessarily mean progress, but in regard to progress 1927 has also been a record year.

Progress is reported from the Solarium, sixty institutes having contributed $2,466.92. Victoria is responsible for nearly half this sum as the result of a tag day, which netted $1,177.82; Vernon, $131.44; and Langford, $105. In other places the amounts were smaller, though none the less welcome, ranging from $80 to $1.62. As stated in the report of 1926, the prospects were that the Solarium would open its doors to patients on March 1st. True to this expectation, patients were admitted on March 1st, since when seventy-six little children have been treated and thirty-six discharged. From early in July the Solarium has had from forty to forty-five crippled children under daily treatment. Many of these cases will require prolonged treatment and occupy beds for months, and, in some cases, for two or three years.

On March 14th the Education Department of the Provincial Government opened a school at the Solarium and appointed Mrs. L. E. Hutchinson as the teacher, the public school curriculum being taught; thus the regular education goes on.

As the Solarium has no endowment the directors are compelled to ask parents of children under treatment to do what they can to pay for their maintenance, but no child has been or ever will be refused admission because the parents are unable to pay the minimum charge of $6 per week.

In view of this the institutes are creating a fund to be known as the "Othoa Scott Endowment Fund," interest on which will provide treatment for two crippled country children at the Solarium. Thus the Solarium, the first of its kind in North America and initiated by the Women's Institutes of British Columbia, will have the first endowment fund named for the first little patient, established by the Women's Institutes. It is hoped that every institute in the Province will have a part in contributing to this fund.

Progress is reported from the Crippled Children's Hospital in Vancouver; the association purposes renting a house as temporary quarters for an orthopædic hospital. Thirty-two institutes have contributed $582.95. Twelve patients are receiving treatment.

This Branch was extremely fortunate in the person of Mrs. Grieve sent to judge the women's work at the fairs through the Bulkley Valley. As a result of Mrs. Grieve's efforts three flourishing institutes are carrying on an excellent community work at Terrace, Prince George, and Fort Fraser.

There were three conferences held—a Provincial Conference at Chilliwack, the Lower Mainland District Conference at New Westminster, and the Kootenay District at Kaslo. Neither Vancouver Island nor the Okanagan held conferences.

This year has seen the first girls' judging competition at Vancouver Exhibition. Each institute district sent a team of four girls, the Lower Mainland carrying off the prize.

This Branch was again represented at the Canadian National Exhibition, Mrs. M. L. Murray featuring an exhibit of seeds, bulbs, and immortelle flowers. As a direct result quite a stimulus has been given to the Eastern market for British Columbia seeds, bulbs, and rose-bushes. The

President of the New Brunswick Women's Institutes approached Mrs. Murray regarding club rates for New Brunswick members purchasing seeds from British Columbia. It is hoped to have something definite to report in regard to this at the close of 1928.

COMMITTEE-WORK.

The ten committees are progressing very favourably. Many institutes appoint ten conveners for the year; each convener is responsible for one monthly programme on her subject. A large number of conveners apply to the Department for assistance in preparing a programme. We now have a considerable amount of material on hand and receive valuable co-operation from the travelling library. During 1928 we hope to complete our supplies so as to be able to supply subject-matter for any programme under the ten committees.

HOME ECONOMICS.

There is a very evident movement to link up the work of this committee with the exhibition of women's work at flower-shows and fall fairs; the casual instruction given by some of the competent women judges is so eagerly sought by the exhibitors that it would seem practicable to organize classes of instruction in judging. In this work Mrs. A. L. Gordon has set a standard; after the judging is completed the exhibitors form a class and accompany her round the exhibits, receiving information as to why the prizes were awarded and how to improve the quality for the following year. Arrangements have been completed with the Technical Branch of the Education Department, whereby a course of three or more lessons along these lines can be given to any district desiring this.

The relation of the Education Department to the Board of School Trustees still needs emphasizing; the fact that the Board of School Trustees is the only body to which the Department of Education can legally pay money is not sufficiently understood. All classes must be held under the auspices of the School Board and all instructors must be engaged by the School Board, the Department of Education paying four-fifths of the salary of the instructor in unorganized districts and three-fifths in municipalities and cities, the class or the institute, or both, making up the remaining one-fifth, together with any expenses of heating, light, or transportation of the instructor. I again urge the reading and discussion, under home-economics work, of the report on domestic science by the Organizer of Technical Education, Department of Education, always found in the annual report of the Department of Education. This gives information on the progress of the teaching of household science in our schools and should be of great interest to all rural mothers.

PUBLIC HEALTH AND CHILD-WELFARE.

The work for crippled children has still been an important feature of the year, as indicated by cash donations and gifts in kind. The hope that Othoa Scott, the child on whose behalf the first appeal was made, would be among the first patients was realized. Othoa arrived on Easter Sunday and has been under treatment since that date. Although it is feared she cannot be entirely restored, still her education is going on, and it is hoped she may be qualified to earn her own living by some such work as stenography.

The principal work, however, of this committee is the establishment of Public Health Nurses in the rural districts. The work the nurse does in the public schools is becoming better appreciated and inquiries are being received from widely divergent points. There is not a district in British Columbia to-day that could not be organized as a public health nursing district, provided a competent organizer was placed in the field for a week, ten days, or two weeks, according to local conditions.

The Provincial Department of Health sends the annual report of the health conditions of the Province, with the report of the medical inspection of school-children, to the secretary of every institute, with the request that the report found on the first pages, together with the report of the medical inspection of schools and the figures in relation to the local schools, be made the subject-matter of the monthly programme on public health and child-welfare. We have tried to supply a roll-call of pithy paragraphs dealing with various branches of Provincial public health and a set of questions bringing out the salient facts of work under way, conditions, needs, and remedies.

All this is having its effect, as shown in an increased interest and a growing demand for public health nursing and dental services in the rural communities.

EDUCATION AND BETTER SCHOOLS.

There is still a very strong and increasing interest in the work of this committee.

Many institutes report discussion of the "Educational Survey" as the subject-matter for an address in the monthly programme under the heading "Education and Better Schools."

Of the sixty-one flower-shows held this year, each included an exhibit of school-children's work, while some institutes held only exhibits of school-children's work. About all the institutes report school picnics and Christmas treats for school-children.

Many institutes report hot lunch or milk for the rural school-children being provided.

I again emphasize the benefit of reading the annual report of the Department of Education, especially as a programme on education and better schools, the Superintendent's report, and the Inspector's report on the local district. Again I emphasize the recommendation—the Women's Institutes to co-operate with the Provincial Inspector of their school district, and, if possible, arrange a conference between their members and this official when he visits the school district. There are many points on which the School Inspector can assist the institute in bettering the conditions of the local schools. Yet, again, that the members communicate with J. W. Gibson, Department of Education, for advice on improving and beautifying school-grounds; and communicate with Mr. Kyle, Department of Education, for advice on choosing and arranging pictures for the school-rooms and books for the school library. Communicate with H. Killam, Travelling Library, Parliament Buildings, for advice on the selection of books for a community library.

LEGISLATION.

The interest in this branch is still maintained. The members are becoming more and more interested in the legislation passed at each session of the House, and it would be well if we could have a summary of such legislation prepared by this Branch and submitted to every institute in the Province. In some instances the institutes are comparing the laws of our statute-books in relation to women and children and education with similar laws of other countries.

It is recommended also that members make a study of such Acts as the "Mothers' Pensions," "Workmen's Compensation," "Minimum Wage," "Old-age Pensions," etc. Much misunderstanding would be avoided if the provisions of these Acts were better understood.

Many institutes are reporting the fact that application has been made to their local members of Parliament for "Votes and Proceedings" during the session.

Some institutes are fortunate in having one meeting during the year devoted to a discussion, in conference with the local member of the Legislative Assembly, on the legislation passed at the last session of the Legislature.

IMMIGRATION AND SETTLEMENT.

Progress is not very marked in this committee. There is not yet a clear understanding by many of our members of the importance of a sound immigration policy to the future of the Province. Many of our members appear to be anxiously concerned at the influx of settlers lest it will mean fewer opportunities for the young men and women born in the Province. It seems difficult to grasp the idea that with increased population comes increased markets and, as has been found in the Republic to the south of us, increased prosperity.

Many of our institutes are in direct communication with authorities at Ottawa and in Great Britain, and in conversation with Miss Charlotte Whitton, the Executive Secretary of the Canadian National Child Welfare Council, the hope was expressed that each institute in the Province might make its membership responsible for one new farmer-settler. This could be worked out if the institutes would constitute themselves a committee of reception, while the immigration authorities in Great Britain would constitute a committee of selection.

PUBLICITY AND NATIONAL EVENTS.

There is nothing spectacular to report this year under this heading. The "Buy B.C. Products" campaign is still being carried on through the agency of the institutes, and the idea of national and historical events is being taken up by the institutes as they gradually co-operate with the British Columbia Historical Society.

At the District Conference at Kaslo it was decided to recommend to each institute to search out and compile reliable data on the history of each institute locality; the Nelson *Daily News*

through its representative offering any assistance possible. Several institutes have already compiled interesting records of their localities.

The institutes are reporting their activities in the local Vancouver, Victoria, and New Westminster press; in the *Western Home Monthly*, *Farm and Home*, and *Country Life*.

Practically every institute in the Province either inaugurated or took part in the Confederation celebrations.

INDUSTRIES.

As a result of the institute exhibit at the Canadian National Exhibition in Toronto, Mrs. Murray is enthusiastic over the marketing of hardy chrysanthemum blooms in the Prairie cities.

There is a movement towards reviving the old handicrafts, such as quilt-making, hooked and braided rugs, while the more modern glove-making, basket-making, and woven rugs are receiving attention; but unless we can arrange for some central selling-point and provide instruction in order to standardize the work the commercial possibilities are very uncertain.

At the request and expense of this Branch, Mrs. Murray visited the Canadian Handicrafts Guild at Montreal with a view to establishing a Provincial branch in British Columbia. As a result of her visit, at a meeting of the Board of Directors of the Provincial Women's Institute, Mrs. Murray was requested to organize the branch in co-operation with Montreal. In late December Mrs. Bottomley was sent by Montreal to British Columbia in the interests of Provincial organization. The prospects are good for the establishment of the Provincial branch through which the country-women may sell their products.

AGRICULTURE.

The growing of seeds, blooms, bulbs, etc., is rapidly taking its place as one of the commercial possibilities of agriculture for women. This was brought out very conspicuously following the seed and bulb collection comprising the Women's Institute exhibit at Toronto, and we are hoping to develop this to a greater extent in the year 1928.

It seems a pity that we are not developing the Boys' and Girls' Clubs to a greater extent.

In regard to marketing, surely the local restaurants, hotels, and railway diners could do much to feature dishes composed of British Columbia fruits in season. During the strawberry and raspberry season "Strawberries and cream," "Raspberries and cream," at 35 cents per plate, is about the only form in which these fruits are served. If some request accompanied by a list of different recipes could be submitted to the proper authorities it might pave the way towards greater home consumption of the local products.

COMMUNITY BETTERMENT.

This is the principal work of the Women's Institutes; in fact, it might be said that all the committees are really branches of the community betterment, for, after all, a healthy community with good educational facilities, under good laws, with flourishing industries and fruitful fields, makes up the ideal living-place, and all of the committees after all aim for that great goal. Especially under this heading comes such work as community centres, the improvement of roadways, roadsides, cemeteries, and other local community projects. In fact, what has hitherto been considered "Everybody's business and nobody's business" has been taken up by the institutes, who are making it their special duty, and every community in which a Women's Institute operated shows the result. Perhaps, under this heading, should come mention of the rural social-service work, which is carried on and of which half has never yet been told, and perhaps it is just as well that the institutes recognize the admonition, "Let not your left hand know what your right hand doeth." Not an institute in the Province but has through the year been the good Samaritan of some individual or some family in their community.

WOMEN'S INSTITUTE WORK AND METHOD.

As stated before, three institutes were incorporated; one, Otter Point, received the certificate of incorporation in April and disbanded in December. A certificate of incorporation costs $22; this amount is taken from the Women's Institute vote. To avoid unnecessary expenditure of money it has been decided to hold the application forms for a period of six months. If at the end of that time the institute is flourishing the certificate of incorporation is issued. In the meanwhile the work of the institute is in nowise affected and waiting until the organization gives evidence of being firmly established justifies the expenditure of $22 for the certificate.

The Federated Women's Institutes of Canada held their sixth biennial conference at Wolfville, Nova Scotia, in June, 1927. Although this Province sent two representatives, British Columbia has the least representation in the Federation in the history of the organization. This is all the more surprising as two delegates were in attendance.

In a recent conversation with a national worker in the anti-tuberculosis campaign the statement was made, "I always find, when I speak to a Women's Institute, the response is always, 'What can we *do?*'" Every community in which an institute is organized shows evidence of this spirit. There is a marked increase in the understanding of the value of co-operation and the importance of community betterment as a means of making settlement permanent and prosperous.

The signs of the presence of an institute in a community may be many and various; it may be X-ray equipment or additional wards in the local hospital, stretchers and first-aid outfits for the community; it may be bathing-houses on the beaches or a double row of shade-trees down the street, or a community hall, a dental clinic, a bigger and better fall fair; or it may be the little unmentioned kindnesses to the burnt-out family. Almost everywhere there is improvement in the school grounds and gardens. The half of it can never be told, but it all goes into the warp and woof of the fabric for national greatness.

All of which is respectfully submitted.

(Mrs.) V. S. McLachlan,
Superintendent, British Columbia Women's Institutes.

APPENDICES.

APPENDIX No. 1.

CORRESPONDENCE RECEIVED AND DISPATCHED BY THE DEPARTMENT OF AGRICULTURE (AT VICTORIA) FOR THE YEARS ENDED DECEMBER 31ST, 1926 AND 1927.

Office.	Received.		Dispatched.	
	1927.	1926.	1927.	1926.
Office of the Deputy Minister—				
General and Secretary's office	7,362	5,856	3,705	3,185
Accountant and Chief Clerk	3,521	3,130	2,464	2,191
Farmers' Institutes	2,583	2,836	877	905
Women's Institutes	480	611	292	446
Agricultural Associations	544	491	673	706
Apiaries Branch	375	384	455	502
Dairy Branch	1,646	1,579	2,050	1,938
Field Crop Branch	4,019	1,851	5,623	2,465
Horticultural Branch	2,656	2,370	2,333	2,253
Live Stock Branch—				
General	3,726	3,416	3,795	3,268
Brands	1,371	1,277	2,151	2,179
Poultry Branch	2,037	2,713	3,144	3,162
Statistics Branch	2,102	2,284	1,469	1,253
Women's Institutes Branch	1,976	1,850	1,348	3,935
Totals	34,398	30,648	30,379	28,388

APPENDIX No. 2.

TABLE SHOWING CHIEF LINES OF CO-OPERATIVE ACTIVITY IN FARMERS' INSTITUTES WHOSE RECEIPTS WERE OVER $1,000 IN THE YEAR 1927.

Name of Farmers' Institute.	Receipts.	Expenditure.	Powder, Fuse, and Caps bought or sold.	Feed, Flour, Hay, Fertilizer, and Seed purchased.	Miscellaneous.	Remarks.
Avola	$1,046.64	$957.61	$67.25	$850.86	.....	
Aldergrove	3,618.86	2,769.48	1,707.70	.....	$412.42	Drain-tile.
	.....	.....	.....	.....	200.00	Grant to Agr. Assn.
Alberni	1,530.37	1,224.12	1,364.12	.....	.....	
Bulkley Valley	1,843.61	1,813.81	108.71	1,608.85	.....	
Cowichan	3,575.60	2,610.58	687.60	.....	.....	
Coquitlam	2,644.60	2,563.60	2,254.50	.....	295.07	Grant to Agr. Assn.
Crawford Bay	19,441.49	18,851.65	.....	17,255.94	.....	General store kept.
Chilliwack	3,562.50	3,256.43	2,890.95	.....	.....	
Clearwater	1,439.47	1,430.28	49.94	1,362.87	.....	
Dome Creek	1,141.69	980.21	958.80	.....	.....	
East Sooke	1,066.78	47.14	.....	.....	.....	
Fernie and District	1,256.82	1,256.21	.....	.....	1,085.88	Fall Fair held.
Grand Forks Valley	1,700.04	1,693.12	.....	.....	1,410.67	Fall Fair held.
Graham Island	4,214.11	3,872.03	280.15	3,369.43	.....	
Hall's Prairie	1,305.65	1,176.81	305.85	.....	320.00	Mortgage paid on hall.
Jaffray	1,084.33	1,041.38	.....	860.00	.....	
Kersley	1,132.53	1,106.62	100.14	.....	360.00	Binder-twine.
	.....	.....	.....	.....	109.97	Live-stock payments.
Kent	3,167.26	3,020.91	1,331.11	1,084.54	459.76	Fencing and binder-twine.
Kootenay Lake	17,488.68	17,050.41	.....	13,095.49	1,553.17	Freights on purchases, etc.
Matsqui	1,318.95	1,131.24	1,080.32	.....	.....	
Maple Ridge	4,541.25	4,026.57	3,818.50	.....	.....	
Magna Bay	1,024.72	1,024.72	791.27	.....	.....	
Northern Okanagan	5,018.40	4,232.38	2,600.00	1,284.02	116.63	"Cyanogas" for gophers.
Prince George	1,543.58	1,493.40	567.60	610.74	.....	
Port Kells	1,051.36	1,022.66	745.54	80.92	.....	
Otter District	4,705.62	4,043.46	3,762.55	.....	.....	
Shawnigan	1,340.82	1,161.34	710.38	304.60	.....	
Strawberry Hill	1,297.53	1,297.53	935.00	.....	.....	
Spallumcheen	1,981.20	1,918.03	1,637.33	.....	175.00	Live stock purchased.
Windermere District	1,199.23	1,095.59	95.00	.....	736.10	Fall Fair held.
Winlaw	2,902.14	2,897.61	.....	1,359.63	1,102.40	Payments for berry shipments.
Totals (31 institutes)	$100,185.83	$92,066.93	$28,850.31	$43,127.89	$8,337.07	

APPENDIX No. 3.

Women's Institute Flower-shows, etc., 1927.

Date of Show.	Name of W.I.	Remarks.
	Vancouver Island and Gulf Islands.	
April 6	Metchosin	Spring flower and bulb show.
,, 19	South Saanich	Flower-show ; exhibition of women's work.
June 18	Valdes Island	Flower-show ; exhibition of women's work and school-children's work.
July 7	Qualicum Beach	Flower-show ; exhibition of women's work.
,, 15	Sooke and North Sooke	Flower-show.
,, 19	Vimy	Flower-show ; exhibition of school-children's work.
Aug. 3	Colwood	Exhibition of women's work and health exhibit.
,, 18	Langford	Baby-show ; flower-show and exhibition of women's work.
,, 20	Whaletown	Flower-show ; exhibition of women's work.
,, 24	Lake Hill	Flower-show ; exhibition of women's work and school-children's work.
Sept. 2	Valdes Island	Health exhibit ; "better babies" clinic.
,, 2	Lazo	Exhibition of school-children's work.
,, 2	South Saltspring	Fall Fair.
,, 3	Royal Oak	Flower-show ; exhibition of women's work.
,, 5	Sayward	Flower-show ; exhibition of women's work.
,, 6	Hornby Island	Exhibition of school-children's work.
,, 17–18	Cowichan	Flower-show.
,, 21	Esquimalt	Health exhibit ; flower-show.
	Lower Mainland.	
April 19	Surrey	Flower-show ; exhibition of women's work.
May 26	Point Grey	Baby-show.
June 16	Hatzic	Flower-show ; exhibition of school-children's work.
,, 21	Agassiz	Flower-show ; exhibition of women's work and school-children's work.
July 13	Burquitlam	Flower-show ; exhibition of school-children's work.
,, 14	Mount Lehman	Flower-show.
,, 16	Beaver	Flower-show ; exhibition of women's work and school-children's work.
,, 29	Haney	Flower-show ; exhibition of women's work.
Aug. 3	Fort Langley	Flower-show ; exhibition of women's work and school-children's work.
,, 10	Cannor	Flower-show ; exhibition of school-children's work ; health exhibit.
,, 20	Howe Sound	Flower-show ; exhibition of women's work and school-children's work.
,, 20	Port Kells	Flower-show ; exhibition of women's work and school-children's work.
,, 20	Mission	Flower-show ; exhibition of women's work.
,, 25–26	Pitt Meadows	Flower-show ; exhibition of women's work and school-children's work.
Sept. 3	Hazelmere	Flower-show ; exhibition of women's work and school-children's work.
,, 3	North-east Burnaby	Flower-show ; exhibition of women's work.
,, 10	Lynn Valley	Flower-show ; exhibition of women's work and school-children's work.
Dec. 1	Atchelitz	Exhibition of school-children's work.
	Okanagan and Dry Belt.	
June 10	Cawston	Exhibition of school-children's work.
July 28	Okanagan Centre	Flower-show ; exhibition of women's work.
,, 30	Salmon Arm	Flower-show.
Aug. 4	Rutland	Flower-show.
,, 5	Valley	Flower-show.
,, 18	Kalamalka	Flower-show ; exhibition of school-children's work.
,, 19	Mount Ida	Flower-show ; exhibition of women's work and school-children's work.
Sept. 2	Silver Creek	Flower-show ; exhibition of women's work.
,, 5–6	Grindrod	Flower-show ; exhibition of women's work and school-children's work.
,, 7	Tappen	Flower-show ; exhibition of women's work and school-children's work.
,, 8	Keremeos	Flower-show ; exhibition of women's work.
,, 8	Peachland	Fall Fair.
,, 13–15	Armstrong	Flower-show.
,, 21–22	Kelowna	Flower-show ; exhibition of women's work and school-children's work.
Oct. 27	Oliver	Exhibition of school-children's work.
	Kootenay.	
July —	Creston	Flower-show ; "better babies" clinic.
,, —	Nelson	Flower-show.

APPENDIX No. 3—*Continued.*

WOMEN'S INSTITUTE FLOWER-SHOWS, ETC., 1927—*Continued.*

Date of Show.	Name of W.I.	Remarks.
	Kootenay—Continued.	
Aug. 12	Kaslo	Flower-show ; " better babies " clinic.
,, 18	Burton City	Flower-show ; exhibition of women's work.
,, 18	Cranbrook	Flower-show ; exhibition of women's work.
,, 18	Nakusp	Flower-show.
,, 24	New Denver	Flower-show.
Sept. 17	Crawford Bay	Flower-show ; exhibition of women's work and school-children's work.
,, 19–20	Slocan Valley	Exhibition of school-children's work.
Oct. 7	Rock Creek	Flower-show ; exhibition of women's work and school-children's work.

APPENDIX No. 4.

PUBLICATIONS PRINTED AND DISTRIBUTED, 1914–1927.

Year.	Total No. printed.		Total No. distributed.
	Bulletins, Circulars, and Miscellaneous, New and Reissues.	Agricultural Journal.	Bulletins, Circulars, etc. (Agricultural Journal not included).
1914	117,650	.....	122,665
1915	197,425	.....	98,040
1916	75,650	25,000	139,899
1917	50,600	37,800	115,811
1918	148,200	71,000	151,000
1919	124,750	84,700	144,605
1920	218,550	109,700	141,823
1921	173,550	65,300	166,796
1922	93,900	28,400	100,839
1923	49,950	24,750	98,101
1924	68,050	24,450	98,303
1925	77,850	7,850	76,286
1926	53,150	.....	52,453
1927	110,250	.....	62,931
14 years	1,559,525	453,320	1,569,552

NOTE.—Agricultural Journal published from 1916 to 1925 only.

APPENDIX No. 5.

BRITISH COLUMBIA GREENHOUSE SURVEY, 1923–25–27.

District.	No. of Growers.			No. of Houses.			Area in Square Feet.		
	1923.	1925.	1927.	1923.	1925.	1927.	1923.	1925.	1927.
Lower Mainland (whites)	45	56	70	237	284	324	690,480	782,154	843,720
Lower Mainland (Orientals)	2	6	8	28	48	61	163,670	208,794	254,590
Vancouver Island (whites)	51	65	88	218	246	292	570,930	567,357	663,653
Vancouver Island (Orientals)	9	15	18	92	158	193	382,382	654,664	844,095
Okanagan	8	12	21	35	44	61	67,770	80,650	116,277
Kootenays	5	8	9	16	23	24	29,948	33,737	42,427
Totals	120	162	214	626	803	955	1,905,180	2,327,356	2,764,762
White growers	109	141	188	506	597	701	1,359,128	1,463,898	1,666,077
Oriental growers	11	21	26	120	206	254	546,052	863,458	1,098,685

APPENDIX No. 6.

Pruning Demonstrations, 1927.

District.	Instructor.	Dates.	No. of Pupils.
Islands.			
1. East Sooke	E. W. White	January 25	5
2. Rocky Point	,,	January 26	6
3. Keating	,,	January 28	8
4. Denman Island	R. Randall	February 22	14
5. Alberni	E. W. White	February 25	17
	,,	February 26	8
Lower Mainland.			
1. Dennison	G. E. W. Clarke	February 4	9
2. Cloverdale	,,	February 7	14
3. Fort Langley	,,	February 9	18
4. Aldergrove	,,	February 10	9
5. South Vancouver	,,	February 18	14
6. Otter District	,,	March 3	14
7. Powell River	,,	March 4	16
Kootenay.			
1. Boswell	E. C. Hunt	December 1 (1926)	9
2. Robson	,,	February 2	7
3. Winlaw	,,	March 16	9
4. Nakusp	C. B. Twigg	April 9	6
5. Longbeach	E. C. Hunt	April 13	5
6. Balfour	,,	April 14	6
7. Queen's Bay	,,	April 19	8
Okanagan.			
1. North Canoe	C. R. Barlow	February 22	3
2. South Canoe	,,	February 28	3
3. Salmon Arm	,,	March 9	5
4. Salmon Arm (High School)	,,	June 7	38
5. O.K. Centre	H. H. Evans	March 3	12
6. Armstrong	,,	March 11	9
7. Winfield	,,	March 25	12
8. Oyama	,,	April 12	5
9. Coldstream	,,	August 13	3
10. Oyama	,,	August 16	7
11. Oliver (Upper Bench)	R. P. Murray	February 14	14
12. Oliver (West Lateral)	,,	February 15	11

Total number of demonstrations, 31; total number of pupils, 324.

APPENDIX No. 7.

Pruning-schools, 1927.

District.	Instructor.	Dates.	No. of Pupils.
Islands.			
1. Ladysmith	E. W. White	January 31 to February 2	8
2. Ladysmith	,,	February 3 to 5	9
3. Qualicum	,,	February 7 to 9	10
4. Wellington	,,	February 10 to 12	8
5. Valdes Island	R. Randall	February 24 to 26	8
6. Sayward	,,	March 2 to 4	8
Kootenay.			
1. Sunshine Bay	E. C. Hunt	February 9 to 11	10
2. Wynndel	C. B. Twigg	March 14 to 17	10
Lower Mainland.			
1. Gibson's Landing	G. E. W. Clarke	January 8 to 11	8

Total number of schools, 9; total number of pupils, 79.

APPENDIX No. 8.

MEMORANDOM OF IMPORTED FRUIT, POTATOES, CORN, ETC., INSPECTED AT ALL PORTS OF ENTRY IN BRITISH COLUMBIA (INCLUDING THOSE CONDEMNED).

	1927.	1926.
Apples (boxes)	50,393	48,867
Apples (½ boxes)	85	649
Apples (barrels)	20	178
Crab-apples (boxes)	1	16
Pears (boxes)	44,975	41,185
Pears (½ boxes)	.....	37
Plums (boxes)	26,836	16,058
Prunes (boxes)	52,834	6,254
Peaches (boxes)	125,863	120,080
Apricots (boxes)	32,010	27,479
Cherries (boxes)	8,179	10,538
Yakamines (boxes)	37	87
Quince (boxes)	9	32
Nectarines (boxes)	25	.....
California oranges (boxes)	247,256	227,419
Japanese oranges (boxes)	230,234	215,955
Japanese oranges (boxes) (to points east of B.C.)	386,800	344,600
Marmalade oranges (boxes)	8,186	10,524
Chinese oranges (boxes)	734	445
Australian oranges (boxes)	.....	3
Florida oranges (boxes)	.....	8
Lemons (boxes)	36,248	40,772
Tangerines (boxes)	1,318	.....
Limes (boxes)	24	3
Pineapples (boxes)	349	535
Persimmons (boxes)	555	602
Pomegranates (boxes)	1,186	1,208
Tomatoes (boxes)	34,982	30,551
Peppers (boxes)	1,704	1,742
Egg-plants (boxes)	498	666
Potatoes (lb.)	791,243	158,000
Sweet potatoes (lb.)	811,378	760,000
Yams (tons)	27½	37
Peanuts (tons)	2,081	1,643
Taro (tons)	157	130
Walnuts (tons)	1,480	883
Rice (tons)	16,574	16,425
Corn (tons)	40,032	21,981
Beans (tons)	1,904	1,735
Peas (tons)	534	250
Grapefruit (boxes)	33,319	30,079
Grapefruit (boxes) (Oriental)	645	631
Olives (boxes)	170	.....
Brazil nuts (lb.)	50	.....

APPENDIX No. 9.

MEMORANDUM OF IMPORTED FRUIT, VEGETABLES, RICE, BEANS, PEAS, CORN, ETC., CONDEMNED AT ALL PORTS OF ENTRY IN BRITISH COLUMBIA.

	1927.	1926.
Apples (boxes)	418	1,014
Apples (½ boxes)	29	173
Pears (boxes)	3,501	111
Pears (½ boxes)	.....	5

APPENDIX No. 9—*Continued.*

MEMORANDUM OF IMPORTED FRUIT, VEGETABLES, RICE, BEANS, PEAS, CORN, ETC., CONDEMNED AT ALL PORTS OF ENTRY IN BRITISH COLUMBIA—*Continued.*

	1927.	1926.
Prunes (boxes)	75	.....
Peaches (boxes)	252	52
Cherries (boxes)	14	149
Cherries (lb.)	.....	38
Apricots (boxes)	.....	15
California oranges (boxes)	.....	650
Grapefruit (boxes)	797	60½
Quince (boxes)	3	.....
Lemons (boxes)	355	.....
Eggplants	15	.....
Potatoes (lb.)	80	29
Sweet potatoes (lb.)	26,772	708
Tomatoes (boxes)	10	28½
Peppers (boxes)	10	10
Pineapples	6	.....
Cocoanuts	6	.....

APPENDIX No. 10.

MEMORANDUM OF IMPORTED FRUIT, VEGETABLES, RICE, BEANS, PEAS, CORN, ETC., INSPECTED AT VANCOUVER (INCLUDING THOSE CONDEMNED).

	1927.	1926.
Apples (boxes)	45,892¼	43,250
Apples (½ boxes)	24	526
Apples (barrels)	20	8
Pears (boxes)	40,219¼	37,693
Pears (½ boxes)	.....	37
Plums (boxes)	21,318¼	13,162
Prunes (boxes)	47,243	4,533
Peaches (boxes)	102,849¼	97,861
Cherries (boxes)	6,390	6,367
Apricots (boxes)	28,364	22,535
Yakamines (boxes)	27	54
Nectarines (boxes)	25	.....
Quince (boxes)	3	20
California oranges (boxes)	182,165	174,268
Japanese oranges (boxes)	182,270	172,142
Marmalade oranges (boxes)	8,186	10,524
Australian oranges (boxes)	.....	3
Chinese oranges (boxes)	537	240
Lemons (boxes)	28,314	31,762
Tangerines (boxes)	1,318	.....
Grapefruit (boxes)	27,536	25,827
Grapefruit (Oriental) (boxes)	480	415
Limes (boxes)	5	2
Pineapples (boxes)	289	479
Persimmons (boxes)	526	585
Pomegranates (boxes)	1,020	1,104
Tomatoes (boxes)	32,961	28,267
Peppers (boxes)	1,225	1,203
Eggplants (boxes)	443	387
Potatoes (lb.)	534,307	.....
Potatoes (tons)	.....	63
Sweet potatoes (lb.)	676,030	642,933

APPENDIX No. 10—*Continued.*

MEMORANDUM OF IMPORTED FRUIT, VEGETABLES, RICE, BEANS, PEAS, ETC., INSPECTED AT VANCOUVER (INCLUDING THOSE CONDEMNED)—*Continued.*

	1927.	1926.
Yams (lb.)	39,451	54,424
Taro (lb.)	287,338	220,230
Peanuts (tons)	2,080	1,640
Walnuts (tons)	1,289½	877
Rice (tons)	15,223	15,132
Corn (tons)	38,000	18,170
Beans (tons)	1,557	1,711
Peas (tons)	533	240
Cocoanuts	6	.....

APPENDIX No. 11.

MEMORANDUM OF IMPORTED FRUIT, VEGETABLES, RICE, BEANS, PEAS, CORN, ETC., CONDEMNED AT VANCOUVER.

	1927.	1926.
Apples (boxes)	345	976
Apples (½ boxes)	24	173
Pears (boxes)	2,907	87
Pears (½ boxes)	.....	5
Prunes (boxes)	75	.....
Peaches (boxes)	250	.....
Cherries (boxes)	10	137
California oranges (boxes)	.....	606
Grapefruit (boxes)	797½	56½
Quince (boxes)	3	.....
Lemons (boxes)	355	.....
Eggplants	15	.....
Potatoes (lb.)	10	4
Sweet potatoes (lb.)	26,762	708
Cocoanuts	6	.....

APPENDIX No. 12.

MEMORANDUM OF IMPORTED RICE, BEANS, PEAS, CORN, ETC., FUMIGATED AT VANCOUVER.

	1927.	1926.
Rice (tons)	19	6
Beans (lb.)	141	.....
Beans (tons)	.....	2
Peas (lb.)	200	1,265
Peanuts (tons)	45	157
Walnuts (tons)	26	97
Almonds (tons)	2½	6
Cob corn-seed (lb.)	.....	670
Pineapples (crates)	160	305
Prunes (crates)	156	.....
Prunes (lb.)	.....	448
Raisins (lb.)	7,483	43,904
Raisins (boxes)	503	.....
Currants (boxes)	183	.....
Currants (lb.)	.....	310,037
Sultanas (boxes)	460	.....
Apple core and pulp (lb.)	.....	66,300
Evaporated apple skins and cores (boxes)	40	.....
Evaporated apple skins and cores (lb.)	.....	30,000

APPENDIX No. 12—*Continued.*

MEMORANDUM OF IMPORTED RICE, BEANS, PEAS, CORN, ETC., FUMIGATED AT VANCOUVER—*Continued.*

	1927.	1926.
Figs (lb.)	1,265	13,580
Peaches (crate)	1	.....
Tapioca (sacks)	71	.....
Dried fish (cases)	2	.....
Nutmegs (lb.)	.....	2,240
Chili and spice (lb.)	.....	710
Peppers (lb.)	.....	525
Maize (lb.)	.....	2,145
Empty sacks	174,602	10,000
Chesterfield suites	2	.....
Chair	1	.....
Cases Martini Vermouth	92	.....
Cars (empty), Nos. F.G.E. 15862 and 14608	.....	2
The following were fumigated at Victoria:—		
Peas (tons)	7	.....
Peas (lb.)	.....	500
Corn (tons)	88	.....
Liquor (tons)	5	.....
Sacks (empty) (tons)	8	.....
Rice (tons)	.....	10

APPENDIX No. 13.

MEMORANDUM OF IMPORTED NURSERY STOCK INSPECTED AT VANCOUVER (INCLUDING THOSE CONDEMNED).

	1927.	1926.
Standard fruit-trees—		
Apple	7,498	24,580
Crab-apple	273	956
Pear	4,764	3,262
Quince	17	40
Cherry	8,506	21,033
Plum	1,682	3,479
Prune	1,277	3,191
Peach	2,855	6,291
Nectarine	74	104
Yakamine	.....	100
Apricot	817	4,441
Persimmon	163	.....
Fig	163	21
Nut-trees—		
Walnut	863	722
Hazelnut	1,642	435
Pecan	1	.....
Chestnut	70	111
Almond	19	65
Seedlings, grafts, and scions—		
Fruit seedlings	219,120	279,104
Ornamental seedlings	100,819	34,126
Grafts	5,059	810
Scions	1,283	2,817
Small-fruit bushes and plants—		
Cranberry-vines	2	140,001
Grape-vines	15,731	15,198

APPENDIX No. 13—*Continued.*

MEMORANDUM OF IMPORTED NURSERY STOCK INSPECTED AT VANCOUVER (INCLUDING THOSE CONDEMNED)—*Continued.*

	1927.	1926.
Small-fruit bushes and plants—*Continued.*		
Currant-bushes	344	6
Blueberry-bushes	144	31
Gooseberry-bushes	2,626	26
Raspberry-canes	2,570	5,690
Loganberry-canes	16	2,267
Blackberry-canes	768	880
Strawberry-plants	59,510	103,220
Miscellaneous—		
Ornamental trees, etc.	68,704	56,252
Ornamental cuttings	4,274	4,328
Rose-bushes	131,922	151,718
Plants (herbaceous)	36,854	41,443
Roots	618,794	417,504
Bulbs	4,502,850	3,299,508
Totals	5,802,074	4,623,760

NURSERY STOCK INSPECTED AT CRANBROOK DURING 1927.

Fruit-trees	31	Greenhouse plants	2,336
Small fruits	84	Ornamental seedlings	50
Ornamentals	402	Perennials, roots, etc.	415
Rose-bushes	11	Bulbs	29

APPENDIX No. 14.

MEMORANDUM OF IMPORTED NURSERY STOCK CONDEMNED AT VANCOUVER.

	1927.	1926.
Standard fruit-trees—		
Apple	78	1,461
Crab-apple	12	26
Pear	658	22
Cherry	444	138
Plum	18	38
Prune	2	23
Peach	287	166
Nectarine	.....	29
Apricot	1	64
Fig	6	.....
Nut-trees—		
Hazelnut	1	1
Walnut	.....	1
Chestnut	.....	1
Almond	.....	5
Seedlings, grafts, and scions—		
Fruit seedlings	988	1,980
Ornamental seedlings	9	.....
Small-fruit bushes anad plants—		
Grape-vines	46	3
Currant-bushes	6	.....
Gooseberry-bushes	72	26
Blackberry-bushes	250	.....
Raspberry-canes	.....	3
Strawberry-plants	.....	1

APPENDIX No. 14—*Continued.*

MEMORANDUM OF IMPORTED NURSERY STOCK CONDEMNED AT VANCOUVER—*Continued.*

Miscellaneous—	1927.	1926.
Ornamental trees, etc.	352	125
Ornamental cuttings	2	7
Rose-bushes	2	7
Plants	516	503
Roots	300	2
Bulbs	21,794	81,415
Totals	25,844	86,047

APPENDIX No. 15.

MEMORANDUM OF IMPORTED NURSERY STOCK INSPECTED AT VICTORIA (INCLUDING THOSE CONDEMNED).

	1927.	1926.
Rose-bushes	698	53
Hazelnut-trees	6	.....
Ornamental trees, etc.	11	23
Ornamental cuttings	12	1
Strawberry-plants	306	.....
Grape-vines	.....	4
Raspberry-canes	.....	1
Plants	4,239	3,389
Roots	100	316
Bulbs	35,616	97,820
Imported nursery stock condemned at Victoria—		
Rose-bushes	3	3
Hazelnut-trees	6	.....
Ornamental trees, etc.	13	23
Ornamental cuttings	12	1
Raspberry-canes	.....	1
Bulbs	12	7
Plants	.....	15

APPENDIX No. 16.

MEMORANDUM OF VEGETABLES, FRUIT, NUTS, ETC., FOR WHICH NO CERTIFICATES WERE ISSUED.

	1927.	1926.
Asparagus	15,718	8,015
Apple-pumice	32,000	.....
Artichokes	166	214
Almonds (lb.)	122,173	225,730
Amice-leaves	300	.....
Avacadoes	117	42
Beets	322	63
Bananas	98,745	95,175
Brazil nuts (lb.)	101,792	489,878
Brussels sprouts	338	395
Bay choy	42	23
Beans	447	549
Broom-corn	.....	369
Buckwheat (lb.)	.....	500
Black walnuts	500	1,500
Betel nuts	100	.....
Burdock-root	5	.....
Barley	248,100	.....

APPENDIX No. 16—*Continued.*

MEMORANDUM OF VEGETABLES, FRUIT, NUTS, ETC., FOR WHICH NO CERTIFICATES WERE ISSUED—*Continued.*

	1927.	1926.
Bay-leaves	2,750	.....
Broccoli	544	.....
Cabbage	6,644	6,802
Cauliflower	8,347	7,722
Cabbage (tons)	351	12
Casabas	835	830
Casabas (by count)	14,249	18,256
Chestnuts (lb.)	37,410	13,693
Caladium	49,800	33,700
Carrots	11,099	1,603
Cloves (lb.)	.....	1,400
Cucumbers	338	331
Celery	13,232	6,157
Cocoanuts	239	631
Cocoa-beans (lb.)	14,520	7,250
Cantaloupes	15,032	11,907
Chicory	4	2
Coffee-beans (lb.)	41,500	69,000
Cactus pears	.....	17
Cranberries	2,903	2,751
Caltrops (lb.)	1,600	5
Chillies (lb.)	3,900	300
Cardoons	.....	1
Currants (lb.)	42,500	.....
Chinese melons	3	.....
Chinese melons (lb.)	1,785	.....
Dried apples	75	.....
Dried beet-pulp	30,000	.....
Dried ginger (lb.)	9,640	.....
Dried prunes	36	100
Dried fruits (various)	43,731	.....
Dates	525	.....
Endives	2	5
Foo gwah	.....	11
Filberts (lb.)	67,359	395,840
Figs (lb.)	113,525	64,344
Figs	70	.....
Gye choy	11	15
Grapes	75,472	95,335
Ginger-root (lb.)	82,670	79,200
Garlic (lb.)	3,862	83,365
Garlic	19	.....
Geet gwah	1	7
Gooseberries	188	20
Garbanzoes	800	200
Ginseng-root (lb.)	316	.....
Horseradish (lb.)	.....	1,000
Hickory nuts (lb.)	900	300
Honeydew melons	1,174	.....
Honeydew melons (by count)	5,746	.....
Ice-cream melons	8	.....
Ice-cream melons (lb.)	6,000	.....
Jujubes	3	.....
Lettuce	43,827	38,058

APPENDIX No. 16—*Continued.*

MEMORANDUM OF VEGETABLES, FRUIT, NUTS, ETC., FOR WHICH NO CERTIFICATES WERE ISSUED—*Continued.*

	1927.	1926.
Lychee nuts (lb.)	.....	50
Lentils (lb.)	17,600	29,712
Lily-bulbs (edible) (lb.)	8,500	17,400
Lily-roots	55	.....
Lotos rhizomes (lb.)	87,425	139,210
Lotos nuts (lb.)	240	.....
Loquat	10	.....
Lupines (lb.)	600	.....
Melons	90	1,443
Melons (lb.)	8,040	.....
Melons (by count)	.....	66,419
Mint	4	2
Maize	2	3
Maize-husks	.....	575
Mace (lb.)	.....	1,900
Mangoes (lb.)	1,425	775
Malt (lb.)	150,000	.....
Mushrooms (lb.)	.....	10
Nutmeg (lb.)	12,200	19,950
Nut-galls (lb.)	700	.....
Onions (sacks)	30,380	10,133
Okra (lb.)	873	.....
Okra	21	18
Olives	69	16
Parsley	319	115
Peas	2,013	449
Pecan nuts (lb.)	4,208	2,502
Prunes (lb.)	69,250	100
Pepper (lb.)	12,200	25,050
Parsnips	328	.....
Pine nuts	900	100
Passion nuts (lb.)	30	.....
Persian melons	59	.....
Prickly pear	1	.....
Pimento (lb.)	.....	4,500
Radishes	95	102
Rhubarb	3,024	2,106
Rutabaga	55	1,422
Raisins	.....	100
Raspberries	26	.....
Spinach	16,573	8,452
Squash	84	50
Seeds (miscellaneous) (lb.)	284,990	382,189
Sugar-cane (lb.)	34,250	66,500
Strawberries	11,287	5,912
Sage (lb.)	3,100	.....
Turnips	315	1,400
Tumerick-root (lb.)	500	600
Thyme-leaves (lb.)	200	.....
Turkish melons	1	.....
Water-chestnuts (lb.)	52,370	52,650
Water-melons	40	.....
Water-melons (by count)	51,295	.....
White nuts (lb.)	4,400	8,850
White pepper	12,200	.....

APPENDIX No. 17.

NURSERY STOCK INSPECTED FOR EXPORT, FOR WHICH CERTIFICATES WERE ISSUED, 1927.

Country.	Fruit-trees.	Small Fruits.	Orna-mentals.	Roses.	Bulbs.	Peren-nials, Roots, etc.	Green-house Plants.	Conifer-seed, Native.	Vines.
								Lb.	
United States	.....	.....	624	705	74,134	254	233	327	5
China	271	100	38	749	1,304	100	.....	.....	2
England	72	.....	25	1	105	.....	1,015	2,890	....
Australia	.....	.....	11	6	120	3	.....	144	....
New Zealand	.....	.....	9	.....	300	.....	.....	3,193	....
Denmark	.....	.....	.....	.....	.....	.....	.....	1,339	....
Germany	.....	.....	.....	.....	.....	.....	.....	60	....
Japan	12	24	.....	.....	21	6	.....	.....	....
Ireland	.....	.....	1	.....	.....	.....	16	6	....
Belgium	.....	.....	.....	.....	.....	24	.....	53	....
Scotland	.....	.....	2	1	.....	.....	88	.....	....
Wales	.....	.....	.....	.....	.....	.....	37	.....	....
Italy	.....	.....	.....	.....	7	.....	.....	11	....
France	.....	.....	.....	.....	.....	.....	.....	25	....
Mexico	1,930	.....	.....	.....	.....	.....	.....	.....	....
Totals	2,285	124	710	1,462	75,991	387	1,389	8,048	7

APPENDIX No. 18.

PRODUCTS FOR WHICH EXPORT INSPECTION CERTIFICATES WERE ISSUED AT VANCOUVER AND OKANAGAN, 1927.

To.	Apples (Boxes).	Potatoes (Sacks).	Potatoes (Crates).	Potatoes (Cases).	Onions (Crates).	Onions (Sacks).	Turnips (Sacks).	Wheat (Sacks).	Wheat (Bushels).	Pears (Boxes).	Cabbage (Crates).	Oranges (Cases).	Cherries (Cases).
South America	1,564	.....	.....	.....	.....	.....	.....	9,026	.....	.....	.....	.....	....
China	5,764	19,357	193	.....	1,480	.....	13	.....	.....	10	4	.....	....
New Zealand	19,488	.....	1	.....	5,040	285	.....	.....	.....	.....	.....	.....	10
United States	3,102	59,209	431	1	.....	.....	.....	.....	16,666	.....	.....	.....	....
India	220	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	....
Panama	.....	.....	500	.....	.....	.....	.....	.....	.....	.....	.....	.....	....
Philippines	18	.....	500	.....	.....	.....	5*	.....	.....	.....	60	.....	....
Sweden	19,383	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	....
Norway	5,938	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	....
Japan	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	....
Hawaii	204	680	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	....
Fiji Islands	1,306	100	310	.....	25	.....	.....	.....	.....	.....	.....	6	....
England	1,785	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	....
South Africa	16,269	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	....
Germany	1,506	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	....
Finland	2,250	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	....
Strait Settlements	50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	....
Denmark	3,750	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	....
Totals	82,599	79,346	1,935	1	6,545	285	18†	9,026	16,666	10	64	6	10

* Crates. † Including 5 crates.

APPENDIX No. 19.

FRUIT AND POTATOES EXPORTED TO ENGLAND AND EUROPEAN PORTS VIA VANCOUVER AND PANAMA CANAL AND FOR WHICH NO CERTIFICATES WERE ISSUED (INCLUDING UNITED STATES), 1927.

Country.	Apples.	Apples.	Pears.	Potatoes.	Potatoes.
	Boxes.	½ Boxes.	Boxes.	Sacks.	Crates.
England	73,875	48	2,128	.....	.....
Rotterdam	18,732	.....	.....	.....	.....
Hamburg	9,750	.....	.....	.....	.....
United States	.....	.....	.....	470	1,400
Totals	102,357	48	2,128	470	1,400

APPENDIX No. 20.

EGGS IMPORTED INTO AND VIA B.C. FROM UNITED STATES, 1927.

Date.	Carrier.	In Shell, Fresh.	Whole Eggs, Frozen.	Yolks, Frozen.	Whites, Frozen.	Destination.
		Cases.	Cans.	Cans.	Cans.	
Jan. 24	C.P. Railway	10	.....	.....	.....	Cranbrook.
Feb. 22	Princess Charlotte	40	.....	.....	.....	Ship's stores.
April 6	Princess Charlotte	46	.....	.....	.....	Ship's stores.
,, 25	Princess Charlotte	51	.....	.....	.....	Ship's stores.
May 17	Princess Marguerite	51	.....	.....	.....	Ship's stores.
June 7	Princess Marguerite	51	.....	.....	.....	Ship's stores.
,, 15	Princess Marguerite	.....	268	.....	.....	Vancouver.
July 26	Princess Marguerite	50	.....	.....	.....	Ship's stores.
Aug. 23	Princess Marguerite	20	.....	.....	.....	Ship's stores.
,, 26	Princess Marguerite	56	.....	.....	.....	Ship's stores.
Oct. 9	Princess Adelaide	.....	13	.....	25	Vancouver.
,, 18	Princess Louise	17	.....	.....	.....	Ship's stores.
Nov. 10	Princess Adelaide	.....	70	5	117	Vancouver.
,, 16	Princess Adelaide	30	.....	.....	.....	Ship's stores.
,, 18	Princess Adelaide	50	.....	.....	.....	Ship's stores.
,, 29	Princess Adelaide	.....	150	.....	.....	Vancouver.
Dec. 29	Princess Charlotte	70	.....	.....	.....	Ship's stores.

APPENDIX No. 21.

EGGS IMPORTED INTO AND VIA B.C. FROM CHINA, 1927.

Date.	Carrier.	In Shell, Preserved.	Whole Eggs, Frozen.	Dried Yolks.	Dried Whites.	Destination.
		Cases.	Cans.	Cans.	Cases.	
Feb. 10	Empress of Russia	22	.....	.....	.....	Eastern points.
,, 10	Empress of Russia	142	.....	.....	.....	Vancouver.
,, 24	Princess Charlotte	.....	.....	5	.....	Yukon District.
Mar. 6	Empress of Russia	.....	700	.....	.....	Eastern points.
April 4	Empress of Asia	50	.....	.....	.....	Vancouver.
,, 4	Empress of Asia	31	.....	.....	.....	Eastern points.
May 8	Empress of Russia	53	.....	.....	.....	Vancouver.
,, 8	Empress of Russia	5	.....	.....	.....	Eastern points.
June 1	Empress of Asia	46	.....	.....	.....	Eastern points.
,, 1	Empress of Asia	55	.....	.....	.....	Vancouver.
July 13	Empress of Canada	170	.....	.....	.....	Vancouver.
,, 31	Empress of Asia	10	.....	.....	.....	Vancouver.
,, 31	Empress of Asia	18	.....	.....	.....	Eastern points.
,, 26	S.S. Eldridge	.....	.....	28	.....	New York.
Aug. 4	Arizona Maru	.....	.....	22	.....	Vancouver.
Oct. 2	Empress of Asia	14	.....	.....	.....	Eastern points.
,, 2	Empress of Asia	92	.....	.....	.....	Vancouver.
,, 23	Empress of Canada	23	.....	.....	.....	Eastern points.
Nov. 23	Empress of Canada	102	.....	.....	.....	Vancouver.
Dec. 3	Empress of Asia	146	.....	.....	.....	Vancouver.
,, 3	Empress of Asia	13	.....	.....	.....	Eastern points.
,, 3	Empress of Asia	.....	.....	.....	11	Vancouver.

NOTE.—Eastern points refer to points east of British Columbia.

APPENDIX No. 22.

Seed-treatment for Rhizoctonia on Potatoes, 1927.

Plot.	Treatment.	Yield.	Clean.	Heavy Rhizoctonia.	Light Rhizoctonia.	Percentage Clean.	Percentage Heavy Rhizoctonia.	Percentage Light Rhizoctonia.
1	Clean, untreated	13¾	7⅞	2⅜	3½	57.3	17.2	25.5
2	Diseased, untreated	12¾	6⅛	3⅜	3¼	48.0	26.5	25.5
3	Dis. Corr. Sub. treatment	12⅜	10⅞	¼	1¼	87.9	2.0	10.1
4	12 Bel, 2 oz. before cutting	15¾	1	8¼	6½	6.3	52.4	41.3
5	12 Bel, 3 oz. after cutting	15¼	5¾	7	2½	37.7	45.9	16.4
6	12 Bel, 1–15 dip	15½	4½	6¼	4¾	29.0	40.3	30.7
7	12 Bel, 1–20 dip	15¾	4¼	5¼	6¼	27.0	33.3	39.7
8	12 Bel, 1–40 dip	17¼	3⅞	7¼	6⅛	22.5	42.0	35.5
9	21 Bel, 2 oz. before cutting	14¼	1⅜	8⅞	4	9.6	62.3	28.1
10	21 Bel, 3 oz. after cutting	15½	3	9	3½	19.4	58.0	22.6
11	21 Bel, 1–15 dip	13¾	¾	9¾	3¼	5.5	70.9	23.6
12	21 Bel, 1–20 dip	12⅛	3⅛	7	2	25.8	57.8	16.4
13	21 Bel, 1–40 dip	13¼	3½	6	3¾	26.4	45.3	28.3
14	Clean, untreated	11⅛	4⅞	3¼	3	43.8	29.2	27.0
15	Diseased, untreated	11⅞	¾	5⅝	5½	6.3	47.4	46.3
16	Dis. Corr. Sub. treatment	10½	10½	.....	.....	100.0	.....	.....
17	37 Bel, 2 oz. before cutting	15⅝	15⅛	¼	¼	96.8	1.6	1.6
18	37 Bel, 3 oz. after cutting	16⅜	11½	3⅜	1½	70.2	20.6	9.2
19	37 Bel, 1–15 dip	15⅞	12¼	2⅜	1¼	77.2	15.0	7.8
20	37 Bel, 1–20 dip	16⅜	6½	4⅛	5¾	39.7	25.2	35.1
21	37 Bel, 1–40 dip	17⅝	11⅝	4¼	1¾	66.0	24.1	9.9
22	Semesan Bel, 1–10 dip	18⅝	5⅝	8	5	30.2	43.0	26.8
23	Clean, untreated	14⅞	13⅜	½	1	89.9	3.4	6.7
24	Diseased, untreated	12¾	9½	⅞	2⅜	74.5	6.9	18.6
25	Dis. Corr. Sub. treatment	11¾	11¾	.....	.....	100.0	.....	.....
26	Diseased, untreated	11	1⅞	4½	4⅝	17.0	41.0	42.0
27	Dis. Corr. Sub. treatment	9⅝	9⅛	.....	½	94.8	.....	5.2
28	Clean, untreated	11	3⅞	4⅛	3	35.2	37.5	27.3
29	Semesan Bel, 1–10 dip	16⅝	1¼	9¼	6⅛	7.5	55.6	36.9
30	37 Bel, 1–40 dip	16¾	7¾	6½	2½	46.3	38.8	14.9
31	37 Bel, 1–20 dip	18¼	10¼	5¼	2¾	56.2	28.8	15.0
32	37 Bel, 1–15 dip	18½	11¼	6½	¾	60.8	35.1	4.1
33	37 Bel, 3 oz. after cutting	18	13½	2¾	1¾	75.0	15.3	9.7
34	37 Bel, 2 oz. before cutting	16	10¼	3½	2¼	64.1	21.9	14.0
35	Clean, untreated	12¾	4¼	6	2½	33.3	47.1	19.6
36	Diseased, untreated	10⅜	2¾	4¾	2⅞	26.5	45.8	27.7
37	Dis. Corr. Sub. treatment	6⅝	6	¼	⅜	90.6	3.8	5.6
38	21 Bel, 1–15 dip	15½	2⅞	10⅛	2½	18.5	65.3	16.2
39	21 Bel, 1–20 dip	15	4¾	8⅝	1⅝	31.7	57.5	10.8
40	21 Bel, 1–40 dip	19	3⅝	11½	3⅞	19.1	60.5	20.4
41	21 Bel, 3 oz. after cutting	16⅛	3½	7¾	4⅞	21.7	48.1	30.2
42	21 Bel, 2 oz. before cutting	16½	4⅝	8⅜	3½	28.0	50.8	21.2
43	Clean, untreated	15⅜	8¼	2⅞	4¼	53.6	18.7	27.7
44	Diseased, untreated	14⅛	5⅛	3	6	36.3	21.2	42.5
45	Dis. Corr. Sub. treatment	11¼	10¼	.....	1	91.1	.....	8.9
46	12 Bel, 1–40 dip	13¾	4	6¾	3	29.1	49.1	21.8
47	12 Bel, 1–20 dip	15¾	2	8¼	5½	12.7	52.4	34.9
48	12 Bel, 1–15 dip	13⅝	2½	7⅝	3½	18.4	55.9	25.7
49	12 Bel, 3 oz. after cutting	12½	2	7¾	2¾	16.0	62.0	22.0
50	12 Bel, 2 oz. before cutting	11¾	3	6¼	2½	25.5	53.2	21.3
51	21 Bel, 2 oz. before cutting	12⅝	⅞	8¾	3	6.9	69.3	23.8
52	21 Bel, 3 oz. after cutting	13⅝	4¾	6⅞	2	34.9	50.4	14.7
53	21 Bel, 1–15 dip	15⅞	9⅝	3	3¼	60.6	18.9	20.5
54	21 Bel, 1–20 dip	16½	6¾	7⅜	2⅜	40.9	44.7	14.4
55	21 Bel, 1–40 dip	14¼	3⅛	7¾	3⅜	21.9	54.5	23.6
56	Clean, untreated	11½	6⅜	3½	1⅝	55.4	30.4	14.2
57	Diseased, untreated	11¾	1½	6	4¼	12.8	51.1	36.1
58	Dis. Corr. Sub. treatment	8⅝	6⅞	⅝	1⅛	79.7	7.2	13.1
59	37 Bel, 2 oz. before cutting	12⅛	9⅜	⅞	1⅞	77.3	7.2	15.5

APPENDIX No. 22—*Continued.*

SEED-TREATMENT FOR RHIZOCTONIA ON POTATOES, 1927—*Continued.*

Plot.	Treatment.	Yield.	Clean.	Heavy Rhizoctonia.	Light Rhizoctonia.	Percentage Clean.	Percentage Heavy Rhizoctonia.	Percentage Light Rhizoctonia.
60	37 Bel, 3 oz. after cutting	15¼	11⅛	3⅛	1	73.0	20.5	6.5
61	37 Bel, 1–15 dip	12¼	4⅛	6	2⅛	33.7	48.9	17.4
62	37 Bel, 1–20 dip	11¾	3⅛	9¼	1⅛	11.7	78.7	9.6
63	37 Bel, 1–40 dip	11¼	⅞	9	1⅜	7.8	80.0	12.2
64	Diseased, untreated	9¼	1	6¾	1½	10.8	73.0	16.2
65	Dis. Corr. Sub. treatment	9⅝	8⅛	1	½	84.4	10.4	5.2
66	Clean, untreated	17⅜	8⅞	5	3½	51.1	28.8	20.1
67	Semesan Bel, 1–10 dip	14⅛	2	8¼	3⅞	14.1	58.4	27.5
68	12 Bel, 2 oz. before cutting	15⅜	5	8	2⅜	32.5	52.0	15.5
69	12 Bel, 3 oz. after cutting	11¾	3¾	5¾	2¼	32.0	48.9	19.1
70	12 Bel, 1–15 dip	16⅞	4½	7	5⅜	26.7	41.5	31.8
71	12 Bel, 1–20 dip	17⅜	9⅛	5	3¼	52.5	29.0	18.5
72	12 Bel, 1–40 dip	16½	6⅛	8⅜	2	37.1	50.8	12.1
73	Diseased, untreated	9⅛	4	2⅞	2¼	43.8	31.5	24.7
74	Dis. Corr. Sub. treatment	5⅜	5⅜	.....	.....	100.0	.....	.....
75	Clean, untreated	7⅜	5¾	⅝	1	78.0	8.5	13.5

APPENDIX No. 23.

CATTLE AND HIDES SHIPPED DURING 1927.

District, Cariboo and South.

Month.	Williams Lake.		Lac la Hache.		Quesnel.		Clinton.		Lillooet.	
	Cattle.	Hides.	Cattle.	Hides.	Cattle.	Hides.	Cattle.	Hides.	Cattle.	Hides.
January	.....	.....	.....	.....	.....	19	50	.....	.....	.....
February	.....	.....	.....	.....	.....	57	.....	32	.....	68
March	.....	.....	.....	.....	.....	46	.....	.....	.....	99
April	.....	.....	.....	.....	.....	.....	.....	.....	.....	116
May	.....	.....	.....	.....	.....	94	.....	113	.....	14
June	.....	.....	.....	.....	.....	67	.....	.....	.....	.....
July	1,006	.....	188	.....	26	14	25	.....	.....	18
August	579	.....	.....	.....	.....	39	305	.....	.....	3
September	409	.....	185	.....	.....	15	439	27	.....	83
October	1,580	.....	351	.....	150	42	458	.....	.....	.....
November	1,243	.....	279	.....	36	.....	839	.....	.....	.....
December	.....	.....	.....	.....	.....	.....	239	.....	.....	.....
Totals	4,817	.....	1,003	.....	212	393	2,355	172	.....	401

Totals: Cattle, 8,549; hides, 966.

District, Kamloops and Nicola.

Month.	Ashcroft.		Merritt and Nicola.		Kamloops.	
	Cattle.	Hides.	Cattle.	Hides.	Cattle.	Hides.
January	325	47	83	.....	135	310
February	26	86	35	23	163	213
March	61	87	60	212	41	288
April	.....	14	.....	262	31	224
May	.....	42	43	.....	29	395
June	.....	221	300	147	423	293
July	96	20	912	75	603	301
August	139	124	1,236	.....	352	209
September	151	22	433	234	658	130
October	148	.....	146	81	541	229
November	1,489	53	583	102	897	117
December	22	5	352	.....	170	354
Totals	2,457	721	4,183	1,136	4,043	3,063

Totals: Cattle, 10,683; hides, 4,920.

APPENDIX No. 23—*Continued.*

CATTLE AND HIDES SHIPPED DURING 1927—*Continued.*

District, Okanagan, etc.

Month.	Kelowna.		Penticton.		Vernon.		Salmon Arm.		Keremeos, Princeton, Coalmont, etc.	
	Cattle.	Hides.	Cattle.	Hides.	Cattle.	Hides.	Cattle.	Hides.	Cattle.	Hides.
January	4	.....	45	.....	.....	.....	.....	6	24	5
February	.....	.....	.....	201	3	278	.....	62	.....	148
March	19	7	32	117	.....	175	.....	32	.....	138
April	4	115	.....	.....	31	.....	.....	.....	.....	26
May	9	.....	.....	101	30	756	2	244	.....	381
June	173	52	26	165	130	683	59	98	234	6
July	2	132	.....	.....	25	202	.....	20	171	52
August	.....	.....	36	100	14	.....	1	149	63	152
September	.....	198	76	242	51	.....	.....	.....	179	118
October	.....	.....	30	.....	.....	390	.....	24	69	22
November	41	191	52	123	.....	.....	5	.....	50	160
December	.....	162	1	97	.....	.....	.....	293	.....	143
Totals	252	857	298	1,146	284	2,384	67	928	790	1,351

Totals: Cattle, 1,691; hides, 6,666.

District, South-east British Columbia.

Month.	Nelson.		Creston.		Cranbrook, Fernie, etc.		Grand Forks Midway, etc.	
	Cattle.	Hides.	Cattle.	Hides.	Cattle.	Hides.	Cattle.	Hides.
January	2	.....	.....	.....	.....	.....	.....	.....
February	.....	99	9	147	.....	.....	22	50
March	.....	508	.....	45	.....	28	46	.....
April	2	63	.....	46	.....	19	.....	.....
May	.....	.....	5	125	.....	140	.....	49
June	.....	353	.....	.....	.....	64	.....	33
July	.....	.....	.....	.....	.....	23	52	19
August	.....	.....	.....	.....	.....	.....	81	247
September	.....	.....	.....	.....	.....	9	.....	69
October	1	.....	82	158	.....	411	118	.....
November	.....	169	152	77	.....	76	87	143
December	1	89	3	330	.....	364	.....	.....
Totals	6	1,281	251	928	.....	1,134	406	610

Totals: Cattle, 663; hides, 3,953.

District, Central British Columbia.

Month.	Smithers, Telkwa, Hazelton, etc.		Burns Lake, Fort Fraser, and Vanderhoof.		Prince George and McBride.		Pouce Coupe.	
	Cattle.	Hides.	Cattle.	Hides.	Cattle.	Hides.	Cattle.	Hides.
January	27	52	.....	9	.....	.....	.....	.....
February	.....	.....	.....	.....	.....	192	41	4
March	.....	21	.....	126	.....	.....	30	.....
April	4	220	2	79	.....	.....	73	.....
May	.....	62	.....	14	.....	3	147	.....
June	.....	51	.....	339	.....	.....	.....	.....
July	2	177	.....	86	.....	.....	.....	.....
August	.....	.....	.....	.....	.....	.....	.....	.....
September	55	.....	.....	18	.....	1	.....	.....
October	50	217	.....	69	.....	188	196	.....
November	32	33	.....	77	.....	.....	112	.....
December	32	140	.....	55	.....	.....	55	.....
Totals	202	973	.....	872	.....	384	654	4

Totals: Cattle, 856; hides, 2,233.

APPENDIX No. 23—*Continued.*

Cattle and Hides shipped during 1927—*Continued.*

District Totals.

District.	Cattle.	Hides.
Cariboo and South	8,549	966
Kamloops and Nicola	10,683	4,920
Okanagan, etc.	1,691	6,666
South-east British Columbia	663	3,953
Central British Columbia	856	2,233
Grand totals	22,442	18,738

APPENDIX No. 24.

Districts in which T.B. Testing and Inspection Work was done, 1927.

District.	No. of Premises.	No. of Cattle tested.	Reactors.	Grade of Premises.		
				A.	B.	C.
Coast Points.						
Gibson's Landing	22	49	2	.....	.....	22
Ocean Falls	1	26	.....	1	.....	.....
Powell River	11	131	.....	3	7	1
Buccaneer Bay	1	13	.....	.....	.....	1
Prince Rupert	3	42	.....	2	1	.....
Squamish	24	134	.....	1	2	21
Totals	62	395	2	7	10	45
Central British Columbia.						
Prince George	10	98	.....	5	1	4
Quick	4	48	.....	1	.....	3
Smithers	6	105	17	4	2	.....
Telkwa	5	60	.....	1	2	2
Terrace	18	64	.....	5	.....	3
Totals	43	375	17	16	5	22
Kootenay.						
Edgewood	13	79	2	.....	1	12
Fernie	41	307	.....	.....	1	40
Cranbrook	14	313	2	1	1	12
Creston	1	6	.....	.....	.....	1
Nelson	19	210	.....	.....	2	17
Other points in Kootenay	43	399	4	.....	.....	43
Revelstoke	9	151	.....	2	1	6
Totals	140	1,465	8	3	6	131
Okanagan.						
Armstrong, Vernon and Kelowna	85	645	15	.....	20	65
Salmon Arm	19	66	.....	1	.....	18
Totals	104	711	15	1	20	83
Kamloops, etc.						
Kamloops	9	198	.....	.....	.....	9
Tranquille	1	175	.....	1	.....	.....
Merritt	1	16	.....	.....	.....	1
Lillooet	11	98	.....	.....	.....	11
Similkameen	1	3	.....	.....	.....	1
Totals	23	490	.....	1	.....	22

APPENDIX No. 24—*Continued.*

DISTRICTS IN WHICH T.B. TESTING AND INSPECTION WORK WAS DONE, 1927—*Continued.*

District.	No. of Premises.	No. of Cattle tested.	Reactors.	Grade of Premises.		
				A.	B.	C.
Vancouver Island.						
Alberni	2	64	2	2	.....	.....
Campbell River	4	16	.....	1	1	2
Courtenay	20	131	.....	.....	5	15
Comox	23	99	4	2	9	12
Cumberland	10	114	1	1	4	5
Denman Island	41	272	.....	4	12	25
Duncan	56	506	.....	5	32	19
Fanny Bay	6	50	.....	.....	1	5
Ladysmith	15	91	1	1	10	4
Merville	15	91	2	.....	6	9
Nanaimo	41	552	10	27	9	5
Parksville	7	78	3	1	3	3
Pender Island	33	91	2	.....	1	32
Royston	4	24	.....	.....	2	2
Sandwick	27	348	65	.....	9	18
Sooke and Metchosin	54	301	11	2	25	27
Saanich	214	1,877	165	22	99	93
Union Bay	4	10	1	.....	2	2
Victoria	87	470	20	6	61	20
Wellington	12	152	9	8	3	1
East Wellington	6	75	1	6	.....	.....
Totals	681	5,412	297	88	294	299

Total herds tested, 1,053; cattle, 8,848; reactors, 339=3.83 per cent.
Premises graded: A, 116; B, 335; C, 602.

HERDS AND PREMISES INSPECTED AFTER "MILK ACT" CAME INTO FORCE, SEPTEMBER 1ST, 1927.

(Herds were tested by Federal Inspectors.)

Premises	533
Cattle	9,027
Grade of premises—	
A	191
B	283
C	59

APPENDIX No. 25.

MILK-TESTERS' LICENCES ISSUED DURING 1927.

Name.	Address.
Abbott, R. C.	Vanderhoof.
Anderson, Alfred H.	Armstrong.
Anderson, Elsie A.	2689 Charles Street, Vancouver.
Atkinson, L. A.	405 Eighth Avenue West, Vancouver.
Barrett, Wilfrid C.	872 Sixty-third Avenue West, Vancouver.
Bacon, J. W.	Carl Apartments, Vancouver.
Boyne, Wm.	Kamloops.
Calder, Jas.	882 Hamilton Street, Vancouver.
Caldwell, John	1855 Georgia Street East, Vancouver.
Carroll, W. J.	Courtenay.
Chevalley, F.	Abbotsford.
Chevalley, P.	Abbotsford.
Clark, H. C.	Cloverdale.
Clarke, T. G. M.	Vernon.
Coxen, W. G.	1111 Fort Street, Victoria.

APPENDIX No. 25—*Continued.*

MILK-TESTERS' LICENCES ISSUED DURING 1927—*Continued.*

Name.	Address.
Crabtree, G. H.	Abbotsford.
Cranswick, P.	1001 Pender Street West, Vancouver.
Dixon, A. S.	1862 Venables Street, Vancouver.
Dudman, A.	333A Thirteenth Avenue East, Vancouver.
Gibbs, J. A.	930 North Park Street, Victoria.
George, Wm. H.	1521 Jubilee Avenue, Victoria.
Grant, Everett	Abbotsford.
Grimes, G. G.	Langley Prairie.
Hall, F. D. B.	Box 172, Chilliwack.
Harding, G. T. R.	Vernon.
Harkness, Wm.	Nelson.
Henderson, C. A.	Kamloops.
Hoffman, W.	2052 Twelfth Avenue West, Vancouver.
Holmes, J.	827 Broadway West, Vancouver.
Hurley, M. H.	1111 Fort Street, Victoria.
Isbister, J.	Langley Prairie.
Johnston, Wm. G.	Armstrong.
Kell, George	516 St. George Street, New Westminster.
Kjeldgaard, Otto	1166 Hornby Street, Vancouver.
Magar, J. A.	Sardis.
Main, T.	3917 Albert Street, Vancouver.
Matheson, D. W.	Port Haney.
Medd, G. H.	Fort Langley.
M'Leary Sam	Cranbrook.
McLean, Hector	512 Fourteenth Avenue East, North Vancouver.
Metcalfe, J. F.	3436 Oak Street, Vancouver.
Moore, J. S.	Penticton.
Munn, J. A.	Sardis.
Moss, James	Box 634, Kelowna.
Neill, A.	Telkwa.
Newland, C. G.	Colony Farm, Essondale.
Northcott, C. W.	1847 Pendrell Street, Vancouver.
Norton, F. H. A.	1311 Broad Street, Victoria.
Orr, J. B.	Sardis.
Pallot, C. S.	Box 121, Haney.
Patten, L. W.	Armstrong.
Price, T. W.	905 Twenty-fourth Avenue East, Vancouver.
Richards, T. E.	Lynn Valley P.O., North Vancouver.
Rose, Wm.	Courtenay.
Sherwood, E. G.	1032 Hornby Street, Vancouver.
Silver, M. R.	2215 Dundas Street, Vancouver.
Taylor, Arthur	Pouce Coupe.
Thomson, F. D.	966 Fourteenth Avenue West, Vancouver.
Thornbery, G. H.	Department of Agriculture, Victoria.
Turnbull, Miss M.	Kelowna.
Valentin, H. B. M.	Prince Rupert.
Wagg, C. H.	Ganges.
Washington, F. J.	405 Eighth Avenue West, Vancouver.
Watson, J. B.	R.R. 1, Sardis.
Wells, B.	Ladner.
Wells, J. R.	Penticton.
West, C. H.	158 Melbourne Street, South Vancouver.
Wood, R. K.	1778 St. Ann Street, Victoria.
Yingling, C. M.	Revelstoke.

APPENDIX No. 26.

Cream-graders' Licences issued during 1927.

Name.	Address.
Adams, Theo. F.	Enderby.
Anderson, Z. K.	405 Eighth Avenue West, Vancouver.
Bell, S. A.	478 Fraser Street, Victoria.
Burger, Irvin	2033 Trafalgar Street, Vancouver.
Batey, H. S.	2507 Chesterfield Avenue, North Vancouver.
Clarke, T. E.	Armstrong.
Dunn, J. S.	553 Fifth Street, Nanaimo.
Dunn, J.	553 Fifth Street, Nanaimo.
Dill, C. A.	Kamloops.
Drake, A. W.	Ganges.
Higham, C. J.	3307 Royal Oak Avenue, Burnaby.
Hensen, A. B.	Golden.
Jenne, H. H.	Nelson.
James, D. A.	1114 Broadway West, Vancouver.
Johnson, Alfred	Quesnel.
Karnagel, R.	Enderby.
Livingston, J. M.	23 Alexander Street, Vancouver.
Lynds, F. G.	Penticton.
Lawrance, G. H.	Mission City.
Morse, A. O.	1750 Eighth Avenue West, Vancouver.
Maslin, W.	Pouce Coupe.
McAllister, C. W.	717 View Street, Victoria.
MacKerricher, W. R.	c/o D. Spencer, Vancouver.
Patten, L. W.	Armstrong.
Perrins, A. C.	841 Ellery Street, Victoria.
Pyvis, W. J.	Sardis.
Quaedvlieg, E. J.	Keremeos.
Reston, H. C. F.	684 Burnside Road, Victoria.
Rodger, J. M.	Courtenay.
Rolph, E. N.	Quesnel.
Rive, E.	405 Eighth Avenue West, Vancouver.
Rive, C.	Courtenay.
Skelton, R. J.	Salmon Arm.
Sejrup, V. M.	Duncan.
Smith, J. K.	Grand Forks.
Sellers, J. H.	414 Pender Street East, Vancouver.
Thomas, S. J.	3061 Parker Street, Vancouver.
Thomson, D. H.	Penticton.
Woods, R. H.	Penticton.
Warburton, S.	1957 Wolfe Street, South Vancouver.
Watson, J. B.	Grand Forks.
Wasson, F. C.	Department of Agriculture, Victoria.
White, C. J.	644 Sixty-sixth Avenue West, Vancouver.

APPENDIX No. 27.

Creamery Licences issued during 1927.

Name.	Address.
Arrow Lakes Cheese Factory	Edgewood.
Beaconsfield Dairy Co.	905 Twenty-fourth Avenue East, Vancouver.
Borland Ice Cream Co.	1520 Sixth Avenue West, Vancouver.
Borden Co., Ltd., The	Sardis.
Burns, P., & Co., Ltd.	Woodland Drive, Vancouver.

APPENDIX No. 27—*Continued.*

CREAMERY LICENCES ISSUED DURING 1927—*Continued.*

Name.	Address.
Burns, P., & Co., Ltd.	Kamloops.
Burns, P., & Co., Ltd.	Vernon.
Burns, P., & Co., Ltd.	Grand Forks.
Caldwell's Dairy	1847 Georgia Street, Vancouver.
Cariboo Farmers' Co-operative Association	Quesnel.
City Dairy & Produce Co., Ltd.	414 Pender Street East, Vancouver.
Columbia Valley Co-op. Creamery Association	Golden.
Comox Creamery Association	Courtenay.
Cowichan Creamery Association	Duncan.
Crescent Ice Cream, Ltd.	Burrard and Hastings Streets, Vancouver.
Crystal Dairy, Ltd.	Cranbrook.
Curlew Creamery Co., Ltd.	Nelson.
East End Dairy	2469 Oxford Street, Vancouver.
Ferrera Cheese Manufacturing Co.	Chilliwack.
Fraser Valley Milk Producers' Association	405 Eighth Avenue West, Vancouver.
Fraser Valley Milk Producers' Association	Sardis.
Fraser Valley Milk Producers' Association	Abbotsford.
Fraser Valley Milk Producers' Association	Ladner.
Independent Co-op. Producers' Association	441 Keefer Street, Vancouver.
Kelowna Creamery Co., Ltd.	Kelowna.
Lake Windermere Co-op. Creamery Association	Invermere.
Nanaimo Creamery Association	Nanaimo.
Nechaco Creamery	Vanderhoof.
Northwestern Creamery, Ltd.	1311 Broad Street, Victoria.
Okanagan Valley Co-op. Creamery Association	Armstrong.
Palace Creamery	Enderby.
Palace Creamery	Lumby.
Penticton Purity Products, Ltd.	Penticton.
Port O'Van Ice Cream, Ltd.	602 Hastings Street West, Vancouver.
Pouce Coupe District Co-op. Creamery Assn.	Kilkerran.
Purity Dairy, Ltd.	280 Sixth Avenue East, Vancouver.
Quaedvlieg, Victor	Keremeos.
Royal City Creamery	New Westminster.
Royal Dairies, Ltd.	1001 Pender Street West, Vancouver.
Royal Dairy, Ltd.	707 View Street, Victoria.
Salmon Arm Creamery Association	Salmon Arm.
Saltspring Island Creamery Association	Ganges.
Sherwood Creameries, Ltd.	1166 Hornby Street, Vancouver.
Sherwood Creameries, Ltd.	Chilliwack.
Spencer, D., Ltd., Creamery	Cordova Street West, Vancouver.
Steves, J. M., Dairy	2024 Twelfth Avenue West, Vancouver.
Union Dairy	Penticton.
Valley Dairy, Ltd.	1569 Sixth Avenue West, Vancouver.
Vancouver Creamery Co., Ltd.	23 Alexander Street, Vancouver.
Valley Dairies, Ltd.	1132 Hastings Street East, Vancouver.
Vancouver Ice & Cold Storage Co., Ltd.	11 Gore Avenue, Vancouver.
Vancouver Island Milk Producers' Association	930 North Park Street, Victoria.
Victoria City Dairy Co., Ltd.	1111 Fort Street, Victoria.
White Lunch, Ltd.	124 Hastings Street West, Vancouver.

APPENDIX No. 28.

COW-TESTING ASSOCIATIONS IN BRITISH COLUMBIA.

Name.	Instituted.	Secretary.	Tester.	Departmental Grant.
Bulkley Valley	October, 1926	C. J. Killer, Telkwa	A. Neill	$900
Chilliwack	March, 1913	R. C. Johnston, R.R. 1, Chilliwack	G. G. Grimes	660
Chilliwack (West Route)	April, 1927	E. Unsworth*	A. S. Dixon	450
Comox Valley	April, 1914	R. M. Halliday, Sandwick	T. G. M. Clarke	600
Langley	June, 1914	A. C. Hope, Fort Langley	Wm. Rose	600
Okanagan	April, 1920	W. G. Benson, Kelowna	G. T. R. Harding	600
Pitt Meadows-Maple Ridge	November, 1925	J. E. Stewart, Port Hammond	C. S. Pallot	600
Richmond-Ladner	March, 1919	A. Nelsen, Steveston	G. H. Medd	600
Sumas-Matsqui	November, 1923	H. Day, Abbotsford	G. H. Crabtree	600
Surrey	November, 1924	F. J. Kellaway, Cloverdale	H. C. Clark	600

* Assistant secretary.

APPENDIX No. 29.

TABLE SHOWING AVERAGE AMOUNT OF FAT PRODUCED IN A MILKING-PERIOD BY ANIMALS REPRESENTING THE FIVE BREEDS IN ALL PROVINCIAL C.T. ASSOCIATIONS, 1921–27.

The figures in brackets indicate the percentage of the total number of records for that year which belong to animals of that breed.

Breed.	1921.	1922.	1924.	1923.	1925.	1926.	1927.
Ayrshires	286.3 (7.2)	305.0 (9.8)	268.5 (14.2)	271.8 (10)	318.8 (4.8)	318.3 (6.3)	310.2 (7.1)
Holsteins	307.3 (28.0)	317.0 (29.7)	305.0 (35.0)	307.3 (41.6)	315.2 (52.8)	311.7 (46.9)	337.1 (43.0)
Jerseys	314.0 (54.0)	317.0 (47.1)	314.9 (36.3)	330.7 (34.3)	327.8 (32.2)	327.0 (34.9)	331.0 (36.0)
Guernseys	293.9 (7.8)	333.0 (9.5)	316.2 (10.3)	327.2 (9.6)	325.3 (7.6)	312.9 (9.4)	327.3 (11.5)
Shorthorns	268.9 (3.0)	273.0 (3.9)	262.2 (4.2)	263.4 (4.5)	290.0 (2.6)	293.2 (2.5)	288.8 (2.4)

APPENDIX No. 30.

SUMMARY OF ALL MILKING-PERIODS RECEIVED FROM THE NINE PROVINCIAL COW-TESTING ASSOCIATIONS DURING 1927.

The following table shows the average production of cows representing the various dairy breeds, and the percentage of the total number of milking-periods that belong to each breed:—

Breed.	Lb. Milk.	Per Cent. Fat.	Lb. Fat.	Percentage of all Records.
Ayrshire	7,480	4.14	310.2	7.1
Guernsey	7,200	4.54	327.3	11.5
Holstein	9,458	3.56	337.1	43.0
Jersey	6,788	4.88	331.0	36.0
Shorthorn	7,218	4.00	288.8	2.4

The true average of all milking-periods completed during 1927: Milk, 8,044 lb.; fat, 4.11 per cent.; fat, 330.7 lb.

AVERAGE PRODUCTION OF ALL MILKING-PERIODS FROM EACH OF THE COW-TESTING ASSOCIATIONS AND NUMBER OF CERTIFIED RECORDS COMPLETED DURING 1926 AND 1927.

Association.	Year.	Lb. Milk.	Lb. Fat.	Certified Records.
Bulkley	1927	6,722	273.8	11
Chilliwack	1926	7,202	287.3	110
	1927	7,273	308.3	147
Comox Valley	1926	6,571	328.3	106
	1927	6,886	337.0	109
Langley	1926	7,788	295.0	147
	1927	8,174	322.0	158
Okanagan	1926	8,244	349.5	118
	1927	7,981	347.3	134
Pitt Meadows-Maple Ridge	1926	6,662	279.9	49
	1927	6,935	288.0	113
Richmond-Ladner	1926	9,175	344.3	176
	1927	9,536	354.4	148
Sumas-Matsqui	1926	8,366	320.8	95
	1927	8,692	343.5	162
Surrey	1926	8,365	355.5	95
	1927	8,713	366.9	155

APPENDIX No. 31.

COMPARATIVE REPORT OF SEED SAMPLES COLLECTED FROM BRITISH COLUMBIA FARMERS IN TWO DISTRICTS, YEAR 1927.

(Figures in brackets indicate the number of samples.)

Details of Impurities in Oats.

	South.		Central B.C.	
Number of samples tested (each sample 1 lb.)		66		27
Average number of total weed-seeds		164		32
Average number of noxious weed-seeds		7		6
Average number of other weed-seeds		157		26
Average number of other cultivated plants		35		82
Noxious weed-seeds—				
Average number of wild oats	(29)	13	(16)	10
Average number of ball mustard	(6)	2	(5)	5
Average number of Canada thistle	(2)	17	.....	
Average number of other noxious	(6)	11	.....	
Other weed-seeds—				
Average number of wild buckwheat	(43)	37	(21)	17
Average number of lamb's-quarters	(12)	27	(10)	30
Average number of lady's-thumb	(27)	49	.....	
Average number of spurrey	(33)	100	.....	
Average number of others	(45)	85	(17)	3
Other cultivated seeds—				
Average number of wheat	(39)	20	(21)	25
Average number of barley	(22)	44	(18)	41
Average number of rye	(2)	2	(1)	4
Average number of timothy	(16)	13	(12)	72
Average number of vetch	(10)	12	(1)	2
Average number of peas	(3)	38	.....	
Average number of other grass-seed	(10)	11	(5)	11
Grain mixtures not included in above (average per cent mixture)	(3)	21.6	(1)	29.3
Germination of oat samples—				
Number germination over 90 per cent.		64		15
Number germination, 75 to 89 per cent.		1		7
Number germination under 75 per cent.		1		5
Average germination (per cent.)		95.5		83.2
Lowest germination (per cent.)		70.0		26.0

APPENDIX No. 31—*Continued.*

COMPARATIVE REPORT OF SEED SAMPLES COLLECTED FROM BRITISH COLUMBIA FARMERS IN TWO DISTRICTS, YEAR 1927—*Continued.*

Names of Varieties as named when collected.

	South.	Central B.C.
Leader	....	5
Banner	6	11
Victory	14	1
Conqueror	7	....
Abundance	1	2
Crown	8	....
Garton	10	....
Northern White	1	....
Dodd's No. 1	1	....
Total named	48	19
Total not named	18	8

Summary of Impurities in Oats.

Number of samples tested	66	27
Noxious weed-seeds—		
Samples free (number)	27	10
Samples free (per cent.)	41	37
Largest number per pound in any sample	39	60
Average number per pound in all samples	7	6
Total weed-seeds—		
Samples free (number)	2	1
Samples free (per cent.)	3	4
Largest number per pound in any sample	774	180
Average number per pound in all samples	164	32
Seeds of other cultivated plants—		
Samples free (number)	7	....
Samples free (per cent.)	11	....
Largest number per pound in any sample	344	312
Average number per pound in all samples	35	82

Grade of Samples.

No. 1	11	5
No. 2	17	11
No. 3	10	5
Rejected	28	6
Totals	66	27

APPENDIX No. 32.

REPORT OF SAMPLES COLLECTED FROM FARMERS IN BRITISH COLUMBIA AT TIME OF SEEDING, 1927.

(Figures in brackets indicate the number of samples.)

Details of Impurities in Wheat.

Number of samples tested (each sample 1 lb.)		5
Average number of total weed-seeds		9
Average number of noxious weed-seeds		2
Average number of other weed-seeds		8
Average number of other cultivated plants		40
Noxious weed-seeds—		
Average number of wild oats	(1)	6
Average number of others	(1)	2

APPENDIX No. 32—*Continued.*

REPORT OF SAMPLES COLLECTED FROM FARMERS IN BRITISH COLUMBIA AT TIME OF SEEDING, 1927—*Continued.*

Details of Impurities in Wheat—Continued.

Other weed-seeds—		
Average number of buckwheat	(4)	8
Average number of others	(1)	8
Other cultivated seeds—		
Average number of oats	(5)	15
Average number of barley	(3)	22
Average number of rye		.....
Average number of timothy	(1)	62
Germination of wheat samples—		
Number germination over 95 per cent.		4
Number germination, 90 to 95 per cent.		1
Average germination (per cent.)		96
Lowest germination (per cent.)		93

Names of Varieties as given by Grower.

Marquis	2
Garnet	1
Total named	3
Total not named	2

Summary of Impurities in Wheat.

Number of samples tested	5
Noxious weed-seeds—	
Samples free (number)	4
Samples free (per cent.)	80
Largest number per pound in any sample	8
Average number per pound in all samples	2
Total weed-seeds—	
Samples free (number)	1
Samples free (per cent.)	20
Largest number per pound in any sample	36
Average number per pound in all samples	9
Seeds of other cultivated plants—	
Samples free (number)	....
Samples free (per cent.)	....
Largest number per pound in any sample	96
Average number per pound in all samples	40

Grades of Samples.

No. 1	4
No. 2	....
No. 3	1
Rejected	....

N.B.—Only Central British Columbia samples of wheat were taken.

APPENDIX No. 33.

Soil Analyses, 1927.

Locality.	Sample.	Nature.	Nitrogen.	Potash.	Phos. Acid.	Lime.	Fe. and Al.	Insol.
Alberni	168	Acid	0.50	0.21	0.25	1.00	13.00	68.80
	169	Acid	0.41	0.38	0.09	1.30	15.00	68.20
	170	Sl. acid	0.19	0.29	0.09	0.90	23.50	58.70
	171	Acid	0.35	0.25	0.12	1.15	18.60	61.50
	172	Acid	0.51	0.15	0.19	1.70	16.30	60.30
	173	Acid	1.25	0.10	0.13	2.30	12.70	25.10
Courtenay	148	Alkaline	0.00	0.34	0.25	2.80	14.00	79.50
Victoria	174	Alkaline	0.12	0.19	0.16	2.00	13.30	76.20
	223	Neutral	0.06	0.18	0.22	0.80	10.60	79.80
St. Elmo	175	Sl. acid	0.21	0.25	0.12	1.10	14.20	75.40
	176	Sl. acid	0.03	0.21	0.12	0.80	13.50	78.70
Edgewood	180	Neutral	0.07	0.18	0.09	0.60	6.80	87.30
	181	Alkaline	0.18	0.13	0.13	1.10	11.60	73.50
	182	Neutral	0.20	0.38	0.10	1.35	19.70	62.70
	183	Neutral	0.11	0.32	0.13	1.60	12.30	78.50
	184	Neutral	0.18	0.35	0.22	0.95	14.00	73.20
Burton	185	Neutral	0.08	0.22	0.13	1.30	10.80	81.20
	186	Acid	1.44	0.19	0.22	2.80	9.00	48.90
	187	Alkaline	0.28	0.30	0.21	2.10	13.40	69.90
Terrace	188	Neutral	0.10	0.32	0.33	0.70	16.20	74.70
	189	Sl. acid	0.20	0.15	0.25	1.10	14.90	72.40
	190	Sl. alkaline	0.17	0.43	0.20	1.10	12.96	76.20
Hazelton	192	Sl. acid	0.10	0.28	0.43	0.62	12.75	78.90
Coquitlam	191	Acid	0.51	0.19	0.13	1.30	14.80	58.30
Prince George	193	Neutral	0.14	0.49	0.22	0.95	14.70	72.40
Woodpecker	194	Sl. acid	0.21	0.30	0.16	1.20	11.20	75.50
	198	Neutral	0.06	0.25	0.16	0.87	14.70	73.90
Vanderhoof	195	Neutral	0.18	0.40	0.35	1.24	12.00	77.60
	196	Neutral	0.19	0.33	0.17	1.30	11.00	76.30
Fort Fraser	197	Sl. acid	0.35	0.38	0.24	1.15	10.50	76.40
Fort St. James	199	Alkaline	0.11	0.40	0.09	2.25	11.30	74.10
	200	Alkaline	0.40	0.47	0.12	1.78	8.40	63.40
Carlin	201	Neutral	0.13	0.57	0.13	1.10	13.80	74.00
	206	Sl. alkaline	0.02	0.64	0.10	1.10	15.00	73.50
White Lake	202	Alkaline	1.66	0.11	0.00	21.50	0.75	2.80
	203	Alkaline	0.14	0.16	0.19	8.75	9.00	67.20
Tappen	205	Alkaline	0.05	0.68	0.03	1.25	13.20	76.90
Shere	204	Alkaline	0.40	0.33	0.13	2.50	11.50	66.10
Armstrong	208	Neutral	0.10	0.38	0.17	1.15	9.70	81.90*
	209	Neutral	0.13	0.36	0.16	1.10	9.90	81.80†
Grand Forks	210	Alkaline	0.29	0.30	0.21	1.60	10.90	74.60
	211	Sl. alkaline	0.09	0.28	0.15	0.80	6.70	87.30
	212	Alkaline	0.04	0.32	0.14	0.90	7.60	85.90
	213	Neutral	0.08	0.34	0.16	0.85	6.90	86.30
	214	Neutral	0.10	0.33	0.13	0.95	7.50	85.80
Wilmer	215	Neutral	0.56	0.75	0.22	0.80	13.00	61.30
Fort Steele	216	Alkaline	0.28	0.58	0.07	1.70	9.70	74.50
	217	Alkaline	0.17	0.48	0.08	7.20	9.10	71.60
Cranbrook	218	Alkaline	0.19	0.55	0.15	1.50	9.30	78.40
Wasa	219	Alkaline	0.18	0.57	0.09	6.40	8.50	70.00
	220	Sl. alkaline	0.23	0.63	0.09	0.80	8.80	79.30
Newgate	149	Alkaline	1.92	0.15	0.22	7.00	4.10	31.40

* Top. † Sub.

APPENDIX No. 34.

Estimated Honey-crop, 1927.

District.	Apiaries.	Hives.	Crop.	Average per Hive.
Vancouver Island, Gulf Islands, and Howe Sound.			Lb.	Lb.
Alberni	31	314	15,700	50
Comox	69	531	23,895	45
Duncan	93	419	16,760	40
Nanaimo	97	313	12,520	40
Victoria	247	613	18,390	30
Gulf Islands	63	149	5,960	40
Howe Sound	30	155	7,750	50
Totals	630	2,494	100,975	40
Greater Vancouver.				
Burnaby	76	500	12,500	25
Coquitlam	29	132	3,960	30
Kerrisdale	26	110	3,300	30
South Vancouver	46	180	5,400	30
Marpole	24	86	3,010	35
New Westminster	43	196	3,920	20
North Vancouver	42	198	5,940	30
Point Grey	27	85	2,550	30
Vancouver	48	139	3,475	25
Totals	361	1,626	44,055	27
Lower Fraser Valley.				
Delta	90	780	39,000	50
Surrey	138	1,700	59,500	35
Langley	165	1,350	60,750	45
Matsqui	126	1,170	46,800	40
Maple Ridge	78	432	19,440	45
Richmond	62	454	15,890	35
Totals	659	5,886	241,380	41
Upper Fraser Valley and Chilliwack.				
Chilliwack	87	440	24,200	55
Dewdney	28	232	9,280	40
Kent	38	165	8,250	50
Mission	80	600	24,000	40
Sumas	70	565	25,425	45
Totals	303	2,002	91,155	45
Okanagan, Shuswap, and Thompson Valleys.				
Okanagan	326	3,538	310,992	88
Shuswap	45	377	32,799	87
Thompson	62	822	73,158	89
Totals	433	4,737	416,949	88
Kootenays.				
Slocan Valley	46	353	14,120	40
Kootenay Lake and West Arm	33	102	4,080	40
Nelson	32	134	6,030	45
Arrow Lakes	29	255	11,475	45
Castlegar	9	326	14,670	45
East Kootenay	24	173	7,785	45
Grand Forks	21	280	15,400	55
Creston Valley	35	260	13,000	50
Fruitvale	9	33	1,650	50
Totals	238	1,916	88,210	45
Central British Columbia.				
Central British Columbia	11	47	3,995	85

APPENDIX No. 34—*Continued.*

ESTIMATED HONEY-CROP, 1927—*Continued.*

District.	Apiaries.	Hives.	Crop.	Average per Hive.
Summary.			Lb.	Lb.
Vancouver Island, Gulf Islands, and Howe Sound	630	2,494	100,975	40
Greater Vancouver	361	1,626	44,055	27
Lower Fraser Valley	659	5,886	241,380	41
Upper Fraser Valley and Chilliwack	303	2,002	91,155	45
Okanagan, Shuswap, and Thompson Valleys	433	4,737	416,949	88
Kootenays	238	1,916	88,210	45
Central British Columbia	11	47	3,995	85
Totals	2,635	18,708	986,719	52

Estimated value of honey-crop produced in 1927 at 22 cents per pound, $217,078; estimated value of bees-wax produced in 1927, $5,000; capital value of bees, hives, supers, and other apiary equipment, reckoning 18,708 hives at, say, $25 each, $467,700.

APPENDIX No. 35.

PROVINCIAL DEMONSTRATION APIARIES—REPORTS FOR SEASON OF 1927.

(*a.*) *Fraser Valley.*

Situation of Apiary.	Name of Owner.	Hives under Supervision.	Date Queen introduced.	Surplus Honey taken during Season.		Average per Hive.	Increase made.
				Lb.	Lb.	Lb.	
Sullivan	W. H. Turnbull	4	(1) May, 1926	55		.....	....
			(2) May, 1926	62		.....	....
			(3) May, 1926	70		.....	....
			(4) May, 1926	48		.....	....
				—	235	59	
Langley Prairie	Mrs. J. W. Berry	3	(1) May, 1927	90		.....	1
			(2) May, 1927	45		.....	....
			(3) May, 1927	55		.....	....
				—	190	63	
Bradner	T. L. Baker	3	(1) 1925	30		.....	....
			(2) 1925	40		.....	....
			(3) 1925	35		.....	....
				—	105	35	
Kennedy	Alex. Keir	4	(1) June, 1926	110		.....	....
			(2) June, 1926	130		.....	....
			(3) June, 1926	127		.....	....
			(4) Aug., 1927	117		.....	....
				—	474	118	
Ladner	Mrs. M. B. McCallan	3	(1) June, 1927	60		.....	....
			(2) June, 1927	100		.....	....
			(3) June, 1927	60		.....	....
				—	220	73	
Matsqui	A. W. Finlay	4	(1) June, 1927	80		.....	....
			(2) Sept., 1927	120		.....	1
			(3) Sept., 1927	150		.....	1
			(4) May, 1927	90		.....	....
				—	440	110	
Murrayville	E. Chipperfield	4	(1) May, 1927	60		.....	....
			(2) May, 1927	80		.....	....
			(3) May, 1927	50		.....	....
			(4) May, 1927	65		.....	....
				—	225	64	
Chilliwack	H. Langton Johnson	4	(1) Aug., 1926	82		.....	....
			(2) Aug., 1926	88		.....	....
			(3) Aug., 1926	132		.....	....
			(4) Aug., 1926	97		.....	....
				—	399	99	
Lulu Island	Miss E. Hall	2	(1) May, 1926	60		.....	....
			(2) May, 1926	70		.....	....
				—	130	65	1
Sperling	D. W. Welsh	2	(1) June, 1927	30		.....	....
			(2) June, 1927	25		.....	....
				—	55	27	
Totals		33			2,503	73	4

APPENDIX No. 35—*Continued.*

Provincial Demonstration Apiaries—Reports for Season of 1927—*Continued.*

(*b.*) *Kootenays.*

Situation of Apiary.	Name of Owner.	Hives under Supervision.	Date Queen introduced.	Surplus Honey taken during Season.		Average per Hive.	Increase made.
				Lb.	Lb.	Lb.	
Castlegar	A. E. Pittaway	4	(1) July, 1926	69		.....	2
			(2) July 1926	42		.....	1
			(3) July, 1926	39		.....	1
			(4) July, 1926	43		.....	1
				—	193	48	
Vallican	B. Munch	2	(1) May, 1927	20		.....	....
			(2) May, 1927	21		.....	....
				—	41	20	
Grand Forks	John A. Hutton	3	(1) May, 1927	135		.....	....
			(2) May, 1927	122		.....	....
			(3) May, 1927	87		.....	....
				—	344	114	
Balfour	Charles Holt	3	(1) May, 1926	49		.....	....
			(2) May, 1926	57		.....	....
			(3) May, 1926	64		.....	....
				—	170	57	
Slocan City	V. K. Soharev	1	May, 1926	40		.....	....
				—	40	40	
Creston	John Blinco	2	(1) May, 1926	84		.....	1
			(2) May, 1926	61		.....	....
				—	145	73	
Crawford Bay	W. J. Kidman	2	(1) July, 1926	84		.....	1
			(2) July, 1926	36		.....	....
				—	120	60	
Totals		17			1,053	62	7

(*c.*) *Okanagan, Shuswap, and Thompson Valleys.*

Kelowna	R. H. Brown	1	May, 1927	120		.....	....
				—	120	120	....
Ellison	J. F. Roberts	2	(1) 1926	220		.....	....
			(2) 1926	150		.....	....
				—	370	185	
Totals		3			490	163	....

(*d.*) *Vancouver Island.*

Sandwick	Fred Swan	1	May, 1926	53		.....	....
				—	53	53	
Brentwood	Major L. H. MacQueen	2	(1) April, 1927	90		.....	....
			(2) April, 1927	85		.....	....
				—	175	87	
Totals		3			228	76	....

(*e.*) *Summary.*

Territory.	Hives under Supervision.	Surplus Honey taken during Season	Average per Hive.	Increase made.
		Lb.	Lb.	
Fraser Valley	33	2,503	73	4
Kootenays	17	1,053	62	7
Okanagan, Shuswap, and Thompson Valleys	3	490	163	....
Vancouver Island	3	228	76	....
Totals	56	4,274	76	11

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