

TRANSACTIONS

AND

REPORTS

OF THE

Fruit Growers' Association

AND

INTERNATIONAL SHOW SOCIETY

OF

NOVA SCOTIA.

1889.

Published by Order of the Government of Nova Scotia.

HALIFAX:
NOVA SCOTIA PRINTING COMPANY.
1889.

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FRUIT GROWERS' ASSOCIATION

AND

INTERNATIONAL SHOW SOCIETY

OF

NOVA SCOTIA.

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	<i>Date of Election.</i>
ROBERT GRANT HALIBURTON, M. A., F. S. A.	Jan. 30, 1873.
JOSEPH R. HEA, D. C. L., Toronto	" 6, 1874.
GENERAL SIR HASTINGS DOYLE, K. C. M. G. (deceased).....	April 9, 1875.
ADMIRAL SIR JAMES HOPE, Harriden, Bo'ness, Scotland	" "
HON. MARSHAL P. WILDER, Boston, Mass., (deceased).....	" "
HON. CHARLES DOWNING, Newburg, New York, (deceased).....	" "
EDWIN W. BUSWELL, ESQ., Boston, Mass.	" "
REV. R. BURNETT, D. D., Hamilton, Ont.	" "
D. W. BEADLE, ESQ., St. Catherines', Ont.	" "
ROBERT MANNING, ESQ., Boston, Mass.	" "
RICHARD STARR, ESQ., Cornwallis, N. S., (deceased)	" "
F. C. SUMICHRAST, ESQ., Harvard University, Boston	Jan. 10, 1886.
JOHN LOWE, ESQ., London, G. B.	" 15, 1884.
THE HON. SIR CHAS. TUPPER, G. C. M. G., C. B., London, G. B.	" 20, 1887.
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PROF. JOHN MACOUN, F. R. S. C., F. L. S., Ottawa.....	" "
PROF. JAMES FLETCHER, F. R. S. C., F. C. S., Ottawa	" "
PROF. D. P. PENHALLOW, F. R. S. C., Montreal,.....	" "
CHAS. GIBB, ESQ., Montreal	" "
PROF. H. W. SMITH, B. Sc., Truro, N. S.	" "

LIFE MEMBERS.

	<i>Date of Election.</i>
J. W. BIGELOW, ESQ., Wolfville.....	April 9, 1875.
HENRY B. WITTER, ESQ., "	" "
CHAS. E. BROWN, ESQ., Yarmouth.....	Oct. 1, "
EDWIN CHASE, ESQ., Cornwallis.....	Nov. 1, "
R. W. STARR, ESQ., Port Williams	" "
CHAS. R. H. STARR, ESQ., Port Williams.....	Jan. 3, 1876.
W. C. SILVER, ESQ., Halifax.....	Dec., 1876.
JAMES SCOTT, ESQ., "	" "
GEORGE LAWSON, PH. D., "	" "
JOHN STAIRS, ESQ., "	" "
THOS. A. BROWN, ESQ., "	" "
THOS. A. RITCHIE, ESQ., "	" "
A. K. MACKINLAY, ESQ., "	" "
J. F. KENNY, ESQ., "	" "
M. P. BLACK, ESQ., "	" "
HON. P. C. HILL, "	" "
EDWARD BINNEY, ESQ., " (deceased)	" "
JAMES FARQUHAR, ESQ., "	" 1888

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BELL, JOHN Stellarton.	JOHNSON, GEO. C Wolfville.
BISHOP, E. R Port Williams.	JOHNSON, E. C "
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CHESLEY BYRON Bridgetown.	RAND, GEO. V Wolfville.
CONGDON, H. S Dartmouth.	RAND, LEANDER, M. P. P. Canning.
DIMOCK, STEWART Windsor.	STAIRS, HERBERT Canning.
DODD, J. S Wolfville.	STARR, JOHN E Port Williams.
DUNCAN, R. R Grand Pre.	SMITH, MRS. H. W Truro.
DUNCANSON, H. O Falmouth.	SHAW, ISAIAH Berwick.
DODGE, HON. T. E Kentville.	TUZO, THOS Horton Landing.
EATON PROF. Truro.	WENTZEL, W. R Bridgewater.
ELLIOTT, R. W Middleton.	WHITMAN ALFRED Waterville.
FITCH, F. ST. J Auburn.	WEBSTER, BARCLAY Kentville.
FOSTER, W. R. L Kingston.	WITTER, BURPEE Wolfville.
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FOSTER, W. W "	WALKER, H. A Truro.
FULTON, H. "	WOODBURY, DR. FRANK Halifax.
GATES, A Middleton.	YOUNG, WALLACE Paradise.
GATES, A. B "	YOUNG, C. P Middleton.
HAMILTON, J. W Wolfville.	
HART, REV. R. Bridgetown.	
HARRIS, R. E Port Williams.	
HARRIS, JOHN Wolfville.	

FINANCIAL STATEMENT.

FRUIT GROWERS' ASSOCIATION OF NOVA SCOTIA in acct. with C. R. H. STARR, Secretary-Treasurer.

1888.	DR.		1888.	CR.
To Expenses Meetings		\$ 38 88	By Balance from Acct. 1887, (including Securities).\$	823 15
“ Printing and Stationery		157 35	“ Interest on Note	10 65
“ Postage and Telegrams		20 30	“ Annual Members Fees	69 50
“ Reporting		28 00		
“ Salary		100 00		
“ Amount Represented by Securities		369 59		
“ Balance in Peoples' Bank, Wolfville		189 18		
		\$ 903 30		\$ 903 30

Jan. 23rd., 1889.

E. & O. E.

C. R. H. STARR, *Secretary-Treasurer.*

WOLFVILLE, January 24th, 1889.

We hereby certify that we have audited the accounts of Nova Scotia Fruit Growers' Association with the Secretary for 1888, C. R. H. Starr, and found them correct.

J. W. BIGELOW,
G. H. WALLACE.

SPRING MEETING.

MIDDLETON, APRIL 26TH, 1888.

At 2.30 p. m. PRESIDENT CHIPMAN took the chair. There were present about thirty of the leading fruit growers of Annapolis Co., and the number was largely increased during the afternoon.

The PRESIDENT addressed the meeting at considerable length, referring to many matters of interest, and extended an invitation to all present to unite with the Association and assist in carrying on the work.

The SECRETARY read extracts from the minutes of the Annual Meeting, which were too voluminous to be given in full.

DR. A. P. REID asked about the proposed Dominion Exhibition at Halifax.

The SECRETARY replied that the matter was not yet definitely decided, but it was expected the exhibition would be held in Halifax.

The President of the Paradise Agricultural Society suggested that committees should be appointed in each county to arrange for the collection of exhibits in the various classes.

The SECRETARY said in the event of the Dominion Exhibition being held in Halifax, it was probable that an agent would be sent into the country to look up exhibits, and it would be well if there were persons in each county to whom the agent could go for assistance and information.

After considerable discussion it was decided by resolution to ask the Vice-Presidents in each county to unite with the different Agricultural Societies in the furtherance of this object. And that special committees of this Association be appointed in the larger fruit growing districts.

R. W. STARR being called upon, read the following paper upon

NOVA SCOTIA POMOLOGY.

Mr. President :—It is a well known fact that almost all the fruits of the Temperate Zone can be and have been successfully grown in the fruit belt or most favored parts of this province. Grape vines from the Loire and the Rhine, under proper treatment, will ripen their fruit in the open air, as well as those from the banks of the Delaware, the Hudson, or the Connecticut. Peaches, nectarines, and apricots, can also be successfully grown by those who have the requisite amount of skill to devote to their culture and management.

Pears, plums, cherries, and quinces are grown as successfully as in almost any other locality on this continent, and as to the smaller fruits, they are so indigenous to the soil that until a few years ago our local markets have been fully supplied with wild strawberries, raspberries, gooseberries, blackberries, blueberries, and cranberries. During the past few years, however, a great advance has been made in the cultivation of those fruits, and now our markets are well supplied with improved cultivated varieties.

But sir, it is not with these fruits we shall occupy your time to-day. When consenting to prepare a paper on the Pomology of Nova Scotia we felt that it would be undertaking too heavy a contract to attempt to cover the whole ground indicated by the title of the subject, and that it would be impossible to compress so much into the limits of a paper like this. We shall, therefore, take up but one branch of the subject, leaving the others for future consideration. The fashionable craze just now is the cultivation of the apple. Everybody is talking about apples, and nearly everybody is planting, or preparing to plant, apple orchards, so in order to get an indulgent hearing from the audience we can perhaps do no better than to tell what we know of the different varieties of apples grown in the province.

Just here a little bit of a confession to the audience may not be amiss even though our brother fruit growers have a laugh at us. We do not always practice what we preach, and our hobby, altho' it has not thrown us, has nearly run away with us. Experimenting with new sorts in the endeavor to find something better than the old standard varieties has been our fad, and as a result we found ourselves this season in the possession of a collection of named and recognized varieties, numbering over eighty distinct sorts. Many of those have

been compared with the written description of Downing and others, and been verified or had the nomenclature corrected. Many have already been condemned as worthless. Some are to be tried for a few seasons longer, and a few may take rank with our standard sorts, while one or two will probably be valued among the long keepers. To those of our own growing is added a list of those grown by others, that have been known and proved. As far as possible the nomenclature recommended by the American Pomological Society has been adhered to, and the list divided into Summer, Autumn, Winter, and Spring, or long keepers. This is done for convenience, and must not be considered as an arbitrary adjustment, as the season of ripening of many sorts is varied considerably by the locality in which they are grown.

The commercial orchardist may not think it advisable to grow many early sorts for market, especially if he has to ship long distances, but every farmer should plant a few trees for use in his family, and he will seldom find much difficulty in disposing of the surplus at paying rates.

One thing should always be borne in mind, early apples should be picked as they ripen, making from two to four pickings from some trees, taking only the ripest each time. In this way we get the best results and the finest fruit. As a rule, early fruits require high cultivation to get the best results, as the time of growth is short, and during the hot, dry weather of mid-summer.

In the following lists the numbers refer to the page on which the description is found in Downing's *Fruit and Fruit Trees of America*, 2nd Revision, 1872. Written descriptions are appended only to new or native sorts not elsewhere described :

LIST OF SUMMER APPLES.

Early Harvest, 183.—One of the best early table apples. Needs strong soil and good cultivation. Fruit of late years has been much injured by black spot, ("Fusicladium Dentriticum,") especially on old trees.

Early Red.—An old apple of unknown origin. One of the best for family use, but rather tender fleshed for market. Commences to ripen early in August and continues good throughout the month. Should be eaten from the tree. Fruit small, roundish, conic; skin smooth, bright red, with large bright dots; stalk medium slender,

cavity round, deep, open; calyx closed, reflexed segments; basin, shallow, uneven; flesh white, fine grained, juicy, sometimes stained, with a rich, brisk, vinous, sub-acid flavor.

Early Joe, 154.—A good table variety, but cracks and spots very badly. Crooked, feeble grower. Unprofitable.

Fourth of July, 181.—Hardy and a good bearer. Very like "Tetofsky" in fruit, and like it requires careful usage and a near market to be profitable.

Red Astrachan, 323.—This famed Russian apple is perhaps the most profitable early sort we have. A hardy, strong grower, good bearer, and, if properly handled, a good market sort. From the reports of the American Pomological Society we find it the most popular apple grown, being double starred for 28 States and Provinces, with single stars for 12 more.

Primate, 313.—One of the best early apples for the amateur and the table. Hardy, strong grower and good bearer. To get them at their best they must be allowed to ripen on the tree, using them as they fall, when they are simply delicious. They commence ripening in the last of August and continue until October.

Sweet Bough, 250.—Best early sweet. Large, handsome, saleable fruit. Requires high cultivation and strong soil to be profitable.

Sweet June, 216.—Very sweet, tender, and fine fleshed, but small. Spots and cracks very badly. Worthless.

Sutton's Early—Originated by William Sutton, of Cornwallis, from seed of Ribston. Fruit large to medium, oblate conic, slightly ribbed. Skin yellowish white, russeted around the stem, sometimes netted, and frequently a bright blush. Stalk long, slender. Cavity deep, narrow. Basin broad, wrinkled, irregular and one-sided. Flesh white, crisp, juicy, sub-acid. A hardy, strong-growing tree, heavy bearer, and good market apple for the season. Better for kitchen than table.

Tetofsky, 381.—Hardy, good bearer, but tender fleshed. Requires careful handling in order to market without injury. May prove profitable in the neighborhood of the mining towns in Pictou and Cape Breton.

White Astrachan or Transparent Moscow, 401.—Hardy and prolific. Medium size. Fair quality. Very tender fleshed.

Williams' Favorite, 407.—Good grower. Fair and constant bearer with good market qualities. Requires strong soil, with good cultivation to make it profitable.

AUTUMN SORTS.

Alexander, 74.—Hardy, vigorous, productive. Large, handsome fruit. Requires to be well ripened on the trees to get good flavor. A profitable market sort in many parts of Nova Scotia.

Bailey's Sweet, 84.—Hardy, strong grower. Constant bearer. One of the best autumn sweets.

Chebucto.—Origin unknown, first found growing on the grounds of the late Hon. Chas. R. Prescott about 1861. Leaves large, thick, dark. Blossoms very large and handsome. Fruit very large, oblate, regular, slightly one-sided. Skin white, covered with broken splashes of carmine, thickly sprinkled with a lighter shade. Cavity, broad, deep, regular, russeted. Stem short. Basin broad, shallow, waved. Calyx closed. Flesh white, rather coarse grained, brittle, juicy, pleasant, sub-acid. A very beautiful fruit, but rather subject to "black spot" and falls easily from the tree.

Chenango, 124.—A first rate amateur's fruit, but does not carry well to market. When in perfection has very few superiors as a dessert apple.

Colvert, 131.—Strong grower. Very productive. Bears transportation well. Fair market and cooking qualities.

Calkin's Pippin, (5 Appendix.)—A native apple. Very productive. A good market apple where known.

Cornell's Fancy, 133.—A very pretty fruit of the Chenango class. Will not bear handling.

Drap d'Or, 148.—This is the apple known in Annapolis and Kings as *Golden Drop*. The *Vrai Drap d'Or* of the old Duhamel, but distinctly different from the apple grown in Kings as *Drap d'Or*, which is roundish or cylindrical, with large spots or dots ranging from grey to bright red, and a plainly raised line from stem to calyx which is closed, and set in a broad, shallow, peculiarly waved basin. This is certainly the most productive of the two, and it would be interesting to be able to give its true name, but as both are now discarded for better sorts, it is not of so much importance to the general orchardist.

Fall Jennetting, 168.—Vigorous, productive. Very good market sort. Makes a handsome tree. One of the best stocks for double working.

Fall Harvey, 168.—Fine, large fruit. A free bearer. Carries well to market. Should be a first-class apple for the season if better known.

Fall Pippin, 169.—This apple has been extensively grown in Kings and Annapolis under many names. A strong, spreading tree, and bears good crops. Is very subject to "black spot" and does not seem to mature properly, as the quality of the fruit is not at all up to the standard claimed for it in New York State. Here it is a winter fruit.

Fall Queen, or Haas, (10 Appendix.)—Good grower. Great bearer. Handsome red apple of very fair quality.

Fall Stripe, or Saxton, (11 Appendix.)—Good grower. Fair bearer. Black spots badly. A great deal of refuse. Unprofitable.

Fameuse, 171.—This used to be considered one of our best apples for its season, but for many years its has been so badly injured by "black spot" that frequently three-fourths of the crop would be worthless. Is now rapidly going out of cultivation.

Gravenstein, 199.—This grand apple stands far above all others in popularity, as an autumn variety, in this valley. Its reputation for vigorous growth, early and profuse bearing, good carrying and market qualities, make it a great favorite with the orchardist, while its handsome appearance, fine flavor, and general first-class qualities recommend it to the consumer as one of the best, if not the best, apple of the season. Although a native of Northern Germany it seems to shew more good qualities here than in the land of its nativity, or anywhere else.

Keswick Codlin, 239.—A first-class cooking apple. Seems to succeed by the sea and in the foggy atmosphere where most other sorts fail.

Lord Suffield, 257.—Seems an enlarged "Codlin." Great bearer, but has not been grown out of this valley to test its hardiness.

Lowell, 258.—Hardy, vigorous tree. Large yellow fruit, very oily. Bears well. Good for cooking and evaporating.

Lyscom, 259.—Strong, vigorous tree. Large, handsome fruit. Bears well. Ripens in November, but will keep until mid-winter.

Maiden's Blush, 262.—Good bearer. Handsome fruit. Good market and carrying qualities.

Morton's Red.—Found growing on the farm of the late Elkanah Morton, Cornwallis. A moderately strong grower and good bearer. Fruit large, regular, roundish conic. Skin smooth, greyish white, nearly covered with light and dark red, shewing the grey in faint, irregular marking, dots grey. Cavity broad, shallow, regular. Stem medium, sometimes fleshy. Basin shallow, smooth. Calyx large, closed. Flesh white, tender, fine grained, almost buttery, pleasant, sub-acid. November, December. Supposed to be a native.

Munson Sweet, 282.—A very good, medium sized, juicy, sweet. A full bearer every other year.

Ohio Nonpariel, 291.—A first-class apple received from the late Chas. Downing. It has a strong, vigorous habit of growth and is a regular, constant bearer. It is as large and as handsomely coloured as King of Tompkins. Stands handling well. Season from November to January. I consider it equal to the best in its season.

Porter, 309.—A good bearing, and moderately vigorous growing variety that was quite popular a few years ago, but is not now being planted.

Parry's White, (25 Appendix.)—A very nice and handsome dessert apple, but too small to be profitable as a market sort.

Richard's Graft, 334.—Sent me by Chas Downing, but does not do well. Black spots badly.

Rome Beauty, 340.—Fruited in 1887, first time. Promises well.

Reynard.—A native of Yarmouth County. Received from C. E. Brown, Esq. Hardy, strong growing, spreading tree. Good and early bearer. Fruit large, to very large, roundish, regular. Skin pale yellow, sometimes blushed, with numerous grey auriole dots which turn red in the sun. Cavity wide, deep, waved. Stem short, stout. Basin broad, deep, irregular. Calyx large, segments meeting. Flesh yellowish, rather coarse, juicy, rich sub-acid. Season November, December, and will keep longer.

St. Lawrence, 345.—Vigorous, handsome tree. Productive, regular bearer. Good table fruit, but not fit for cooking. Rather tender for market.

Starr, (33 Appendix.)—Fruited twice. A large, handsome apple. Very juicy, rich, vinous flavour. Season October, November.

Twenty Ounce, or Cayuga, 338.—Hardy, strong grower. Fair bearer. Good market fruit. Large, fair and well colored.

Washington Strawberry, 396.—An upright, close growing tree. Good bearer. Handsome apple with rich vinous flavour, but rather inclined to "black spot." Too much waste for profit.

Waugh's Gravenstein.—Sent me from Pennsylvania. A hardy, thrifty tree, and a good bearer. Fruit medium sized, smooth, round, and handsome, but not good enough to recommend its cultivation.

Oldenburg, 149.—Very hardy, bears early and heavily. Will prove a most valuable apple in the eastern portion of the province to supply local markets.

EARLY WINTER.

American Golden, 76.—A strong grower, but not an early bearer. Large, handsome fruit, promising well.

Black Gilliflower, 99.—An old sort generally discarded for want of quality, but by some still considered profitable. Hardy and productive.

Blenheim, (3 Appendix.)—Introduced by the Hon. C. R. Prescott. A strong grower. Good bearer, on strong, deep soil. A favorite in the London market, but requires care in handling and packing to get over in good order.

Blue Pearmain, 101.—Strong, spreading tree. Reported to do better on the southern slope of the province than in this valley, where it frequently black spots and cracks badly.

Baldwin, 85.—This famous New England apple has been more generally planted in this province than any other. On warm soils and in sheltered situations it succeeds well, but on heavy or cold soils and in exposed situations it does not colour and mature the fruit sufficiently well to bring it up to the standard, and is not now being as largely planted as formerly. Is still a standard market apple.

Bishopsbourne, 98.—A seedling of Wm. Sutton's. Good grower, very productive. Good profitable sort for family use. Does not seem to take well as a market sort.

Bottle Greening, 103.—Fine grower, good bearer. Very even sized fruit, but not handsome enough for a first-class market sort.

Bourassa, 104.—A fine dessert apple. Only suited to the amateur. Requires high cultivation. Not profitable.

Canada Reinette, 115.—An old, but first-rate apple, with a great deal of Ribston flavor and character. Should be better known.

Cabashea, 113.—Very strong, vigorous, spreading tree. Bears well. Large, handsome fruit. Good market apple.

Clyde Beauty, 128.—Good grower, productive. Large, handsome fruit. Would probably be a good market sort if well known.

Cooper's Market, 132.—Hardy, vigorous tree. Bears well. Keeps well. Good quality. Would probably be a good market apple if well known.

Cornish Gilliflower, 133.—Received from London Horticultural Society. One of the best dessert apples. Not profitable to the orchardist. An amateur sort.

Court-pendu-plat, 134.—An old variety. Good bearer, but not profitable. Black spots and cracks badly.

Court of Wick, 135.—Does not succeed. Too small for anything.

Cox's Orange, 135.—Received from London Horticultural Society. First-class table fruit. Bears well, but requires high cultivation and warm soil to give size and colour. Season here November, December.

WINTER.

Delaware, 143.—Received from Pennsylvania. Not profitable.

Detroit Black, 144.—Large. Coarse. Poor quality.

Dickskill, 145.—Not profitable.

Esopus Spitzenburg, 164.—A famous New York apple, but rather variable in this climate. Requires warm, deep, rich soil, and sheltered situation to get full colour and flavor.

Flushing Spitzenburg, 179.—An old apple extensively planted in Annapolis.

Vandervere of Annapolis County.—Kings and Hants many years ago. Makes a vigorous, spreading tree. Good bearer. Good keeper. Always carries well, standing long sea voyage better than most other sorts, and consequently has a full better reputation in foreign markets than at home.

Gloria Mundi, 191.—Strong, upright grower. Poor bearer. Falls badly. Not profitable, altho' a high priced apple in the London market.

Franklin's Golden Pippin, 182.—Large, strong growing tree. Bears full every other year. Very rich, juicy fruit, but sharp acid, too much so for a successful market variety.

French Pippin, Swaar wrongly, 184.—Introduced by tree peddlers as "Swaar." Pronounced "French Pippin" by Downing. Fair grower and productive. Not likely to take a first place as a market sort.

Golden Ball, 192.—Received from Maine. Strong grower but not productive. Not a good market sort.

Old Golden Pippin, 194.—Small fruit. Productive, and where known always sells at good prices.

Golden Reinette, 195.—Does not succeed here. Worthless.

Grimes' Golden, 205—Hardy. Early bearer. Very productive. Carries fairly well, but is not yet a favorite in the markets, either at home or abroad, perhaps from its peculiar aroma.

Herefordshire Pearmain, 214.—Received from London Horticultural Society. Good, strong grower. Fair bearer. Medium sized table fruit. No extra good qualities.

Hoary Morning, 218.—Received from London Horticultural Society. Don't suit us. Have no need for it.

Hubbardston, 224.—Good grower. Early and prolific bearer. Good market sort if not held too long, as it loses flavour some time before it decays.

Hunt's Russet, 226.—Hardy, small sized tree. Good bearer, but wants good cultivation to keep up the size of the fruit. A very good market sort where known.

Hurlbut, 227.—Strong grower. Productive. Medium size. Good appearance, but not good enough to recommend.

Kaighn's Spitzenburg, 225. A quick growing, early bearing tree, but not very healthy. Fruit poor in quality. One of the sorts brought in by peddlers under various names, and hardly fit to graft other good sorts into.

King of Tompkins, 241.—Tree strong, erratic, spreading. Bears early and good crops. Capital market fruit, both at home and abroad. Seems to suit our soil and climate and arrive at perfection of form, size, colour, and flavor, as freely as in its native state, with the additional advantage of possessing better keeping and carrying qualities.

King of the Pippins, 240.—Downing is evidently astray in his description of this apple, which is a hybrid of President Knight's, and

was by him sent to Hon. C. R. Prescott, and has been freely grown in this neighborhood ever since. Tree rather small and upright in growth. Early and heavy bearer, requires deep, rich soil. Fruit medium size, roundish, conic. Skin yellow, half covered with red. Flesh firm, crisp, mild, sub-acid. Spicy flavour, with very rich aroma. Has the bad habit of overbearing and should be thinned out in order to get the fruit up to the full size. If this is done it will always sell in any market at good prices. Season November to January.

Lady Apple, 244.—A very fancy little apple which brings high prices in the New York market when well grown and coloured. Grows and bears well here, but the season is not quite long enough for it to mature properly, so it does not get fully coloured.

Lucombe's Pine Apple, 259.—From London Horticultural Society. Does not succeed. Poor quality.

Mère de Ménage, Vir de Ménage, 273.—From London Horticultural Society. A good grower and fair producer. Handsome large red fruit, only fit for cooking, rather soft for market.

Minister, 276.—Introduced from Massachusetts a number of years ago. Good grower, very productive, but too acid and poor in quality to become a favorite. Discarded.

Mother, 281.—From the same source. Good amateur's table sort. Too tender for market. Tree not vigorous.

Newark King, 284.—An old variety brought into Kings County forty years since by some itinerant grafters. Trees vigorous, healthy, good bearers in alternate years. Fruit medium, even sized, handsome, rich subacid. Have not been grown by many, but are well liked by all who know them.

Newtown Spitzenburgh, 285.—Grows and bears well. Fruit handsome and good flavoured when perfect, but spots and cracks very badly.

Northern Spy, 289.—This apple should not be put among the long keepers for, although it sometimes keeps among the best, it is treacherous and needs watching. The trees are thrifty and require a great deal of attention with the knife to keep them open. They are never in a hurry to commence bearing, but after they get at work they will do well, if well fed, and if the fruit is put on the market in good condition it will always bring high prices. To do this the fruit must be carefully picked, packed, stored, and handled.

Pennock, 302.—Tree a strong, large, vigorous grower, and very productive. Large, even sized, handsome fruit. Not a first-class table apple, but a good cooking variety requiring but little sugar. Keeps and carries well.

Pomme Grise, 308.—One of the best dessert apples of its season, and if well cultivated on good soil is an abundant bearer. The demand for this apple is increasing faster than the supply, and unless the fashion changes to some other variety it will soon be at a premium.

Pomme Grise d'Or, or Swazie Pomme Grise, (27 Appendix.)—We have fruited this little apple for two years. It is certainly very nice, but we have not yet decided that it is in every or any respect superior to the old one.

Pumpkin Russet, 317.—Very large, strong grower. Regular bearer. Good keeper. Good to bake. Very sweet, but sweet apples do not seem to be wanted in our markets of late years.

Rambo, 319.—This famous apple from the Delaware has been well tried for several years in the neighborhood, but it does not suit our climate and should be discarded at once.

Red Autumn Calville, 224.—An old French variety. Good for dessert. Handsome, sprightly aromatic flavor, with perfume of violets. Poor bearer. Unprofitable.

Rhode Island Greening, 332.—This old apple has always been considered one of our standard market sorts, and will be found in all our older orchards. Although not one of our best it has so many good qualities and is so well known in the markets, that it will require an apple possessing very superior qualifications to crowd it out, if it is well grown. It is not now much planted, other sorts being considered more profitable.

Ribston, 333.—Introduced by the Hon. C. R. Prescott from England, about 1815, and is considered one of the best paying sorts for deep, rich soils that do not suffer from drouth. The London market seems to absorb all of this variety that we can send, at big prices, and is always asking for more. As we can grow them in the greatest perfection we need not envy the orchardists on the Hudson the possession of the Newtown Pippin, with three barrels of waste for every one fit for market, though they do get a few shillings more for the one.

Swaar, 373.—Grows and bears fairly well, but is not to be compared with the same apple when grown on the Hudson or in Pennsylvania, either in size, colour, or flavour.

Talman's Sweet, 379.—Hardy, vigorous, productive. Good keeper, if sweet apples are required, one of the most profitable.

Wagener, 394.—Thrifty, hardy, productive. Very early bearer. Needs good cultivation to keep up size of fruit and vigor of tree. Seems to be growing in favor with the orchardists and in the markets, sales averaging with "bright" Baldwins.

Wealthy, 598.—This apple has been boomed by tree agents for several years past, and is not as much of a disappointment as some of the varieties they have introduced. May yet prove a popular sort, especially if it proves to have good carrying qualities, and will keep for the holiday season.

Westfield Seek-no-further, 393.—Hardy, productive. Requires good cultivation and close pruning to give good size to the fruit. Carries well and is a good market sort.

Wine Sap, 411.—A pretty little apple, but not profitable to grow here.

Yellow Bellflower, or Bishop's Pippin, 418.—This fine apple, introduced by the first Bishop of Nova Scotia, is one of our old standard sorts, and is a great favorite in our local markets. Does not carry well enough for foreign trade. Is frequently badly injured by "black spot." Usually does best on deep, warm, sandy soils.

LONG KEEPERS.

Ben. Davis, 93.—Hardy, good grower, productive. Good market qualities, altho' not first-class. Will be profitable until we find a better long keeping red apple.

Buck's County, 109.—From Pennsylvania. Strong, vigorous grower. Good bearer, keeping until May or June with us. Not good enough in quality to recommend highly.

English Russet, 162.—This apple has been mistaken for Cooper's Russeting, 132. It is hardy, thrifty, and productive. Inclined to over-bear and be consequently undersized. Wants high cultivation, warm soil and close pruning. Quality good. Keeping qualities best.

Fallowater, 167.—From Pennsylvania. Very strong grower. Productive. Very large, handsome, splendid carrier and long keeper.

Seems to suit the London market best of anything we can send them. Wholesale prices, March, 1887, 30/, March, 1888, 35/ to 40/ per barrel. As a table apple it has only size and beauty to recommend it, but for cooking it cannot be excelled.

Golden Russet, Golden Russet of W. N. Y., 196.—Thrifty, spreading, productive, regular bearer. Wants dry, warm soil, and good cultivation to keep the size of fruit and vigor of tree. Keeps well, carries well, and brings good average prices in England and at home.

Green Newtown Pippin, 201.—This famed New York apple has been grown in this vicinity for many years. It seems healthy and a fair, regular bearer, but the quality of the fruit as grown here is scarcely third rate, and was not recognized as true. It was only when this society imported scions and tested them side by side that the fact was proved, and the variety discarded as worthless here.

Long Stem, 256.—Received from Pennsylvania. Good grower, productive. Very even sized fruit, handsome, fair quality. Will keep until June.

Long Pearmain.—Also from Pennsylvania. Can find no description of it in any of the books, and do not consider it worth much attention as the quality is poor. Not very productive.

Nonpariel.—This apple has already been described in the Transactions of this Society for 1883, p. 56. It is evidently distinct from either of the apples of the name described by Downing, more nearly resembling the "Rox Russet" than any other, and yet is distinct. It is our best and most reliable long-keeping apple, and it is seldom that we do not find at our exhibitions a dish of the previous with that of the current year's fruit. When grown on deep, strong soil, with fair cultivation, it is a regular and reliable cropper, and profitable, bringing good prices in the London markets any time after first of March.

Pawpaw, 299.—Vigorous, hardy. Handsome, bright red fruit, promising to be a first-class apple. Keeps well.

Peck's Pleasant, 301.—This apple seems to be doing very well and is growing in favor with almost all who have tried it. The quality of the fruit is very good. Will keep to market in April and May.

Roxbury Russet, 342.—This apple is considerably grown in Kings County and marketed as "Nonpariel," by parties not knowing the

difference, which is slight, in the appearance of the fruit. Habit of growth is not quite so irregular and crooked, nor does it make so large a tree as "Nonpariel." Fruit not quite so acid, does not keep quite so long, but may be found quite as valuable to the orchardist.

Stark, 360.—A hardy, vigorous, early bearer. Fruit fair, smooth, even sized, with first-rate keeping and carrying qualities, and so far as tried has made good prices in London.

Yellow Newtown Pippin, 419.—This also has been pretty thoroughly tried here, and though it may do a little better than the green it does not suit the climate, and is not worthy of cultivation.

After the reading of the paper there was a long and interesting discussion on the various kinds of apples.

T. H. PARKER said that of all the kinds named but few are of known value. He wanted more information about the Blenheim.

ISAIAH SHAW.—Blenheim is a good bearer alternate seasons, requires a heavy subsoil. Considered Hunt Russet an excellent apple.

PRESIDENT CHIPMAN.—Blenheims should be shipped early with Kings.

WALLACE YOUNG'S Blenheims were apt to be wormy and fall off. Ribston's bring a better price usually.

JAS. GATES would recommend Blenheims. He raised, on light soil, very handsome ones that would keep well. Considered them a good kind to graft into old trees, where he thought they did best.

PROFESSOR MCGILL had most complete success with Blenheim grafts on Bishop Pippin, (Bellflower,) trees.

R. W. ELLIOTT considered Ribston a more valuable apple than the Blenheim, thought Ribstons seemed better suited to Kings County than Annapolis.

R. W. STARR.—The Ribston requires a soil that will not suffer from drought.

MR. GATES had top grafted with Ribstons and in three years the grafts had begun to bear and had given a good crop annually since.

PRESIDENT CHIPMAN recommended the Blenheim.

SECRETARY STARR said, while the Blenheim tree was a vigorous and fine grower, it would not fruit as early as the Ribston. The

condition of soil, &c., required by these two varieties was much the same. The Blenheim was a difficult apple to market satisfactorily. In most cases the Ribston would be found most profitable.

The PRESIDENT here referred to a committee having been appointed some time previous to consult with a committee of the A. V. Small Fruit Growers' Association relative to the amalgamation of the two Associations, and asked if the committee was ready to report.

T. H. PARKER said he believed he was one of that committee, and regretted that the matter had been neglected. If there was any fault it was on the part of the committee.

JOHN KILLAM, Secretary of the A. V. S. F. G. A., said they had received an invitation from this Society to appoint a committee to consider the advisability of uniting the two Societies. This they had done, but the committee had never had a meeting.

PRESIDENT McNEIL, of the A. V. S. F. G. A., said he thought this a favorable opportunity to consider the matter. All the members of their committee were now present, perhaps a meeting of the two committees could be arranged and a report submitted at the Evening Session. He believed the best interests of the Association would be better served by amalgamation.

T. H. PARKER and R. W. STARR were appointed to confer with the committee from our sister association and report at the Evening Session.

After some discussion the meeting adjourned till 7 o'clock.

EVENING SESSION.

At 7 o'clock PRESIDENT CHIPMAN took the chair, the hall being well filled.

R. W. STARR presented the following Report from the Joint Committee on Amalgamation:

BASIS OF UNION.

The Annapolis Valley Small Fruit Growers' Association with the Fruit Growers' Association of Nova Scotia.

First, The Fruit Growers' Association of Nova Scotia will receive all members of the Annapolis Valley Small Fruit Growers' Association

n good standing, as members of their Association for the current year, without further payment.

Second, The Small Fruit Growers' Association shall settle up the affairs of their Society and pay all liabilities, and afterwards pay to the Treasurer of the Fruit Growers' Association of Nova Scotia any surplus funds.

Third, The Fruit Growers' Association of Nova Scotia shall appoint a Standing Committee on Small Fruits, with Chairman and Secretary, which Committee may make all necessary arrangements for the transportation and marketing of small fruit.

Fourth, Said Committee shall report proceedings at all regular meetings of the Association, and at the Annual Meeting shall submit a condensed report of the proceedings of the year for publication with the transactions for the year.

Fifth, The necessary expenses of the committee for postage, stationery, &c., shall be paid by the Fruit Growers' Association of Nova Scotia.

Sixth, After the current year all members shall be subject to the regular rules and regulations of the Fruit Growers' Association of Nova Scotia, concerning annual dues, &c.

(Signed.) WILLIAM McNEIL,
G. C. MILLER,
JOHN KILLAM.

For Annapolis Valley Small Fruit Growers' Association.

R. W. STARR,
T. H. PARKER.

For Fruit Growers' Association of Nova Scotia.

The report was, upon motion, unanimously received and adopted.

The PRESIDENT called upon PROFESSOR MCGILL to address the meeting, who, on responding, said he had had but little time for preparation. The subject of fruit growing was somewhat new to him, consequently he would naturally hesitate before discussing it before an audience such as this. He could discuss the growing of tomatoes and potatoes with much more assurance. He presented extracts from the *Country Gentleman* and other papers relative to Black Knot on plum, and Blight on pear trees. Recommended the prompt and vigorous use of the knife as the best remedy for the former disease, and a copperas wash for the latter.

R. W. STARR said our safety is in the free use of the knife for Black Knot, even to destroying the trees, if necessary, either cherry or plum. Active fertilizers would assist to ward off the disease and repair the injury done by cutting.

PROFESSOR MCGILL doubted the usefulness or propriety of inserting sulphur or nails in the trunk of the tree. Explained the development of Black Knot as shown under the microscope. Advised using fertilizers containing iron and salt as being likely to prove most beneficial.

DR. REID asked if the system adopted by Sharp of Woodstock, N. B., could be adopted here.

The SECRETARY said he thought not. We had not sufficient snow all the winter through. Mr. Sharp bent his trees over and staked them down when they were buried in snow the entire winter, and thus protected from the severe frost which prevailed at Woodstock.

The question of

WHEN AND HOW TO PRUNE TREES?

Being asked, was discussed at considerable length.

PRESIDENT CHIPMAN said he had read an account of a lot of trees in Prince Edward Island that were permanently injured, many dying supposedly from the effects of pruning in January.

R. W. ELLIOTT said he thought in Nova Scotia there would be no danger from January pruning, but would prefer the autumn.

R. W. STARR would not advise pruning in frosty weather. Wounds made when the wood was frozen would not heal readily. There was a well known rule "to prune in winter for wood and summer for fruit," but he thought that a good rule was to "prune when the knife was sharp." Many persons say don't prune in the spring when the sap is flowing, but that is the time we prune most severely for grafting, and how often do we suffer? Large wounds should at all times be protected by a coating of grafting wax or paint.

T. H. PARKER said this was a vexed question, and there were many theories. He had heard men assert with all sincerity that the proper time to prune was the first full moon in April, while others say March. He had pruned in the autumn with good effect, at that time one could see more readily what branches required to be

removed. He had worked many years amongst trees but felt that he really knew but little now. We required an experimental farm in this valley, where knowledge of this kind could be gained.

REV. MR. PORTER asked what was the cause of sap oozing and blackening the bark? Was it from pruning in an unfavorable season?

WM. MCNEIL had seen that effect after summer pruning.

T. H. PARKER considered that was caused by Black Heart rather than by pruning.

F. M. CHIPMAN said he had frequently read that if a tree was properly trained when young it would require little or no pruning in after years, but he somewhat doubted the truth of this assertion.

PROFESSOR MCGILL had for experiment pruned twenty trees during the winter and a like number in June. In the latter case the wounds healed readily, while those cuts made during the winter left bad places.

The SECRETARY thought this was an important subject, and one that could not be discussed too often when there was a chance to gain any information. He considered that injury was more frequently done by lack of good judgment than by pruning at any particular season. He did not approve of cutting all the small branches and spurs out of the middle of the tree leaving the main branches bare to the tips. It was better, he believed, to take out a few of the larger branches, if necessary, to let in the sunlight, and leave the remaining branches clothed with the foliage from spurs and small branches, and thus give much more fruit-bearing capacity.

The PRESIDENT then called upon MR. G. C. MILLER. MR. MILLER, who was suffering from a severe cold, said he was quite unable to read his paper, but MRS. MILLER had kindly consented to take his place, whereupon the lady stepped to the platform amid the applause of the large audience present, and read the following paper:

STRAWBERRY CULTURE AT RIVERSIDE FRUIT FARM.

BY G. C. MILLER.

Mr. President and Gentlemen:

Compared with many others I am but a novice in the small fruit business. It is therefore with much hesitation and many misgivings that I undertake to give my method of strawberry culture. This

method differs so materially, in some respects, from those generally employed, that had I tested it less thoroughly, I would decline to bring it to the front, well knowing that under other circumstances it might not give the same satisfaction as with me; but intelligently and judiciously employed, I believe it may be the means of solving a serious problem to many possessed of a few acres of garden land with inadequate means of fertilizing them. Anyway my necessity forced me to adopt it. I had too few acres to admit of the culture of both hay and small fruits, so I abandoned the former to a great extent, and depended wholly on artificial manures to maintain the fertility of my soil. That I am satisfied with the result is no reason that farmers should follow my plans. Well decomposed manure is a perfect fertilizer for strawberries, and should be used by all who possess it. I simply give my mode of fertilization for the benefit of those who may find themselves situated as I was, and leave them to follow it entire, or to modify it according to the particular wants of their case.

The strawberry is very appreciative of good treatment. With all the conditions favorable to it supplied it will produce enormous crops, and just in proportion to our ability to supply these conditions, either naturally or artificially, will our success be. It loves a deep, moist, loamy soil, rich in the particular plant food that enters into the formation of its foliage and fruit. Its appetite for water seems almost unquenchable. The late Hon. Marshall P. Wilder of Boston, in reply to a question on this subject, once said: "In the first place the strawberry's chief need is a great deal of water. In the second place, it needs more water. In the third place, I think I would give it a great deal of water."

But this high and most reliable authority must not be misunderstood. Conditions favorable for the growth of bullrushes and water lillies were not intended. Any excess of water above what the soil naturally holds by absorption will be too much for the requirements of nature and should be got rid of. Land having a retentive subsoil, causing pools of water to appear in every depression, and to remain for days after every heavy rain, would be totally unfit for strawberry culture till thoroughly under-drained. Provide means for the escape of the surplus water, and it will be almost impossible to apply too much to the surface.

At the start our ten acre farm was thoroughly under-drained, the pipes being laid every 30 feet, and $3\frac{1}{2}$ feet deep. Such drains I consider in every way superior to open ditches. They are not unsightly; they waste no land; and they offer no obstruction to cultivation. I find my ground ready to work very soon after heavy rains, and never see water standing on the surface. After under-draining, we sub-soiled to the depth of 20 inches, and then laid our little farm out in square plots, mostly about 14 rods long, with roads about one rod wide between. These render access to any part of the place easy, and serve as head-lands in all the operations of plowing, cultivating, gathering fruit, etc. They also give a pleasing effect as borders, and a useful result in the way of from one to two good cuts of grass.

We now come to the fitting of the ground for plants. It is of importance that this should be thoroughly done. Where the white grubs, so destructive to strawberry plants, are abundant, a plowing just as the ground is freezing up will greatly dampen their zeal. In the spring plow again, being careful to have the land in just the right condition. I plow deeply so as to loosen the soil to a depth equal to that reached by the roots, after which a good, pulverizing harrow is freely used till the ground has been reduced to a fine, mellow condition. Then we are ready for the fertilizers. It is at this point that my system differs from that of any other cultivator that I have any knowledge of in this country. I have never yet grown a quart of berries on any other than artificial manures. My usual formula is one ton of bone meal, 500 lbs. of superphosphate and 500 lbs. of muriate of potash sown broadcast per acre, and harrowed in. The superphosphate gives a strong, vigorous growth in the early part of the season, and the bone maintains the growth till late in autumn. During the winter the action of the frost and acids of the soil render a considerable quantity of the bone soluble, and this furnishes the necessary plant food the following season to bring forward the crop to maturity.

In one instance a much heavier application of fertilizers was made with very satisfactory results. A ton of bone, half ton of superphosphate, and 500 lbs. of potash were sown on $\frac{3}{4}$ of an acre. I don't know how many quarts of berries we had, but the crop was good, though the varieties were not the most productive. The sale of

fruit amounted to something over \$500.00. This was the season I shipped to Eastport, Bar Harbor, and Ellsworth, in Maine.

During the past two years our crop has averaged about 4000 imperial quarts per acre, not very large to be sure, but considering the early pests and severity of the summer drought, quite satisfactory.

As our small fruits are grown on land planted to apple trees, I have had an opportunity of watching the effect of my mode of cultivation in them. I find a good, average growth of well matured wood. Most of the trees are very young, but those that have come into bearing are affording good and regular crops. When our first fifty trees were thirteen years old they gave ninety barrels of choice fruit; and, as the orchard had been badly treated during the first few years it was out, perhaps not more than thirty-five or forty contributed to this result. The crop of strawberries on the same ground was nearly four thousand quarts to the acre, though somewhat injured in places by over-much shade.

There are a great many ways of setting out a strawberry plantation. I have tried several, but find the one I am about to describe the most satisfactory. Nearly all my ground is set to trees, and a system has to be followed that will be accurate, and bring a strawberry row into each tree row. We plant three feet apart, and from 12 to 15 inches in the rows, according to the variety. Two lines are stretched in proper position, and then the holes for the plants are rapidly made with an implement specially for the purpose, made by narrowing a common shovel and shaping it somewhat like an ordinary garden trowel. A small lad follows and drops the plants for two setters, each on his particular line. On ground properly prepared, a smart boy can dig the holes fast enough to keep two rapid setters at their best speed.

For this method we claim several advantages. The holes are opened only a few feet in advance of the setters, and so the fresh, moist earth is at once firmly pressed about the roots of the plants. Under such conditions—no drying of the roots—no evaporation from the soil—they are almost certain to grow. Then, the rows are all exactly the same distance apart, and are perfectly straight. They not only look better, but we are enabled to run our cultivators with the greatest possible extension in all parts of the field, thus saving a large amount of hand labor. After planting, hoeing, and cultivating, we at once begin to check the growth of weeds, which at this season

always seem ambitious to have full possession of the ground. At first a very shallow working cultivator is used, so arranged with shields as to prevent the possibility of throwing earth on small plants. A little later the "Planet, Jr.," with teeth only one inch wide is brought into requisition, and is allowed to run five or six inches deep. At first we used the $2\frac{1}{2}$ inch teeth that were bought with the cultivator, but had to throw them aside. When the ground was hard, as in early spring or after picking, they broke it up in clods and threw these aside on top of the rows. The narrow teeth do not tear up the ground, but cut it finely, and if properly set, will not throw the soil aside, an important point, as it is not desirable to get the rows elevated above the general level of the field. Throughout the growing season we cultivate and hoe every week or ten days, according to the persistency of weeds, and kind of weather. During the drought of the past two summers we cultivated very often, two or three times to each hoeing. There were no weeds, but the object was to keep the ground in a finely pulverized state, in order to secure all the moisture possible by absorption, and prevent its loss by evaporation. The rank growth, and fresh look of these plants, when others, not so treated, were wilting and dying in the hard, sun-baked crust that surrounded them, abundantly attested to the advisability of such a course of treatment. Thorough and deep cultivation, which is also understood to include the removal of all weeds as fast as they appear, or, better still, before they put in an appearance, is one of the great levers whereby a good berry crop is raised. It is surprising how persistently weeds will insist in maintaining their primitive right to the soil, but they have to be subdued. In my opinion, it is as reasonable to expect kittens and canaries to thrive together as weeds and strawberries.

In August, if not before, runners begin to require attention. In the matted row system they are allowed free action, the cultivator merely swinging them around as it passes between the rows. As they catch and occupy the ground the cultivator is closed in gradually till only a narrow path is left unoccupied. At first I followed this system, but abandoned it after learning of a better. By cutting the runners the crop was almost doubled, and improved in quality. For other reasons I consider the narrow row system one of the best. It does not require as much hand weeding as matted rows, and picking is much easier. Owing to the extra vigor of the plants, their roots

strike deep into the soil and therefore do not feel so severely the effects of drought.

At the approach of winter we apply a mulch, usually of dry rushes amounting to about two tons per acre. As soon as the heavy spring frosts have ceased this is raked between the rows, and later when the soil is in good order, we cultivate. This we succeed in doing by raking the mulch off the outside row and, after cultivating, placing the mulch of the next row into this, and so on across the piece.

As soon as other spring work will permit each row is carefully weeded and the mulch pulled in under the vines to protect the fruit, after which nothing further is done till the ripening berries demand attention.

With the fruit season come cares, perplexities and hard labor, known only to those who are engaged in the business on anything like an extensive scale. There is just so much to be done, rain or shine, and the necessity of having everything prepared and handy, is apparent even to the most careless. Boxes in abundance should be in readiness with a full complement of crates, all in first-class order. Thus equipped, and with a proper field manager, the work should go smoothly on. But it requires no small amount of diplomatic skill to manage 30 or 40 youngsters and keep them interested in their work under a hot, summer sun. There are headaches to soothe, backaches to alleviate by encouraging words, and discipline to be maintained by gentle, but unyielding authority.

Our present system of berry gathering is the best we have yet used. It prevents confusion, and there is no disputing of accounts. Each picker is provided with a picking stand holding four quart baskets, a fifth basket for unmarketable fruit is placed inside of one of the others. In this all undersized, decayed, and bird-pecked berries are placed, while in the others the good fruit. When the stand or carrier is filled the box of poor ones is left to mark the place on the row while the picker carries his berries to a central point, at the end of the rows, whence they are taken by trams to the packing room. He receives tickets from the manager according to the price that is being paid, and is back at his work again in a moment. The tickets are for 1, 2, 4, and 25 cents. The smaller ones are given out in exchange for berries, and at leisure times are bought up with

the largest denomination, after which the proud owner packs them away till pay day comes round. This for obvious reasons is deferred till the close of the season, though money is always obtainable, to a limited extent, on the presentation of tickets. Printed in clear type on the face of these is this reminder of their contract: "Any picker leaving without a cause before the end of the berry season will receive only two-thirds the face value of this check." Without this precaution many would grow weary in well-doing and the birds alone would finish the harvest.

In the packing room every box is emptied, and any improper assorting by the pickers is rectified. The boxes, which hold an imperial quart, are well filled, a top layer of medium berries being placed well down. They are then placed in crates ready for the sugar, cream, and appreciative palates of our city patrons.

Immediately after the close of every harvest the mulch is raked off. If the bed is to be preserved a very narrow plough with a sharp coulter is run between the rows, narrowing them down to about six inches. This is best done immediately after a rain to avoid too great damage to the roots. The space between the rows should then be cultivated down level, after which we thoroughly weed and apply a dressing of about 500 lbs. of superphosphate to the acre. During the remainder of the season, hoeing, cultivating and weeding should be kept up as with new beds.

If, at the close of the picking season, any of the beds are found very weedy, or otherwise unpromising, I have found it the most profitable to at once plough them under, in fact, the greater part of our plantation has only one crop taken from it. By turning under a strawberry bed so frequently a large amount of vegetable matter is given to the soil, both in the way of plants and mulch. Of the two tons of the latter applied in the fall, we never succeed in saving half. This is no doubt very essential to the soil where only artificial fertilizers are used.

After all, the culture of strawberries, indeed any of the small fruits, is not as formidable in practice as it may appear on paper. There is nothing to hinder every farmer in the country from having a fruit garden capable of amply supplying his table with delicacies such as nature alone knows how to provide. We venture the assertion that were the fruits common to our climate found in abundance on

all farmer's tables their entire season, their sons would find their labor of greater interest, and fewer of them would be found leaving the old homestead to seek uncertain employment in distant cities. Nature points out the food we should eat, and her dictates should not be disregarded. If we all would adopt strawberries and cream, and the full line of small fruits, to the utter exclusion of that animal into which the devils entered and out of which we have no record of their ever having departed, we would no doubt be healthier and better in every respect.

As a business, the culture of small fruits may be considered one of the most interesting, healthful, and elevating, and under proper conditions, one of the most profitable of rural pursuits. That it is a business of leisure and ease let no one for a moment suppose, something more is necessary than merely to hold the dish to catch the porridge. Incessant vigilance and constant labor are the prices of success. The sooner those who launch into the business recognize these facts, the more encouraging their prospects. There is no more unfitting place for a lazy, slovenly man than in the sphere of horticulture. Such might in some other pursuit drag out an existence, but in a fruit garden he would be smothered with weeds, and devoured with insects before he realized what was going on. Only to the man who is not afraid of work, and who has plenty of pluck and perseverance, can I guarantee a fair prospect of success. There is a backache in every quart of fruit, a headache in every crate, and now and again a heartache thrown in for good count. The first two will be understood after setting plants for a week or two, or weeding for a like period; the latter after seeing a choice plot of plants cut down by the miserable strawberry grub, or the result of a year's work ruined by summer's drought.

These are some of the drawbacks, and that there are such, it is always best to know at the start. But what business does not have them? Fruit raising of all kinds is, without doubt, the most profitable of rural pursuits. To the beginner I would say, go slowly at first; enlarge as your experience widens; keep all your poor fruit at home; give honest measure and choice fruit, and the result will not be hard to predict.

The packed audience listened with great attention to the reading of this paper, and its conclusion was a signal for a renewal of the applause which greeted the speaker.

MR. McNEIL, President Small Fruit Growers' Association, expressed his pleasure and interest in the paper just read. Mr. Miller's method of culture was, he believed, as near perfection as was possible. Ten years ago he, Mr. McNeil, was the only shipper of strawberries from Kingston Station. At that time one crate would almost glut the Halifax market. The increase in the supply and demand since then had been enormous. He had tried such experiments as were within his means. He had found planting in squares three feet each way and cultivating both ways to save labor, and the plot was easily kept clean. He used bone dust in the hill and mulched with coarse manure after planting. Would not recommend planting strawberries in the orchard. He regarded the much abused tree agent as a benefactor next to the missionary and school master, notwithstanding there were so many dishonest men amongst those in the business.

After remarks by several speakers, who all expressed their interest in Mr. Miller's paper, the PRESIDENT extended the thanks of the Association to the writers of the papers presented, and requested that they would allow them to be printed in the reports for the year.

A lengthy discussion followed upon the best manner of packing and marketing apples, when the meeting adjourned at a late hour.

AUTUMN MEETING.

CHISHOLM'S HALL, TRURO, SEPT. 28, 1888.

7.30 p. m. PRESIDENT CHIPMAN in the chair.

Owing to the numerous attractions elsewhere in the town, this meeting was small.

The SECRETARY read the minutes of the last meeting, which were approved.

The PRESIDENT made a few appropriate remarks, and called upon PROF. H. W. SMITH to introduce the subject of the Tree Borer.

PROF. SMITH exhibited several specimens of the work done by the borer. Recommended the middle of June to the middle of August as the best time to look for the eggs, which would be found in crevices about the trunk, near the ground. Advised scraping the bark carefully and washing with soap suds mixed with a small quantity of carbolic acid, and advised experimenting.

R. W. STARR had seen a cherry tree killed when the borer had left a crust or lining in the hole, which he had not seen elsewhere. Had concluded there were several kinds of borers. Suggested forcing a solution into the holes with a syringe.

W. H. BLANCHARD had suffered severely and lost a number of trees, but, upon examination, the injury done by the borer did not appear to be sufficient to kill the tree. In company with Mr. Chas. Gibb, of Abbotsford, and Secretary Starr, he had examined a number of trees. They found only the black flea-beetle or shot-borer. The bark had separated from the trunks, in some cases completely around the tree, while on others there remained but a narrow strip of bark under which the sap continued to flow. He was at a loss to know the cause of this trouble, was under the impression the flea beetle attacked the tree after it became deceased.

The SECRETARY read from report of *Dominion Entomologist*, (Prof. Fletcher,) for 1887, when he recommended the following remedy from Saunder's "Insects Injurious to Fruits," and known as "The Saunders Wash:"

"Soft soap reduced to the consistence of a thick paint by the addition of a strong solution of washing soda in water, is perhaps as good a formula as can be suggested; this, if applied to the bark of the tree during the morning of a warm day, will dry in a few hours and form a tenacious coating not easily dissolved by rain."

The SECRETARY continuing said Mr. J. W. Bigelow, of Wolfville, had used this remedy with most satisfactory results, even after trees had been attacked, but he believed it would be found most effectual as a preventative. By coating the trunks of the trees, after having carefully scraped away all crevices, (well down to the roots,) where the eggs are generally deposited, the attacks of the enemy may be warded off. He believed the cause for the bark separating from the trunk must be attributed to climatic influences rather than the borer, but this was a subject that required the most careful investigation of those whose time is being devoted to the study of such things, and he trusted these gentlemen would soon be able to answer these knotty questions, and explain to us the causes, and at the same time suggest remedies for this trouble. Meanwhile practical fruit growers and orchardists would do well to keep a close watch over their trees, and be prepared to render all possible assistance in obtaining the necessary information to enable us successfully to contend with these diseases and pests.

T. H. PARKER said there were evidently several kinds of borers, but generally the fruit growers know very little of their habits or of effectual remedies for their extermination. He believed he had supplied a part of the specimens exhibited by Prof. Smith, and altho' he had watched the progress of borers for some time, he felt that he still required much more information regarding them.

After further remarks by PROF. SMITH and others, the meeting adjourned.

ANNUAL MEETING.

(Stenographic Report by W. B. WALLACE.)

The annual meeting of the Nova Scotia Fruit Growers' Association was held at Wolfville, on January 23rd, 1889, the meeting being duly opened at 2.30 p. m. by the President of the Society, DR. CHIPMAN.

The Report of the Secretary was read, and is as follows :

Mr. President and Members of the F. G. A. and I. S. S. of Nova Scotia :

In presenting the 25th Annual Report of the doings of this Association I beg to state that the usual number of meetings have been held during the year, with fair results.

The last Annual Meeting in this hall was very gratifying, inasmuch as the room, during several of the sessions, was filled to its utmost capacity.

The Association is under obligations to the gentlemen who so kindly presented papers and addresses which gave the meeting its interest. The discussions throughout were lively, the time allotted being, in most cases, far too short to fully dissect the subject in hand.

The question of " what to do with the English Sparrow ?" excited perhaps, the most animated discussion.

Several gentlemen strongly advocated its annihilation as the only means of retaining other more desirable birds in the country, while others quite as strongly opposed such a course. A division of the members was called for, resulting in a tie vote, many feeling incompetent to give an opinion without a more intimate knowledge of the habits of the bird. This subject will again be presented for your consideration at this meeting, and we hope that anyone who has had an opportunity of studying the habits of the English Sparrow will give us the benefit of his observations.

The Spring Meeting, held at Middleton, during the afternoon and evening of the 26th of April was also well attended. Papers were

read by R. W. Starr and G. C. Miller, the former on "Nova Scotia Pomology," and the latter on "Strawberry Culture." Both of these papers are valuable additions to Horticultural Literature, and will be published in the reports of the Association. Interesting discussions followed the reading of these papers, and it is to be regretted that a stenographer had not been engaged in order that the reports might have been complete and much valuable matter preserved for future reference.

This meeting offered an opportunity for receiving a report of the joint committee of the A. V. S. F. G. A. and this body on the amalgamation of the two societies. The committee, consisting of President McNeil, Secretary Killam, G. C. Miller, T. H. Parker and R. W. Starr, submitted a report at the evening session, which was unanimously received, and it was hoped that the report would meet with equal favor at the next regular meeting of the Small Fruit Growers' Association, and thus unite the strength and interest of the two Associations. Your Secretary was invited and did attend the meeting of the Annapolis Valley Small Fruit Growers' Association, called at Kingston, to consider this report, and was not a little surprised to find the Secretary of that Society opposing the adoption of the report which he had himself assisted in preparing, and which was presented with his endorsement and approval. The constitution of the Small Fruit Growers' Association requiring a two-thirds vote to make the change legal, it was not a difficult matter to prevent the adoption of the report, even though no stronger argument was presented than the fact that our annual fee is \$1.00 while theirs is 25 cents.

The third meeting was held at Truro during exhibition week, on the evening of Sept. 27th. Unfortunately other duties and attractions caused a slim attendance.

R. W. Starr laid on the table a notice of motion to be presented at this meeting, to add to our standing committees a committee on small fruits.

Seventy names are enrolled as annual members for the year, we are honoured with just *one* lady member.

As a body this Association has taken no active part in exhibitions during the past year, though several of our members lent some assistance at the Provincial Exhibition at Truro. Considering the early

date of this show, and the unfavourableness of the season for maturing fruit, the display in this department was surprisingly good.

Your Secretary sent a small collection of some 35 varieties of our leading apples to London, where, through the kindness of Messrs. Northard & Lowe and the officers of the Crystal Palace, they were shewn at the closing exhibition of the Palace. While the collection as a whole was not as fine as we could have wished, it seems to have done us no discredit. The *Gardeners' Chronicle*, referring to the non-competing exhibits, says :

“A centre of attraction was a large collection of apples grown in Nova Scotia, (Port Williams). They were samples of fruit now arriving and for sale in the English markets, and were remarkable for their high colouring.”

This collection was afterwards sent to the Brighton and Hove chrysanthemum shows, and is referred to by a correspondent in the same paper as follows :

“The colonies were represented by many fine dishes of apples, remarkable for their color.”

This exhibit, which we considered rather inferior, owing to the wet season, also received favorable notice from the *London Daily Chronicle* and other leading papers, and thus has in a measure, we trust, accomplished its object, viz : to bring more prominently before the masses of the English people, who do *not* buy apples, but who *do* attend these shows and read the papers, the beauty and desirableness of our Nova Scotia apples. The Canadian commissioner at the Glasgow international exhibition was anxious that a collection of Nova Scotia apples be sent for display during the closing days of that most successful show, but I am sorry to say that we were unable at the time to attend to the matter. An international exhibition is to be held in Paris during the coming summer, but as it is to close at the end of October, a satisfactory exhibit of fruit from this country cannot be made. It is proposed to hold a grand international exposition at Montreal during the season of 1890. S. C. Stevenson, the agent from the province of Quebec, and one of the most efficient of the Canadian staff at the “colinderies,” is foremost in the movement, and we wish him every success in his work. An effort was made by the Fruit Growers' Associations of Ontario, Quebec and Nova Scotia to secure a Dominion convention of fruit growers at Montreal this

winter, but the difficulty in securing sufficient funds to ensure the attendance of delegates from distant parts of the Dominion proved insurmountable, and the matter fell through, for this year, at least. It is to be regretted that the Dominion government this season withdrew the usual grant for exhibitions, particularly as there seemed every probability that it would be located in Nova Scotia. This, coupled with the Provincial grant, would have been enough to ensure a grand display at Halifax last autumn, and the usual beneficial results would naturally have followed. The biennial meeting of the American Pomological Society takes place at Ocala, Florida, on the 20th, 21st and 22nd prox. As the distance is so great it can hardly be expected that any of our members will go purposely to attend these meetings, but as there are several Nova Scotians in that part of Florida, it might be well for this Association to consider the propriety of appointing a delegate from among them.

Orchard planting in Nova Scotia is growing to large proportions. Some assert that the acreage was doubled the last season, others more moderate, think the planting of the last two seasons would equal all previously planted. It would be interesting to know just how many trees have been planted during the past year or two, but there are no records from which such information can be obtained. In view of this fact, an effort was made to gather information which would give a correct idea on the subject, but the difficulties in the way were too great, and the scheme was abandoned. I wish to acknowledge with thanks the kind assistance of Messrs. Roscoe and Morse, school inspectors for Kings, Hants, Digby, and Annapolis, in supplying us with the names of a large number of representative men in their respective districts throughout the counties named. Orchard planting has not been confined to the western valley. Large numbers of trees have been planted in both the eastern and southern counties, where there seems every prospect of making a success of fruit growing. In view of the severe depression in the English market during the past few weeks, one naturally asks "are we not over-doing the planting of orchards? I think not! While we are likely to meet with just such seasons as the present, we must be content with small returns. Nova Scotia presents many natural advantages not to be found in any other fruit growing district on this continent. Let me mention:

1. Our nearness to the great markets of the old world.

2. Our advantages for shipping throughout the season. In the autumn steamships can be brought to our very orchards; and after the rivers close we have only a short distance by rail to the sea, where with proper terminal facilities, apples may be shipped any day during the winter with little or no risk.

3. Situated as we are, at the extreme eastern end of the apple growing belt of the continent, we have no fear of other orchards springing up between us and the great markets we have in view.

4. The opportunities for development in the markets of the old world are enormous. Permit me to illustrate this point by comparison with some of our local markets. Since the organization of this society one of our members crossed the Basin in a schooner from Wolfville, to find a market on the Parsboro' side for ten barrels of apples, and it was not until he reached Amherst that he succeeded in disposing of his load. We have often heard of the days, and it may be within the memory of some present, when the arrival of two wagon loads of apples in Halifax on the same day would glut the market. Now there are thousands of people in the old country where there are hundreds in this, and many of these populous centres, both in Britain and Europe, stand in the same position relatively, to-day, that Parrsboro' and Halifax did at the time we refer to.

5. Nova Scotia apples, as a rule, command higher prices than either those from Ontario or the United States, and even at this season, when our apples, owing to the wet and unfavourable summer, have been uncommonly inferior, the prices, according to the reports in that excellent little journal the *Canadian Horticulturist*, have been no exception to the rule.

6. With the present supply we are unable to offer sufficient inducement to steamship companies to compete for the carrying, and thus get the lowest rate of freight.

7. With greater quantities we shall be able to charter small fruit boats to sail weekly, or as may be required, to any port or ports that may seem most desirable.

For these and many other reasons we say, "go on, plant fruit trees until our valleys are shaded from end to end." The demand is constantly increasing. Even now scarcely a week passes but there are parties making enquiries for orchards such as at present are difficult to procure apart from the ordinary farms. It is gratifying to

find so many English farmers looking toward Nova Scotia with a view to making this province their home. That many of these have not done so long since is mainly our own fault. In proof of this assertion allow me to quote from one of the numerous letters received recently.

An English gentleman, after recounting some of the false impressions he had entertained respecting Nova Scotia, says: "After reading your report for 1887 I am satisfied that you must have nice lands and climate, and the surroundings that I should like. I am very sorry that I had not read more of your country before it was too late in the season to make a visit of inspection, but to tell you the truth I know so little of your country that the idea of going there to settle never entered my head until lately, as all the efforts of the press have been used in advising the people to go west; and the old settled parts of the east have made no efforts to draw emigrants, and had I not read the accounts of your exhibits at the "colinderies," in a report received from Ottawa, I should not have noticed the report I have just read or made further enquiries about your agricultural resources."

You will pardon me, Mr. President and gentlemen, if I have digressed somewhat from the usual routine of the Association work in this report, but I hold that to this Society is due a large share of the credit for having at last convinced, at least a few individuals, that Nova Scotia is not the cold, barren and inhospitable country that it has been pictured.

W. H. BLANCHARD, ESQ., moved the adoption of the Report of the Secretary, and said that the Association must feel gratified with the work accomplished by the efforts of the Secretary, who, in his judgment had not gone beyond the proper limits of his official position in his efforts to advance the welfare of the Association, and who had rendered valuable services during the past year. The Association had done a good deal of good work in bringing to the notice of people outside the province the resources of the country and its many advantages as a fruit growing country, and the Association was certainly entitled to the sympathy and support of the people of Nova Scotia.

The motion to adopt the report was seconded by MR T. E. SMITH, and passed unanimously.

The SECRETARY produced some questions from the question box for discussion by the members of the Association, the first question being :—

“What is the cause of black heart in apple trees, how are we to prevent it, and what varieties are most subject to it?”

PROFESSOR SAUNDERS said he did not like to tackle a question of such magnitude with his limited knowledge on the subject, but he would state that he had observed that an intimate association of wet land with apple trees would produce such a result in some cases, and he knew that when apple trees were planted on undrained soils, they often became stunted and the apples were affected by it, but he was unable to determine exactly how far that was due to the soil.

DR. A. P. REID asked if black heart was not probably the result of injudicious trimming and the cutting off large limbs.

The SECRETARY said that his own experience had been more largely connected with young trees than with old trees, and he had found that black heart seemed more likely to affect trees taken from the nurseries rather than others. In the case he referred to the land was well drained and the trees came from a nursery where the land was rather sandy, although the sub-soil was perhaps clay.

T. H. PARKER said that with regard to the question he had heard it answered in various ways. Wet soil had been suggested as the cause of black heart, but he had seen it in trees on soil that was not wet. With reference to pruning being the cause of it, he had seen it in cases where the pruning would hardly explain it. He had grafted trees late in the season and in almost every instance the trees cut turned out affected by black heart, although there had been no sign of it before. The trees were well planted, and healthy until they were three years old, and were then neglected. He thought that in some cases the poverty of the soil and the lack of fertilizing would explain it. In many cases black heart was caused by frost.

T. E. SMITH said he felt disposed to attribute the prevalence of black heart to the frost. The Golden Russets did not seem to be injured although the Baldwins were. He had found that the greatest trouble arose from pruning in April. In cutting at that season of the year the wound never heals up but gets larger instead of smaller.

MR. PARKER said that in his experience the Baldwin was more subject to black heart than any other sort, and the Blenheim Pippin came next.

MR. T. E. SMITH said the Golden Russet was quite exempt.

The discussion upon the foregoing question having ceased, the chairman called upon PROF. COLDWELL to read the paper which he had prepared, and which was as follows :—

NATURAL HISTORY OF THE APPLE.

The apple tree belongs to that large and important natural order or family of the vegetable kingdom called by botanists, *Rosaceae*, or the rose family. This is a family of which all the members are not brothers and sisters, but rather cousins of different degrees of consanguinity. The likeness is not very well marked, especially when the plants are fruiting, and a casual observer would not readily see the close relationship that exists between the apple and the blackberry, the plum and the rose, the cinque foil and the strawberry. Yet all these and hundreds more are placed in this group, the number of species being estimated as high as 1000. It includes all our common fruits, the apple, pear, plum, cherry, &c., all our blackberries, strawberries and raspberries; all our beautiful roses, besides many other wild flowers whose names are not so familiar. It will thus be seen that were this important natural family to disappear from off the face of the globe, there would be little occupation left for that very useful and respectable body, the Fruit Growers' Association of Nova Scotia.

Of the three marked divisions of this order, the plum family, the rose family proper, and the pear family, the apple is included in the last. The apple is thus first cousin to the pear, the chokeberry and mountain ash or Rowan tree, as all of these are found in the same genus *Pyrus*, through their agreement in having their seed in thin walled parchment-like cells. Dr. Gray recognized five species of the apple; *Pyrus malus*, common apple; *P. spectabilis*, chinese flowering apple; *P. prunifolia*, siberian crab apple; *P. coronaria*, American crab apple; and *P. augustifolia*, narrow-leaved crab apple. Nearly all the different kinds of apples that we so much delight in, and about which we talk so learnedly, are varieties of the *Pyrus malus*, pear-apple or common apple, with a tendency to lose their marked differences if allowed to propagate naturally from the seed.

To make this point a little clearer it will be necessary to explain the terms *species* and *varieties*. Naturalists divide all plants and animals into large groups and these in turn into smaller groups, till we get down to what is called a species, the most important division of all and one that has given rise to the most controversy. A true species, whether in the animal or vegetable kingdom, is one that "has seed in itself," and is capable of propagating and continuing its own kind indefinitely. The crossing of species usually gives no issue, or if there is it is called a hybrid, an animal or plant incapable of continuing its kind naturally. The mule and hinny are examples of such hybrids in the animal kingdom, and the vegetable kingdom yields many examples as there are various ways of crossing. It is maintained by many that we can never obtain a new species except by divine intervention, and the contention seems plausible from the data given us by experience. We can, however, easily get varieties, and by careful selection so perpetuate these varieties that their differences will in time be very pronounced. Chance variations in dogs, horses and cows have been artificially maintained until we have got the striking contrasts we now behold in the English racer and the clumsy draught horse, the spaniel and the mastiff, the Jersey and the Durham, but there is only one species of each of these, and were they to return to a state of nature these differences would eventually disappear.

Similarly the horticulturist has perpetuated and improved chance varieties of fruits. There is always a chance that one tree of ten thousand raised from the seed may give better fruit than the parent tree. This fruit may be perpetuated by grafting and improved upon afterwards in the same method, till, in the course of centuries all the varieties of apples that now gratify our varied tastes may have been produced from the same tree.

These are but varieties, however, and, if left to natural propagation, have a marked tendency to revert to the original type, as may be seen in the case of seedlings from our most improved fruit. No one can predict what fruit will result from the seed of a Baldwin, or Gravenstein, or of any other kind. The sweet may give place to the sour, and the sour to the sweet. Within the same species the pollen from one tree may be made to fertilize the seed of another tree of an entirely different variety. The pollen of the pear, however, will not fertilize the apple, and it is with difficulty you can cross breed between the crab and the common apple. Hybrids have been formed in this

way, such as the the Wealthy apple, which produces perfect seeds, but as a rule, the true hybrid is infertile. The evolutionist theory, however, is that there is no permanent distinction between a variety and a species, that in the course of time these differences that mark varieties become specific, and that therefore all our apples, both common and crab, have descended from a remote ancestor, the descendants having been improved through a course of natural and artificial selection.

The early history of the apple is lost in the uncertain myths of the remote past. It has occupied a respectable place in literature, being the fruit found in the garden of Hesperides, "the forbidden fruit whose mortal taste brought death into the world," and the fruit with the vexing inscription "let the most beautiful have me," which gave rise to the Trojan war. There were also apples fabled to be in the north of Europe which conferred immortality upon the eater, and were guarded from ordinary mortals by the Goddess Iduna.

The earliest traces of the rose family in our oldest book, *The Geological Record*, are in what is called the tertiary, a great many centuries ago, but recent as compared with the forest growth that covered parts of Nova Scotia in the coal period. Succulent fruits are supposed to have originated about the same time as fruit eating birds and quadrupeds. Grant Allen says: "Just as bees and butterflies necessarily trace back their geological history only to the time of the first honey-bearing flowers, and just as the honey-bearing flowers in turn trace their pedigree only to the date of the rudest honey sucking insects, so are fruits and fruit eaters linked together in origin by the inevitable bond of a mutual dependence. No tree no honey, no honey no tree; so too no fruit no fruit-bird, and no fruit-bird no fruit.

Our next oldest book, the Bible, mentions the apple in several places, all being translations of the same Hebrew word *Tappuach*. By examining these passages we gather that the tree referred to was shady and beautiful, and the fruit golden-colored, fragrant and sweet. This description could hardly apply to the unattractive ancestor of our modern apple, so that doubtless in all these passages some other fruit is meant. The citron tree which flourishes in that region, satisfies all the conditions, being a large and beautiful tree, always green, very fragrant, gives a refreshing shade and bears golden-colored fruit. As we all, I trust, believe in the Bible as well as in the apple, we naturally receive some comfort from the fact that

our favorite fruit has been so highly commended therein and it requires considerable heroism on our part to abandon this claim of the apple to a hallowed antiquity; but the truth seems to be that apples of gold are really citrons, and the "comfort me with apples" of Solomon's song, means "strew me a couch of citron leaves."

Before the christian era, especially among the eastern nations, the apple possessed little importance. Gardeners from the time of Noah down gave their chief attention to the culture of the vine; and its products, the grape and wine, were highly esteemed. The real improvement of the apple appears to have been begun in Italy by the Romans, who practiced grafting, much as we do now, 2000 years ago. The first author to give us a particular account of the apple was Pliny, who lived 23 to 79, A D. He mentions the crab and wild apples as small and sour, so sour "as to take the edge from off a knife." He describes others as remarkable for their fine flavor and the pungency of their smell. Some 22 varieties were cultivated near Rome, usually named after those who originated or grafted them. The Romans introduced the apple into different parts of Europe, and finally into England. When Christianity was introduced into Britain, the monks and heads of religious houses planted orchards and so made the culture of the fruit general. The varieties improved with cultivation, and in addition to new varieties established by native horticulturists, many Dutch and French varieties were introduced. In 1688, in the neighborhood of London, 78 varieties were cultivated, but now 2000 kinds are distinguished.

The early settlers in America brought apple trees with them from which, with the aid of the Indians, the fruit became widely spread. Several species of the crab-apple were found native on this continent, the *Pyrus coronaria*, or American crab-apple, being very abundant in the Middle and Southern States, but all of our improved varieties have come from the imported apple, with the exception of a few hybrids.

In the cold regions of the American North-West the common apple is often winter killed, and special, hardy varieties have been obtained by crossing with the Siberian crab. It is not very long since improved varieties were introduced into Nova Scotia from the United States, and many of us can remember when these larger and finer varieties were all known as "graft apples."

The apple is peculiarly a native of the temperate zone. Neither in the extreme north nor in the warmer temperature is it at its best, though it is hardier than any other fruit, thriving 20° north of us, and even enduring the extreme cold of Siberia. It is thought by good judges to give the best results in the latitude and longitude of Kings Co., N. S., though, of course, apples are grown in other places that would be considered good in the absence of Nova Scotia fruit. The fine flavour of our apples is doubtlessly largely due to the iron in the soil.

In the great Chinese Empire, stretching nearly across the whole temperate zone, apples receive very little attention, only a few, small varieties about the size of a cherry are produced. In Arabia and Persia the varieties are very little better, and it seems to be characteristic of this kind of fruits that it accompanies the highest civilization, being well developed in Germany, France, the Netherlands, Great Britain, the United States and Canada, and reaching its highest perfection in certain districts of Nova Scotia.

It may not be out of place to briefly describe the apple as a fruit. The fruit of a tree is the finished product of all the vegetable processes that have taken place in that tree. Its production is the object of all the tree's activity and calls into play all its parts. When this is perfected activity ceases, the foliage withers, and the plant, if an annual, dies. The function of the fruit is to perpetuate its kind, so that it is either the seed itself or contains the seed. It is in fact the ripened ovary or seed vessel contained in the blossom.

All fruits come from flowers, and all flowers have certain parts in common, such as the calyx or flower-cup, usually green, the corolla or blossom, the ovary or seed vessel, and the anthers and pistils, the latter to receive the pollen from the anthers and fertilize the ovary. But these parts develop into fruits in very different ways. The blossoms of the strawberry, raspberry, blackberry, plum, pear, apple, apricot, &c., are very similar, and this is why they are all included in one order, but there is little resemblance in their future development after the strawberry has flowered, the pulpy receptacle on which its green fruitlets begins to swell and redder till at length it grows into a delicious berry dotted with little yellow seeds. But in the raspberry it is the separate fruitlets themselves which grow soft and bright colored, while the receptacle remains white and tasteless, forming the

hull which we take off before we eat the berry. Thus the part of the raspberry which we throw away answers to the part of the strawberry we eat. In the blackberry we eat both the fruitlets and the receptacle. The apple, pear and quince, like these berries, are fleshy fruits, but the former are classed by themselves as pomes, as they develop in the same way. Their pulp or fleshy part is the enlargement of the calyx or flower-cup. This with the fruit stalk develops and surrounds the seeds protecting them in their immaturity. The summit of the fruit is crowned at last by the dried five-parted limb of the calyx.

As the plant directs all its energy to the problem of continuing its kind, we may reasonably enquire why the apple tree develops so large an amount of pulp as a covering to its few seeds. There are two ways of accounting for fruits. The oldest and, I suppose, the most generally accepted, is that they were designed by a benevolent creator for the special use of man ; the other held by many modern scientists is that this pericarp surrounding the seed has been developed by the plant without any reference to man, but simply as a means of securing its continuance. According to this theory the office of the pulp of the strawberry is to get itself eaten by birds so that its small fruitlets may be dispersed. Its seeds are hard and indigestible, and would be neglected but for this attraction. Grant Allen says: "Supposing there was by chance, ages ago, one of these primitive ancestral strawberries, whose receptacle was a little more pulpy than usual and contained a small quantity of sugary matter, then it might happen to attract the attention of some hungry bird which, by eating the soft pulp, would help in dispersing the indigestible fruitlets. As these fruitlets sprang up into healthy young plants, they would tend to reproduce the peculiarity which marked the parent stock, and some of them would display it in a more marked degree. These would be sure to get eaten in their turn, and so become the originators of a still more pronounced strawberry type. As time went on the largest and sweetest berries would constantly be chosen by the birds till the whole species began to assume its existing character. The receptacle would become softer and sweeter, and the fruits themselves harder and more indigestible ; because all sour or hard berries would stand a poor chance of getting dispersed, while *soft* fruitlets would be ground up and digested by the birds, and thus prevented from getting into future

plants. The more bright colored the berry the better the chance for getting its fruitlets dispersed. Birds have quick eyes for colors, especially for red and white, and therefore most edible berries have assumed one or the other of these two hues. Now this is the secret of nine fruits out of ten. They are really nuts which clothe themselves in an outer tunic of sweet and beautifully colored pulp. This pulp, as it were, the plant gives in as an inducement to the friendly bird to swallow its seed, but the seed itself it protects by a hard stone or shell."

This is called natural selection, and if true would account only for the smaller forms of apples, such as now grow in China and Siberia. Their subsequent improvement we owe to a persistent course of artificial selection. Which ever of these explanations be true, whether the apple was made for man, or whether in its endeavor to keep up an unbroken line of descent it accidentally developed qualities that man relished and improved upon, this much is certain, that the apple is now, in its improved varieties, a general favorite, enjoyed by young and old, rich and poor, a source of profit to the fruit grower and health to the fruit eater, a blessing to the many and the enemy of none.

PROF. COLDWELL, at the conclusion of his paper, submitted questions for discussion as to the culture of hybrids, and as to whether varieties improved or deteriorated with age, and also as to which is the best stock for grafting.

PROF. SAUNDERS said that before passing on to a discussion of Prof. Coldwell's very excellent paper, he would like to ask as to the fertility amongst hybrids, in regard to fruits. It was well known that Roger's grapes were a cross between two distinct and well marked species, and the seeds of these are fertile. Another instance was that of the black raspberry, which has a different growth from that of the common red raspberry, one rooting from the top and the other from under the ground, but these have been crossed and seedlings have sprouted in all directions, and he had obtained many varieties from the seeds of these hybrids. It had been claimed also that the apple and pear had been successfully crossed. Other cases were familiar which clearly showed that hybrids in the vegetable kingdom were fertile.

DR. A. P. REID said that the result of many experiments had shown that there was generally a reversion to the original type.

Experiments had been recently tried in New York with wheat and rye, but the experiments were not very successful.

R. W. STARR said as regards the departure from the original type in wild fruits, it seemed that the product eventually reverted to its original type. All our efforts in trying to get hybrids and improving our fruit were accomplished in the face of repeated failures, there being twenty failures to one case of successful effort.

PROF. COLDWELL said that a great deal of confusion existed as regards the proper definition of the word "species." The central doctrine of the evolutionists was that there are really no "species" at all, but that all are "varieties." The facts, however, seemed to be all the other way.

PROF. SAUNDERS said that it seemed natural to expect that where fertilization exists between, for instance, a bearded and beardless variety of wheat, it will sport and keep on sporting for years.

T. H. PARKER here exhibited some red apples, and desired to know whether they were sports or crosses? He stated that they were from the Gravenstein.

PROF. SAUNDERS said he had seen a sport from the limb of a Spitzenberg which had russeted. He had also seen Wagener apples having the appearance of Russets.

R. W. STARR said he had seen a tree bearing Gravenstein apples, but on which a sport occurred, and on one side of the tree bright red apples appeared.

T. E. SMITH mentioned three kinds of Gravensteins exhibited at Truro, each different from the other. He thought that the time was not far distant when from these sports Gravensteins might be improved in texture.

REVD. G. O. DAY corroborated the remarks of Mr. Starr.

J. E. STARR said that he had two Gravenstein trees himself, each of which contained just one limb of red apples. One of the branches in question was on the east side of the tree, and the branch on the other tree was on the south side.

After some further discussion on the questions submitted by Professor Coldwell, it was unanimously resolved, on motion of W. H. Blanchard, Esq., that Professor Coldwell be requested to incorporate

his valuable paper on "The History of the Apple," with the Annual Report of the proceedings of the Association.

The next question drawn from the box and discussed was as follows:—

Is the fungus known as the black spot, which is prevalent on apples this year, due to the wet season of 1888, is it likely to increase, and what remedy is most advisable?

DR. REID said that cultivation of the land and additional manure were the best remedies.

R. R. DUNCAN endorsed what Dr. Reid had said.

PROF. SAUNDERS said that the history of this black spot had been worked out by a brother professor. It had been shown that the black spot not only grew on fruit but also on the leaf and leaf stock, and there was a good deal of evidence to corroborate what had been said by Dr. Reid and Mr. Duncan as to trees being exempt when in good cultivation, but on the other hand it sometimes happened that the disease prevailed like an epidemic. That was particularly the case on the island of Montreal a few years ago. Some of the trees must have been in a vigorous condition in the case he referred to, but it may be laid down, as a general rule, that this disease attacks trees when they are debilitated from any cause whatever. Some varieties are very much more subject to it than others. The Fameuse is one of the varieties most usually afflicted with the disease, and the Pippin also.

J. W. BIGELOW said that the trees in his district particularly had suffered severely from this black spot, which showed itself most frequently after the fruit had been barrelled. It was a matter of the greatest importance to endeavor to ascertain whether this disease had come to stay.

PROF. SAUNDERS said that experiments had been made in this connection by syringing the fruit with a preparation of sulphur, and some parties claimed that this experiment had in their cases been attended with remarkable success, but others could not notice any improvement by these experiments. The value of the remedy could only be determined by a number of different experiments, and if we all tried to do a little in that way every year, satisfactory results would in time be reached. If alternate trees were thus treated with a solution of sulphoid of lime made by boiling lime with sulphur—a

quart to a barrel would be sufficient—and if that solution were sprayed on trees about the time apples get to be the size of a marble, it might protect them from the fungus.

J. E. Starr said that he thought that the disease was unquestionably worse some seasons than others, and was always worse in wet seasons. He thought it arose from the condition of the soil. A soil soaked with water would inevitably produce an excess of this black spot, and one good season was not sufficient to eradicate the complaint or to enable the soil to recover from the debilitating effects of saturation. Some apples were more hardy than others in resisting this disease. A Russet was less liable to be attacked than a thin-skinned apple. Thorough drainage and good cultivation were the only remedies he could suggest, and while these remedies might not be effectual in every case, they would, nevertheless, protect most of the hardy apples.

T. E. SMITH said he agreed with the theory advanced at the meeting last year, that the black spot was caused by a parasite, a spore blown through the air, and constantly increasing. We had had a very dry season until some time in July, and he had taken particular occasion to examine the Bishop Pippins, and to his surprise had found them covered with black spot. This spot came on before July, and the soil was light and good.

The next question read by the SECRETARY and discussed, was as follows :—

Why is it that so many trees from grafted stock grow a shank root ?

(MR. PARKER here exhibited a specimen of shank root.)

MR. T. E. SMITH said that in planting fruit crops the greatest care was necessary. The specimen before the meeting was caused because the fruit graft was not planted properly. Many persons just dig a hole and plant it down with the knuckle, and if a proper hole was made there would not be a loss of more than two or three per cent. The secret really was to plant it fair and square.

The next question discussed was :—

“ What changes are desirable in the facilities at present offered by railway and steamship companies in carrying apples to British markets ?

The SECRETARY said that this question opened up a large field for discussion. It has been contended that it is very undesirable in our interests to be subjected to a line of railway under the management of a private company, as we must necessarily be handicapped by the desire, natural enough on their part, to produce a dividend each year. With reference to steamships, we at present are provided solely with one line of steamers, other steamship lines stating that they cannot compete with a line subsidized by the government. At present we are paying \$1.10 freight from our own station. The steamship men complain that the railway men will grant no concession but charge them full rates, and these rates are so high that they are compelled to make through rates correspondingly high. Within the last few weeks fruit, in the London markets, has been bringing small prices, and yet in the face of that our steamship owners are unwilling to make any reduction, while in New York and Boston freights have dropped a shilling a barrel. The result is that we must either stop shipping apples under the present circumstances, or else ship them at a very serious loss. It was of the utmost importance to the fruit growers in Nova Scotia to seriously consider whether this state of affairs should continue to exist, or whether we should not use our influence to have the matter remedied.

J. E. STARR said that the difference between the tariff rates on the road operated by the private company, which ran its road for its own profits exclusively, and the rates on the road owned by the government and managed for the benefit of the people, was so obvious that there could not be any question whatever as to the manifest benefit that would accrue to the fruit exporters of the west if the government owned and managed the whole road. The misfortune was, however, that the fruit exporters were helpless in the matter unless the government would come to their rescue. Until the government owned the whole line the fruit growers and others who were now suffering would have no redress.

DR. REID said that the Nova Scotia Central Railway was now almost completed, and there would soon be an active competing road from Middleton to the Atlantic coast. The Nictaux and Atlantic Company would like very much to enjoy the profit resulting from the valley traffic, and in his judgment that new road would assist very greatly in solving the question now under discussion.

PROF. COLDWELL asked if no attention had been given to the question of transporting fruit by vessels. As was well known steamers had a very high temperature which was ruinous to apples. Apples could be loaded at any time during the winter in sailing vessels, and time was not any great object in getting late varieties over to England. Expedition was not essential, and this mode of transporting, he believed, might be used with advantage.

J. E. STARR said this course had been tried formerly but had not proved satisfactory.

The CHAIRMAN said that steamers such as the "Bellair" and "Esme" should be encouraged, and he could not see that anything better could be done at present than to make use of these steamers.

T. E. SMITH said that a gentleman in Hantsport had shipped some apples to St. John were they were taken in a bunker ship to England, and were sold very profitably there, having made the passage very quickly.

CAPT. ELDERKIN said he thought that sailing vessels could be made a success as a mode of transporting fruit, but there was not one at present suitable or fitted for carrying fruit. None of the sailing vessels were properly ventilated.

MR. R. W. STARR said he could only remember one shipment by sailing vessel that turned out successfully, and that was a shipment by the brigantine "Horsey."

The SECRETARY said that bad packing was frequently aggravated by the bad quality of the fruit. In many instances a shipment proved unsuccessful, because the apples were green and immature and had shrunken after packing.

J. E. STARR said he packed apples himself this year as carefully and closely as possible, and in three weeks time the apples were lost. This was one of the ill effects of a bad season.

The CHAIRMAN asked if there was not quite a difference in the condition of the shipments of apples by some vessels as compared with the shipments by others. He had understood that the apples shipped in the "Bellair" were good, while those shipped in the "Stockholm City" and the "Damara" were bad.

The SECRETARY explained that the "Stockholm City" had a very long passage and the apples had shrunken. The prices obtained by the second ship were not so good. The heavy supply of the first named ship having turned out bad checked the purchase of the other shipments. With reference to the "Bellair" cargo he did not think it turned out better than other shipments. The "Bellair" went over from this side not full. There was apparently no preparation made, when the "Bellair" left here, for shoring down the cargo. He had been assured that even in a sailing vessel—where there is not so much short, sharp pitching as in a steamship—the master would not dare go to sea without securing the cargo from rolling about.

(It being 10 o'clock, p. m., the meeting adjourned.)

EVENING SESSION.

The SECRETARY read the following question for discussion :—

Is the Wealthy apple a desirable apple to cultivate ?

PROF. SAUNDERS said he could not speak from personal experience as to the Wealthy. The tree seemed to be remarkably healthy and hardy, and the apple a very handsome one. It was not a very highly flavored apple such as the Gravenstein, but was equal to the ordinary standard sorts. It was not so firm in texture as the Gravenstein, but he thought it would come in a little later. He thought it would ship fairly well and should command fair prices in the home markets. In the colder parts of Ontario it was regarded as one of the most promising of the hardy class of apples, but as yet it was only under trial.

The SECRETARY asked as to the Fallowater; was it a coming apple? Some of the agents in London spoke highly of it as an excellent apple for late shipments.

PROF. SAUNDERS said that the Fallowater was an excellent cooking apple and had always commanded a high price in England. It was a firm apple and reached the market in very good condition. In Nova Scotia it was of a higher color than in Ontario, but the Ontario fruit growers regarded it as a very good apple, and one of the best for shipping.

The next question was : What is the best time to plant trees? Is the winter, if it be practicable?

DR. REID said he had asked that question. He had often wondered whether as good results might not be obtained from planting the trees at a period when the fruit grower had plenty time to spare.

MR. PARKER said he felt disposed to let well enough alone. His practice was to set the trees out early in the spring, and if the trees were set out with care there would be no trouble.

THOS. E. SMITH said it was a heavy job to move trees. He thought there was greater advantage in planting in the fall than in the spring. In looking at some that he had planted he found that those set in the fall were far ahead of those planted in the spring. Those planted in the fall had been put in early in November.

PROF. SAUNDERS said that his experience had been somewhat different from Mr. Smith's, but he thought that much depended on the character of the season. The season in which he had tried the experiment had been a very dry and consequently unfavorable one, as the trees required a certain amount of moisture. While he was not opposed to fall planting he thought it was undesirable if the season was a very dry one.

PROF. HIGGINS asked whether the labor involved in transplanting a twenty year old tree would be such as to be justified by results. The labor involved would, of course, be considerable, and perhaps it might be the cheapest and the wisest plan to destroy the tree.

MR. A. A. PINEO said that his experience had been that he was not rewarded for his labor in transplanting. Perhaps he had not been particular enough with regard to the small fibres around the tree, but they had nearly all died or turned out to be not much good. In 1868 when the railway was running through his property, he thought it well to utilize certain apples by removing them. He had also some experience in removing ornamental trees, and his general experience was that he had lost none of the ornamental trees, but that as regards the fruit trees he might as well have had them destroyed.

A. C. JOHNSON said that he had had a tree which he wished removed, so he had it carefully prepared in the fall, but did not remove it until the spring. In the spring he had it taken and set out, and the following year it did not do much, but on the next year it did

pretty well, and now it was bearing fruit. Again, some years ago another tree was bearing apples and he took it up and set it out, and the next year the tree did not progress at all, but on last September it again commenced to leaf, and he thought it would now prove a success.

DR. REID said that the whole secret of success was to keep the fibres intact. Where care was used there was not much danger.

MR. HARRIS said he had about the same experience as Mr. Johnson. About five years ago he had four trees standing within a few feet of one another, and each about 15 years of age. He dug them up and set them out again carefully, and in the first year afterwards they just got along, the second year they began to thrive, and now they were in first-rate condition. He thought that it was quite worth while removing trees, even if a few were lost by the experiment.

DR. YOUNG said that he recollected that a number of trees of about the age mentioned were successfully transplanted in Washington some time ago.

MR. S. C. PARKER was now called upon by the President to read his paper, which was accordingly read as follows :

ORANGES vs. APPLES.

Mr. President.—When your Secretary asked me to prepare a paper on this subject, there immediately rushed before my mind pleasant memories of many evenings spent in discussing this question in all its various phases, by a group in which four Nova Scotia boys were a prominent factor, in a little cabin near Orange Lake, Marion Co., Florida. The fragrant perfume of the orange blossom was once more pleasant to my senses, the far-reaching groves of dark green, laden with their luxuriant harvest of golden fruit, rose before my eyes ; I saw the dark forms of the negroes moving among the trees, and heard the stirring sound of their plantation melodies, the hum of the mosquito rang in my ears, visions of limitless hot lemonade and fragrant Florida cigars rolled back upon me ; I forgot for the nonce the endless yielding sand, like rotten limestone, from which one's feet are never absent during his stay in that country, forgot the insects of every conceivable variety that make life a burden to man, forgot the monotonous days when "poke and hominy" was our diet, and the occasional day when even that failed us, and crackers and black coffee supplied the inner man from balmy morn till dewy eve ; only the pleasant memories were with me, the rest were all forgotten.

Of the four Nova Scotia boys who discussed the question so thoroughly, it is but just to say, they were equally divided, two against two. Of the two who maintained the former phase of the subject, one is still on the ground sticking with steady Nova Scotia pluck to his chosen work and his adopted country ; a "freeze out" does not daunt him, misfortune does not discourage him, he is still there running the gauntlet of the red bug and the rattlesnake, the mosquito and the alligator, swallowing, I will dare say, his 5 gr. capsule of quinine every morning as a tonic for the enervating fever, taking his weekly portion of crab orchard salts to keep his liver in due working order, "rustling" the negroes, fixed for life, married to an aristocratic dark eyed Southern girl, an orange grower in her own right, and happy father of a genuine Florida "cracker" not yet six months old. His associate on the defence, enthusiastic in debate, ready in argument, true to his comrades, a favorite with men and beloved by women, passed over to the great majority a few weeks since in the city of Chicago—handsome, genial, frank-hearted Charley Woodworth.

The opposition on the discussion, who maintained the claims of Nova Scotia, and her unrivalled orchards against the world in general and Florida in particular, are also backing up their theory by practice, and are to-day breasting the storms and enjoying the sunshine of their native clime, planting trees and gathering fruit in the land of their nativity.

It is also but fair to state that the opposition on the argument were subject, at regular intervals, to an attack of malarial fever, while the affirmative were free from that calamity. Perhaps there is nothing in the world that will so quickly extinguish the Florida craze, as to feel the cold waves of malaria running down one's back ; and as one's strength rapidly wanes under four and twenty hours of fever, so will all incipient ambition to own an orange grove ooze, as it were, from the tips of the fingers, and nothing in life will look half so pleasant as the mercury at the cipher and three feet of snow.

Probably no country in the world, save perhaps Southern California, has been so thoroughly advertized as Florida. No country appeals more strongly to the lover of the romantic than this part of the sunny south, with its ancient forts and cathedrals, and legends of Spanish chivalry clustering round St. Augustine, with its beautiful

lakes dotted with reedy islands, where the turtle and the alligator love to bask in the sunshine, with its dark, rushing rivers shaded by immense live oaks, gums and cypresses, festooned in Spanish moss, with its luxuriant groves laden with every variety of tropical and semi-tropical fruit. There is only one place in the world where it seems to me one could live the life of the Lotos Eaters ; a place

' In which it seemed always afternoon,
 ' All around the coast the languid air did swoon,
 ' Breathing like one that hath a weary dream.
 A land
 ' Laden with flowers and fruit whereof
 ' To each that who so did receive of them
 ' And taste, to him the gushing of the wave
 ' Far, far away did seem to moan and rave
 ' On alien shores ;
 There
 ' They sat them down upon the yellow sand
 ' Between the sun and moon upon the shore ;
 ' And sweet it was to dream of Fatherland,
 ' Of child, and wife, and slave ; but ever more
 ' Most weary seemed the sea, weary the oar,
 ' Weary the wandering fields of barren foam,
 ' Then some one said, ' we will return no more '
 ' And all at once they sang ; ' our frozen home
 ' Is far beyond the wave ; we will no longer roam.'

If there is one place in the world one could live this charmed life and dream dull care away in an everlasting haze of sunshine, that place is on the banks of Ocklahawa River, in Florida.

Granting the country all these advantages, it is my opinion were fruit growing here entered into with the same amount of energy, were the country advertised half so thoroughly, were artists engaged to prepare views of our unequalled river scenery, our beautiful lakes and unrivalled orchards ; in short were one half of the capital and energy spent in advertising Nova Scotia that is employed in booming Florida, such a tide of travel and capital would be turned this way that in ten years the flood gates would need to be opened to prevent overflow. Florida is essentially the capitalists' country. Real estate brokers and bankers have made fortunes. Wall street of New York and State street of Boston have flourished at the expense of the emigrant longing to recline in the shadow of an orange grove. Many orange growers have become wealthy, not so much from legitimate profits in fruit

growing as from the enormous advance in the price of land, and property is now so far on the flood tide that an investor not backed by unlimited capital is very apt to be stranded on the ebb. No doubt many of you saw an advertisement which appeared in all the leading American and Canadian papers, about two years since, of Silver Springs Park. In this scheme the projectors offered a town lot for \$10, and a ten acre orange grove for \$100. This company in one year spent \$100,000 in advertising, and probably made a half a million on the year's operations. I personally visited the scene of operations, and would as soon think of buying a sixty foot lot in Aylesford plains or starting an orange grove on the Caribou bog. Yet thousands and tens of thousands purchased town lots in this vicinity, often ten miles from a railroad, and orange groves that are still under water. I am not pessimistic, and have no wish to depreciate the advantages and beauties of another country, thinking thereby to add new glory to our own. The natural orange groves on the hammock lands in Florida are a very profitable investment and a constant source of wealth to the fortunate possessor. The world-renowned Harris grove in Citra, of more than 100 acres, is probably to-day worth \$500,000, and turns an income of \$75,000 per annum. The grandest display of fruit I ever saw or expect to see was on Christmas day, 1885, when I ascended to the observatory in the Lindsay Orange Co's packing house and saw their hundred acres of grove lying in a sheltered nook on Orange Lake, with its avenues of trees a mile long laden with fruit, and tramways stretching here and there for drawing carloads of fruit to the packing house. To the enthusiastic fruit grower this alone would repay a trip to the country. Coming nearer home we find Kings County capital, represented in the Chipman, Church and Sangster—of which J. P. Chipman, of Kentville, is managing director—the best kept grove on the lake, containing some sixty-five acres, just coming into bearing, and packing last season some 10,000 boxes of fruit, netting probably \$20,000. We have nothing in fruit growing in Nova Scotia of magnitude sufficient to compare with these figures. Our fruit growers who set 100 trees and think the work is accomplished, and look upon a twenty acre orchard as the acme of human enterprise, can hardly conceive of the scale on which capital is invested and the magnitude of the business done. Some of these immense groves employ fifty hands the year round, with fifty extra during the packing season. Competing railroads throw a branch

road right through the groves, and packers build their packing houses so that cars can be loaded from the door—some groves shipping a carload of fruit a day from November till March. A glance at the magnitude of these operations causes the Nova Scotian to wonder if anything approaching it will be seen when the immense orchards planted by Judge Weatherbe and others come into bearing, and wonder if the Windsor and Annapolis Railway will be equal to the task of carrying away the fruit. In commencing fruit growing one must wait longer for results in Nova Scotia than in Florida. An orange tree in five years from planting will probably be in a position to turn as much profit as our best cared for apple tree in ten. On the other hand the cost of one acre set to orange trees would set five acres of orchard. The hardwood lands cannot be bought for less than \$100 per acre, and twice that price is asked and received in favored localities for good soil. It will cost \$100 an acre to clear the timber ready for setting, and when you are ready to set trees, three year old budded trees will cost from \$1.25 to \$1.75 each. The rapidity of growth is amazing. A young orange tree will often throw up shoots from eight to twelve feet in a single season, and as to the method of budding fruit, it would astonish our careful nurserymen to see a bud inserted in the trunk of a tree four or six inches in diameter three feet from the ground, and the trunk ruthlessly cut off as soon as the bud starts, and be told that in five years the bud would catch up with the stump. In the pushing, resistless energy peculiar to the country, capitalists buy heavily timbered land, cut and pile the timber, and set trees the same season, or if short of capital, the underbrush only is cut out and large trees girdled and left standing till such time as the owner may have more leisure or money to dispose of the superfluous timber. Indeed this latter method is often recommended as a protection to the young grove against severe frosts. A box of oranges in Florida will probably be worth about as much as a barrel of our first class apples here, netting usually from \$1.60 to \$2.25. A tree in the flush of bearing will average from five to eight boxes per annum. I call to mind a solitary tree, standing on the border of the prairie, owned by an acquaintance of mine. The upset price of this tree was \$100, and it had changed hands several times at that price. The tree averaged ten boxes per annum. I think in 1886 it packed 11 boxes, netting about \$20. I have often, then and since, compared that tree with the famous Gravenstein on the Morris farm in Woodville which, in

the bearing year, pans out about 25 barrels. Divide this by 2 to allow for the off year and we get 12 barrels per annum at \$2, giving \$24 per annum gross proceeds. That part of the country is admirably adapted by nature to orange growing which is abundantly proved by the acres of natural orange trees. All the older groves are made simply by budding sweet buds to the natural stump, and cutting away the young growth to make room for the older trees. In some places the seedling trees shoot up so thickly as to completely cover the ground. These are budded and sold at three years old, turning more profit than the same amount in fruit; but these natural groves are comparatively limited and the area of country adapted to fruit growing is quite small. All Florida is no more likely to become an orange grove than is all Nova Scotia an orchard.

A commercial orchard handled on commercial principles is still a thing of the future in Nova Scotia. They are being set, but have not yet come to bearing. Those scores of orchards which are to-day such a source of wealth to this valley are the result of a little time now and then snatched by the proprietor from work often deemed more important. While looking upon the tens of thousands of dollars invested and being constantly expended in Florida, I often thought what would be the result to the country if some of our capitalists would invest a few thousands in scientific orcharding in this valley. We look in the city of Halifax and see a huge refinery costing \$750,000 standing idle, its elaborate machinery rusting out; a second, which has swallowed half a million and is now paying a small return; and a cotton factory which pays no interest on capital invested. Will any one contradict me when I say that one tenth of this money invested in orcharding in the Annapolis Valley, handled by skilled labor, under educated management, will pay a larger return than these three giant industries and will develop our fruit growing to such an extent that in twenty years our valley would be the summer resort of wondering thousands.

Another ideal that is shattered by contact. We think of the owner of an orange grove living in the midst of his grove, his house surrounded by the blossoming trees, reclining in the shade of a tree laden with the luscious fruit, drinking water from a gushing spring, walking in the gloaming through umbrageous avenues. On the contrary the groves cluster on the hardwood or hammock lands

bordering the lakes and rivers ; there the air is laden with malaria, and the unlucky one who reclines beneath a tree is so salted with red bugs that life will be a burden to him. The proprietor builds his house on the high pine lands a mile or two away. His water drawn from a well so impregnated with lime that it is unpalatable, and is sure to implant the seeds of malaria in the system. In the gloaming he retires to his "verminous" couch, draws the mosquito netting as the only escape from losing all his blood and suffocates till morning. It is a mean country that has no advantages. If I had unlimited capital nothing would suit me so well as to have a grove in Florida and alternate between the two countries, and escape a few months of our frost and snow. But the young man of limited means must choose one or the other, and after a good deal of study and some personal experience I prefer to try the perhaps slower, but at least as sure method of acquiring a livelihood by fruit growing in Nova Scotia.

The paper read by Mr. Parker was received with much applause, and at its conclusion Mr. W. H. Blanchard moved that Mr. Parker be asked to have the paper published in the Annual Report of the Proceedings of the Association. He said that the Association should be congratulated on having such a valuable member as the writer of this interesting paper.

MR. BLANCHARD'S motion passed unanimously.

The CHAIRMAN then called upon Mr. Bishop to read his paper entitled :

THE ENGLISH SPARROW, IS IT A FRIEND OR FOE?

MR. BISHOP stated that he had corresponded with some friends in the United States upon this question, and he would read the correspondence for the benefit of the Association. He proceeded to read letters from Charles L. Philips, Massachusetts ; Harry L. Parker, Pennsylvania ; J. Parker Norris, Pennsylvania ; Wm. Brewster, Cambridge, Mass. ; W. H. Foot, Mr. Merriam, R. Ridgeway, and others, all the above letters being substantially to the same effect, that the sparrow was an unmitigated nuisance and an enemy to horticulturists and agriculturists. In Australia and New Zealand the farmers had been forced to poison these birds by wholesale, their presence being regarded as a public calamity. The sparrows drove away other birds which were of genuine benefit to the farmer. In the early part

of last May he, (Mr. Bishop,) had shot several of the sparrows and had found in their crops buds from apple trees and wheat, but he had found no insects at all in them, although some persons had claimed that the sparrow was useful in killing noxious insects. As regards the bill of the sparrow every ornithologist knew that the shape of the bill of this bird indicated that it was not an insectivorous bird. When the sparrow can get grain or buds to eat it will not touch any insect.

REV. MR. AXFORD asked what the experience had been in Canada with regard to the bird.

PROF. SAUNDERS said that Canadians unfortunately had had some experience with the sparrow. He had seen the contents of the stomachs of several hundreds of sparrows in Canada, and it was a rare thing to find an insect in their stomachs. He thought that the only reasonable conclusion to come to was that the sparrow should be exterminated. They had had a number of sparrows about the experimental farm in Ontario and the wheat crop there had suffered considerably by them. The sparrows had almost entirely destroyed a nice lot of samples of wheat which had been prepared for exhibition purposes. He regretted to state he had been instrumental originally in introducing the sparrows to Canada, but his opinion now was that they should all be destroyed. He thought that the best method for destroying them was one recommended by Dr. Merriam, and which was to take a quantity of wheat and moisten it with water in which a little gum arabic had been dissolved, and then shake over the preparation some white arsenic. The sooner the sparrows were banished the better for the farmers and fruit growers. Some of these sparrows that he had introduced had attacked some of his pear trees and had eaten all the blossom buds from them. He had caused some of the sparrows to be shot, and had found the remains of some of the blossom buds in their stomachs.

DR. YOUNG said the sparrow seemed to have no friends among the audience, but as yet he had not seen any evidence that Nova Scotia had suffered from the presence of these birds.

The CHAIRMAN considered that there was abundant evidence to show that the sparrow was destructive to the farmer. He knew from personal experience that they were destructive, as they had eaten a lot

of grain on his farm and they had also driven away robins and other useful birds.

MR. W. H. BLANCHARD said that the evidence contained in the statements made by the eminent ornithologists who had answered Mr. Bishop's enquiries was conclusive, being substantiated by the personal experience of Prof. Saunders. There appeared to be no doubt that the bird was an injury to the country and steps should be taken to exterminate the sparrow without further delay.

PROF. COLDWELL said that the letters read by Mr. Bishop were very convincing, and Mr. Bishop was in a position to obtain the best opinions upon this question, being himself a correspondent of the *American Ornithological Journal*. In looking over a book in the possession of Mr. Starr he had seen a report in which it was stated that the destructive qualities of the sparrow had been made apparent beyond question in Russia, Australia, Bermuda, Cuba, England, and many other countries. In England alone the damage caused by the sparrow had been estimated at \$3,850,000 per annum, and the sparrow threatened to become a more baneful pest than the grasshopper or the Colorado beetle. Now was the time to exterminate them in Nova Scotia, while there were comparatively few here.

The SECRETARY stated that the Rev. Mr. Axford had placed in his hands an article written by Theodore Wood, F. E. S., entitled: "Is the sparrow a friend of man or is it not?" The Secretary read the article in question in which it was contended that while the sparrow committed some mischief it compensated the farmers in full by its insect destruction, and by destroying many other birds which were injurious to farmers. It is said that each sparrow destroyed 30,000 grubs in one season, and that the benefit conferred by the sparrow in killing such birds was continuous and cumulative.

The SECRETARY stated that he had also in his possession quite a long article containing a number of biblical references, which article was in favor of the continuance of the sparrow, and was written by a gentleman who was unable to be present at the meeting this evening.

PROF. SAUNDERS said that the sparrow had not the structure of an insect-eating bird, although Mr. Wood appeared to think it destroyed many insects. A very eminent ornithologist in England, Miss Ormerod, had written very strongly against the sparrow. It

sometimes happened that persons were induced to bestow a mistaken sympathy upon this bird, and sometimes articles were written in defence of the sparrow from a feeling of sympathy for it.

R. W. STARR thought that in such a practical question as this any feelings of sympathy for the bird should be thrown aside. A few years ago he hardly knew what an English sparrow was, but now in his own orchard there was a large flock of them. He was inclined to think that if they were allowed to increase and were in the habit of eating fruit buds, they would eventually do the farmers and fruit growers an incalculable injury.

POSTMASTER RAND thought it was a very serious matter as to the sparrow eating fruit buds.

MR. W. H. BLANCHARD now moved the following resolution:—

Resolved, That in the opinion of this Association the English sparrow is a foe injurious to the fruit growers and farmers, and that the attention of the government should be called to it, with the desire that measures should be taken for its extermination.

The motion was seconded by MR. JOHN E. STARR and passed by a large majority.

The meeting adjourned until 10.30 next morning.

MORNING SESSION.

JAN. 24TH.

The first business before the meeting was the election of officers, which was duly proceeded with and resulted as follows:—

(See List of Officers, Page 3.)

After the election of officers the following question was taken up and discussed:

What can be done to put a stop to the deception that has been practiced in packing apples?

The SECRETARY said that difficulty had frequently arisen from buyers purchasing apples from different parties and putting them into the cars as one brand, having depended upon them having been originally packed satisfactorily. Unless some precaution were taken to put the packer's name upon the barrels the buyer would always suffer, if the fruit turned out bad, as he would have no means of getting

at the culprit. Some of our buyers, who are thoroughly honest themselves, have met with serious losses and have got in bad repute, owing to the fact that they put their own brand on other people's packing. He had known of instances where Gravensteins had been sold and marked for shipping as Ribston Pippins, and vice versa. This was owing either to carelessness or dishonesty on the part of the persons selling the apples.

MR. A. WHITMAN said that this question was one of great importance, as the reputation of the fruit growers was at stake. Complaints were increasing and the fruit growers were suffering under the evil. He was talking not long ago to a commission merchant in Halifax, who said there had been more rascality in this regard this year than ever before. The root of the evil was that speculators will buy from anybody, and some monopolists who were trying to buy the whole tradè are hurting themselves and us. Honest packers are continually suffering because of those who pack carelessly, recklessly, or dishonestly. As an illustration of this he mentioned a case which came under his own observation last fall, where a person brought some barrels to him, and on opening some of the barrels he thought there must have been a mistake as these apples were still just as they grew from the trees, and were packed in a most reckless manner. On going to the person who brought him the apples he was told that there was no mistake about the packing of the apples, but that the apples were intended for a man to whom the party was in the habit of sending them and who was accustomed to forward them to London. He, (Mr. Whitman,) had found nine different varieties of apples in a barrel marked Ribston Pippins. He knew of another case where a man sold apples just as they came off the trees. The fruit growers wanted some system which would absolutely prohibit such practices. He contended that the low prices obtained in the European markets lately for Nova Scotia fruit was more on account of the quality sent than on account of the quantity. Every man should hereafter be compelled to have his name put on his barrels, and no shipments to foreign markets should be permitted without such a brand.

MR. HARRIS said that in conversation with Luke Blanchard, a heavy fruit dealer in Boston, that gentlemen told him that the American fruit dealers had tried every means to remedy this great evil, and at last had been obliged to adopt the system of buying the

apples by the whole orchard—that is, so much a barrel off the trees and personally attending to the packing—in every case packing the fruit themselves. Mr. Blanchard had said to him that the Nova Scotia fruit growers would never satisfactorily combat the evil except in that way. Mr. S. C. Parker said that a system of investigation had been suggested, but he did not think that that would prove an efficient remedy, he knew that sometimes packers themselves were censured unjustly. Experience was the only safeguard, and the man who ships on his own account will generally come out all right in the end.

DR. REID said that the utmost care was necessary in packing apples. Two years ago he had found it almost impossible to get packers to pack uniformly. They seemed to think that even although they got nothing by it, they were in duty bound to pack the top and bottom better than the centre of the barrel.

PROF. SAUNDERS said that it was impossible to make a man an honest man by legislation. In every community there will be found men who will not hesitate to trade upon the reputation of their honest neighbours. The only way to check dishonesty in this connection was to have the shippers put their names on the barrels. The ready sales that the well known brands command, and the occasional high prices obtained, will fully compensate for the necessary trouble in this respect. A similar principle was adopted in Florida in regard to oranges.

MR. A. WHITMAN said he distinguished the packers into four classes, as follows: 1st, The class that cares but don't know; 2nd, The class that knows but don't care; 3rd, The class that don't know and don't care; 4th, The class that cares and knows and always does the right thing, (laughter.)

The hour for adjournment having arrived the meeting broke up until 2.30 p m.

AFTERNOON SESSION.

At the opening of the afternoon session the first question read for discussion was :

Under what disadvantages are the fruit growers of Nova Scotia laboring in the export of fruit to foreign markets ?

MR. T. E. SMITH said that experience had shown that the Gravenstein did not stand the heat always prevalent in steamships. It was a question worthy of serious consideration, whether or not it was advisable to have apples carried in the smaller class of steamers. Last year the smaller steamers took a long time in loading, one steamer in particular taking three weeks instead of five or six days.

The CHAIRMAN said that delay was sometimes an advantage. It was so in the case of the "Bellair" last year, which arrived just in time for the rise in the English market.

CAPTAIN ELDERKIN said that the heat in a vessel did not seem to grow noticeable until the vessel got out to sea, when there was a perceptible rise in the temperature.

The SECRETARY said that one of the most serious difficulties the fruit growers had to contend with was the want of more efficient facilities at the terminus at Halifax. At present the apples sent forward in cold weather got chilled, and a frost proof warehouse at Halifax was absolutely necessary. Another difficulty which had been discussed yesterday was that of being compelled to submit to a company road with its obvious disadvantages. He thought the fruit growers were bound to bring the strongest pressure to bear upon the government, so that they might be induced to take over the whole western roads and operate them in connection with the Intercolonial. The fruit growers were also practically at the mercy of one line of steamships. The steamship company at present subsidized say that they would be willing to give up the subsidy if they were not obliged to go to St. John, as it was worth all they got in return to go there. They would abandon the subsidy and stop at Halifax were it not that it would be immediately taken up by another line, and then they would have competition in the outward trade. If this subsidy prevents competition should not the government be asked to withdraw it altogether? (Hear, hear.)

DR. REID said that with regard to the apples becoming heated in the holds of vessels, it was well known that just as soon as any fruit reaches a certain stage of development under perfectly natural conditions it will begin to decay, and that decay meant oxydation, and that oxydation meant heat, the amount of oxydation being measured by the temperature. The fruit growers should certainly adopt some measure to prevent the rising of the temperature in the holds of steamers. As to the point about employing the smaller vessels for the carrying of the fruit, he thought that the smaller vessels were to be preferred for the smaller ports. Small vessels were sent to the West Indies with fish, because if large vessels were sent the market would be glutted.

MR. T. H. PARKER submitted the following resolution, which was seconded by Mr. R. E. Harris :

Whereas, The management of the Windsor and Annapolis Railway is detrimental to the interests of its patrons, the fruit growers and others ;

And Whereas, The present freight charges and inconveniences attending the delivery of our goods at Richmond is unjust and burdensome to us, and places us in unfair competition with shippers on the Intercolonial, they being competitors with us in the same markets ;

And Whereas, Under this condition of affairs we have been held in bondage some twenty years ;

Therefore Resolved, That in the opinion of this Association it is quite time that the Dominion Government came to our rescue by consolidating our western railways and taking them under their control, or in the use of such other means as may place us in fair competition with eastern counties.

The SECRETARY said he entirely agreed with the body of the resolution, but thought the preamble was not well expressed. It had been contended by Mr. Innes that the rate of freight was not in excess of any other company line, and the manager of the Windsor and Annapolis line some time ago publicly produced proof of this contention. Mr. Innes did not claim to compete with a road managed by the government, and it was questionable policy for the Association to make an open attack on this private company. The Secretary therefore desired to see the preamble of the resolution offered by Mr. Parker modified in some respects.

DR. BORDEN, M. P., said he agreed entirely with the remarks made by the Secretary, and thought it would be extremely unfair to the Windsor and Annapolis Railway Company to pass the resolution in its present shape. He was not here as an apologist for Mr. Innes or his railway, but when Mr. Innes said that his tariff compared

favorably not only with any private company in the Maritime Provinces or in Canada, but with those of the United States, and when that statement was supported by the testimony of the Provincial Engineer, it was entitled to credence until successfully disproved. The facts of the case should be looked at fairly. The people here felt badly when they knew that their friends in the eastern part of Nova Scotia could send their apples to market for one half the amount which it would cost the western people, but was that the fault of Mr. Innes? Not at all. Mr. Innes only represented a private company, but the eastern railway was owned and operated by the Dominion Government, the people in that section of the province were able to enjoy a lower freight. He, (Dr. B.) was prepared, however, to support with all his strength the body of the resolution moved by Mr. Parker. It had been stated that a similar resolution had been brought before the Association at a previous meeting, but he did not remember the occasion. He understood, however, that a resolution had been before the Association on a previous year asking the Dominion Government to give the people of the west the same facilities for getting into the Deep Water Terminus at Halifax which shippers from the east over the Intercolonial possessed. That was certainly a point worthy of serious attention, that a car load of apples cannot go from here to Halifax without paying two dollars more than is paid by eastern shippers. He could not understand why this injustice should be allowed. He had brought the matter up in the House of Commons, but could get no satisfactory explanation.

COL. BLAIR asked if the charge of two dollars was from Richmond into Halifax.

DR. BORDEN said yes, it was a shunting charge.

MR. T. H. PARKER said he had not intended to reflect on Mr. Innes personally, but on the system. The company had rights, but the fruit growers also had rights that should be respected. His resolution was only intended to assert the rights of the fruit growers, and he was willing to have its terms changed.

The SECRETARY said that with reference to the shunting charges of \$2.00 per car load, the arrangement with the Windsor and Annapolis Railway to provide them with terminal facilities was made before the extension to the Deep Water Terminus. When the extension was made by the government the Windsor and Annapolis

Railway were permitted, of course, to run their passenger trains to North Street, but their right of way only extended as far as Richmond. The Intercolonial Railway had not room enough at the Deep Water Terminus to handle their own freight, and could not therefore find room for the Windsor and Annapolis Railway Company's freight without some extra charge.

DR. BORDEN said that he understood that in the arrangement made between the Windsor and Annapolis Railway Company and the government there was an express provision which Mr. Innes claims covered all extensions. It was contended that that right was guaranteed the Windsor and Annapolis Railway Company by that contract, and subsequently incorporated in a statute.

MR. A. A. PINEO said that the people were suffering a manifest inconvenience, and the question was to whom should they go for redress. He fully agreed with Dr. Borden in considering that the redress must be sought for from the Dominion Government, which should be asked to grant to this section of the province equal privileges to those enjoyed by the people in other portions of the province. Our claim was a just one, and the fruit growers should not hesitate in asking that the grievance should be removed.

The SECRETARY said that the question now being discussed by the Association had been up for discussion at the Annual Meeting of 1885, held at Kentville.

W. H. BLANCHARD said that the matter had been discussed on several occasions, and nothing had ever been gained by the fruit growers placing themselves in antagonism to the Windsor and Annapolis Railway Company; he thought the fruit growers came out second best on a previous occasion when the matter was debated. He entirely sympathized with the resolution of Mr. Parker and submitted the following resolution, the terms of which, he thought, would commend it to the great majority of those present. The resolution read as follows:

Whereas, It is claimed by the manager of the Windsor and Annapolis Railway that this road must be run on commercial principles, and that the tariff rates are as favorable upon this road as upon any company road in this Dominion;

And Whereas, This tariff is unjust to us, and places the agriculturists of these western counties at a great disadvantage as compared with residents on the line of the Intercolonial Railway;

Therefore Resolved, That in the opinion of this Association the Dominion Government should be strongly urged to consolidate the western roads of this province and control them, in order that we may be placed in fair competition with the patrons of the Intercolonial Railway.

By this resolution the Association was simply urging upon the Dominion Government to place them in the same position as the people in the eastern part of the province. It was well known that the government has been always reluctant to take the management of railways, and always preferred handing over the roads to companies if they could get companies to run them. But there was no possibility of getting a company to take the eastern road and run it, so that the government must retain the management of that road. The people of the western part of the province had the right to go to the government and say: You are going to hold the eastern roads, therefore you must also hold the western roads. If sufficient pressure were brought to bear upon the government a favorable reply ought to be obtained.

MR. BLANCHARD now moved his resolution; Mr. Parker withdrawing in his favor.

R. W. STARR seconded the resolution of Mr. Blanchard.

DR. BORDEN said that the eastern roads, which a previous speaker had said no company would take and manage, were now taken and controlled by the government. These western roads were good paying institutions, and that was a much stronger reason why the government should take them, as in being asked to take them the government were not being asked to burden the country but to take a profitable asset.

A. McN. PATTERSON said that the Vice-President of the Association had spoken about bringing pressure to bear upon the government. How much pressure? Could the Association make the pressure so strong that it would be understood that if their request was not granted they would abandon the present government. He thought he had come to that point himself when he considered that this section of the province was the garden of Nova Scotia, and yet it was obliged to do without its reasonable wants while "pressure" was sufficient in other counties to enable an Experimental Farm to be placed in one county and another Experimental Farm in another county. The people of this part of the province did not seem to have enough "pressure." There was considerable avoirdupois here, (laughter,) and there should be considerable force. Let us tell the

government that if we don't get justice in this matter we will turn from them and look elsewhere. He had thought of starting a number of petitions for circulation throughout this section of the province which would ask for equal privileges with the rest of the province and which would say to the government : "Give us these equal privileges and we will be satisfied. Deny us and we must abandon you." If the government then refused us they would force us to abandon them. Some nice English farmers come here to settle and the farmer of eastern Nova Scotia catches hold of them and says : "You must come up and see our government farm or our government school," and thus the English farmer is carried away from this portion of the province and the eastern farms go on increasing in value. The people here were too passive, and should to-day abandon their inactivity on this question. He was prepared to support a good, strong resolution upon this subject. (Applause.)

The resolution of MR. BLANCHARD was then put to the meeting and carried unanimously.

The SECRETARY read the financial report for the year.

On motion of MR. BLANCHARD the Auditor's report was received and adopted, and the Treasurer's accounts passed.

The PRESIDENT then read his Annual Address as follows :

THE PRESIDENT'S ADDRESS.

The labors of another year are ended ; its fruits are gathered in, and a kind Providence has permitted us to assemble here again with unbroken official ranks, to discuss the successes and failures of the past season, and to prepare for the work of the new year upon which we have just entered. May the year 1889 witness a renewed interest in our Association by the people throughout the province, so that our usefulness may be increased ; may the sunshine of St. Eulalie rest upon our orchards ; may the officers and members of this Association be bountifully blessed in home and business ; may increased prosperity wait upon our beloved little province ; and may our grand Dominion and the great empire of which it forms a part, abide in righteousness, and receive from the great ruler of nations continued peace and power. Our Association is the oldest one in the Dominion of Canada ; this meeting will close the twenty-fifth year of our life as a society. Behind us lies the history of a quarter of a

century. We are celebrating what may be not inappropriately be called the "silver wedding" of our Association. The organization of the Fruit Growers' Association in 1863 was the marriage of John Young's agriculture with Hon. Charles R. Prescott's horticulture; and the fruits of that union are gathered from the orchards on all our farms. What brilliant progress has been made since that first meeting in Halifax! Eight years from that date, in '71, the Annapolis valley produced 45,000 barrels of apples of all varieties; sixteen years later, 1886-7, the Annapolis valley shipped to London 113,983 barrels of standard varieties; 30,000 were shipped to New York, 30,000 for the Halifax market, 30,000 for the St. John and Intercolonial markets, and probably 50,000 for home consumption and other markets not enumerated,—making a total of 250,000 barrels, an increased production of upwards of 200,000 barrels in sixteen years. And ten years hence these figures will be increased by the fruit from tens of thousands of young trees now growing. In view of these facts, it may be asked: "Is there any work left for this Association to do?" It is a well known fact that as we advance the horizon broadens.

Fruit growing is not without its difficulties. There is too often "a worm i' the bud" and a borer in the tree, and while this industry is so well advanced in these three counties, the rest of the province is far behind. I can scarcely believe that because this valley is sheltered from the fogs of old Fundy by the North Mountain range, it is the only fruitful spot in Nova Scotia. Yarmouth, exposed to the salt mist of the Atlantic, is growing some excellent apples, pears, grapes, and small fruits. Your delegate to the exhibition in 1882 reported: Duchess, Gravenstein, Kings, Pomme Gris, Baldwins, Spys, and Nonpareil were excellent, and scarcely to be distinguished from those grown in more favorable localities." It is being slowly proved that small fruits, plums, pears, cherries, and certain varieties of apples, can be successfully grown in almost every county in the province, and as a provincial association it should now be our aim to test and develop as far as possible the fruit growing capabilities of the eastern counties and those in the far west. Outside of the fruit belt, so-called, Lunenburg leads in productiveness, the census of 1871 giving 4,847 barrels. Cape Breton follows with 3,926; Cumberland next, with 3,320; Digby, 3,044; Colchester, 1,522; and Yarmouth, 1,500. I have not the figures of Pictou and the remaining counties. If any of

the above counties are represented here to-day, I should like to hear from the crop of last year. The experimental farm at Nappan, under the management of Col. Blair, will send Cumberland to the front, and the local provincial farm at Truro, under Prof. Smith's scientific treatment, will test that locality. In Pictou the local press is booming fruit growing, and two King's county men, Mr. Shaw and F. M. Borden, who have a nursery at New Glasgow, are successfully and profitably raising both small fruits and apples, and proving that Pictou's capabilities only need skillful development to place her in the front rank. There is no doubt the next quarter of a century will see our fruit producing area greatly enlarged. Can we overdo the business? Will the demand keep pace with the supply? The low price in the London market this season may cause some fears for the future, but we think such fears are groundless. Twenty-five years ago over-production was talked about, but there is a larger market to-day for the thousands than there was in '63 for the hundreds, and I predict a quarter of a century hence the millions will sell as readily as do the thousands of this season. Our population will increase, and with it home consumption, and the consumption abroad can be greatly increased. In these days of 'sweetness and light,' fruit will largely displace wine and beer among the people. The low price in London this season will indirectly benefit our growers, as many will purchase a barrel of apples at 10s., who would not think of them at double the price, and afterwards they will not do without them at any price. But we must not expect these high prices to continue. We must learn to grow apples as an article of food for the people—not an article of luxury for the rich—and sell them for a fair price; \$1.50 net is a fair value for a good barrel of apples.

Only the best fruit should be shipped to London. It doesn't pay to ship a poor barrel of apples when it costs \$1.42 to place it in the market. We must ship the kinds that best suit the market and learn to dispose of the rest by evaporation, and the manufacture of vinegar, jams and jellies, etc. Even in the dullest of the market this season, Nova Scotia Kings, Ribstons, Blenheims, Russets, and Pomme Gris realized good figures. Mr. Lowe, of Nothard & Lowe, wrote in '86: "Nova Scotia is still first for Gravensteins, King Tompkins and Ribstons; but for Greenings, Baldwins, Spys and Spitz, you are simply not in it at all." I am afraid there is danger of overdoing Gravensteins. Thirty thousand barrels were shipped this season and

prices ruled lower than at home, but this season was exceptional. The world wide fame of Nova Scotia apples, as a rule will command, for standard varieties, well packed and sent in their season, the highest price. A word about packing. Complaints continue to come of bad and slack packing. I have no remedy for the former, but allow me to urge upon growers the necessity of tight packing and strong nailing. We have it from Mr. Lowe that Canadian apples are so tightly packed that the bottom layers are always smashed; but this is overlooked by buyers as the barrels are tight. Fill the barrels slowly, shake them well, round them up and force the head in so tight that you are afraid you have ruined the whole barrel, and they will come out all right. That is my experience. The season of 1888 calls for some remarks. It was the wettest season on record, and the winter the mildest ever known. Our climate is certainly moderating; the autumn runs away into the winter and the snowfall is lighter. Whether this is due to confederation or a nearer approach of the Gulf stream, wiser men than I are unable to decide. You remember at the time of our last Annual Meeting, the country was sparkling and flashing with the beautiful "Silver Thaw;" every little twig on the trees was as large as one's finger, and many speculations were indulged in as to the effect on the next fruit crop. Some limbs were broken by the weight of the ice, but neither the fruit buds nor the insect nests were injured. Hosts of caterpillars hatched out in June and orchards in some localities were stripped of every green thing, and canker worms were also destructive in some places. The trees blossomed heavily; many were false, but enough matured among them to make a more than average crop, and, though one rainy, cloudy day succeeded another throughout the whole season, many varieties of apples were large, smooth, and well coloured, particularly Gravensteins, which were fully equal to the immense crop of '86. Ribstons, Kings and Blenheim's were fine in every respect; but Bishop Pippins, Jewetts and Greenings were spotted and inferior, and in some orchards Pomme Gris were small, spotted and cracked. Owing to excess of moisture, I think, apples were found to shrink more and not keep so well as in years of sunshine. Plums were an immense crop, pears an average, and small fruits a good crop. The first shipment of Gravensteins in the *Ulunda* made good returns, but all the later shipments, with the exception of the *Bellair's* cargo, which was sold out by the 13th of December, sold low. *Bellair's* sales were 10/ to 30/, Blenheims

leading with XXX 25/ and 30/. The shipments for '88, to Dec. 30th, are 56,026, with probably half as many more to be shipped, making the total shipment about 85,000. For '86 it was 113,983, and '87 between the two, 57,110. These are the figures for the three counties, and they do the entire export trade in apples for the province. There is no doubt that before the close of another quarter of a century other counties will participate in this profitable trade.

During the year two meetings were held, at both of which I presided. The meeting at Middleton in April was well attended and full of interest, and some excellent papers were read. The union of the Small Fruit Growers' Association with the Fruit Growers' Association came up for discussion, and committees were appointed, and a basis of union agreed upon; but this was declined by the Small Fruit Growers at their next meeting. In view of the importance and increasing proportions of the small fruit industry and the interest which many of our members have in it, it was decided to bring it before this meeting, and a notice of a motion to appoint a committee on small fruits was given at the meeting in Truro in September. I am sure the motion will meet with your approval, as such a committee will commend itself to both Associations. The meeting in Truro was held Exhibition week and the attendance was small, as other attractions were stronger. The exhibit of fruit at the last provincial exhibition, as a whole, was very fine. Gravensteins and other autumn varieties were nearly perfection, but it was rather early in the season for winter varieties to show perfect coloring. Hants county succeeded in capturing the first prize for the best collection. There was a good collection of large very nicely colored early varieties from New Annan, Colchester, and a fine collection of plums from Pictou. It was remarked by many that the exhibit of plums was the finest ever seen in the province. Take away the fruit from our exhibitions and their chief attraction would be gone. Destroy the apple trees in the province and what a blank in the landscape, what a hole in the farmer's pocket, and what a loss of wealth to the country! Yet this Association, which has done so much for fruit growing and fruit growers, can count barely one hundred names on its list of membership for the whole province, and is confined in its work on all sides because of the lack of support of those who owe it most. The work which our Association has already

accomplished and our endeavors for still further improvement should give us the sympathy and support of all classes in the country, and I would urge our members to take a greater interest in *their* Association, to make its aims known to their friends and neighbors, and show them that our efforts do benefit all those who are directly or indirectly interested in the culture of fruit. We need increased membership, and we need new members to fill the gaps which death makes in our ranks from time to time—members as full of enthusiasm and as willing to do earnest work as were the honored dead. Within a few weeks this Association, and King's county as well, have met with a serious loss by the death of D. B. Newcomb, who was Vice-President for this county in '85. Barney Newcomb, as he was familiarly called by his friends, won the esteem and respect of all who had the pleasure of knowing him. By his own unaided efforts and great natural abilities, he gained a place beside the best men in his country, filling many public offices with honor and ability. His illness was a long and painful one. With mind as clear as ever, he was withdrawn from the active pursuits of life and stretched for many months on a bed of suffering. This he bore with patience and resignation. His death must have been a happy release. I know of few men in Kings who will be more missed than genial, kind-hearted, honest Barney Newcomb, and I know this Association will join with me in an expression of sympathy for those who are left to mourn his death. And now I will only detain you to apologize for the length of this address, and to ask you to deal kindly with its many imperfections and shortcomings. In closing I would call your attention to the meeting of the American Pomological Society in Ocala, Florida, February 20th. It may be possible to appoint one of our Nova Scotia orange growers in Florida a delegate to represent the Fruit Growers' Association at that meeting. Your Secretary will explain the absence of the report for 1888. It was so long delayed in the printer's hands that we decided to hold it until the reports of this meeting were ready and publish the two years in one volume. You will also receive the financial report from the Secretary, and can take such action as you may deem wisest. I cannot close this address after all without expressing my regret that the Western Counties had not sufficient influence with the local government to obtain the location of the provincial experimental farm here, in Wolfville, in

connection with Acadia college, or at all events in some spot where apple trees grow.

At the conclusion of the President's address, PROFESSOR SAUNDERS being called upon, spoke as follows :

Ladies and Gentlemen.—I heartily congratulate this Association on the completion of its twenty-fifth year. Very few Associations can show a better record. Fruit culture in Nova Scotia has made great progress since the organization of this Association, and it is only fair to attribute a large measure of that progress to the work done by this Association. The mere fact that the members of the Association are devoting a great deal of attention to the naming and proper classification of the different kinds of fruit in itself lends additional interest to the work and adds to its attractiveness. In this department particularly your Association has done very good work. I don't think you can find any other part of the Dominion where the fruits are as correctly named as in this Province. I know that in the west—in Ontario—you can go into the country districts and find many of the various kinds of fruit under erroneous names. I believe that such a state of things has passed away in Nova Scotia and that the fruit at all your exhibitions is correctly named. You have a territory which is admirably adapted to fruit culture. I think, however, that it cannot be too strongly put before you that the whole of the fruit growing part of Nova Scotia is not confined within the Annapolis Valley, and the sooner your people believe that fruit growing is possible everywhere in this province—where the soil can be found suitable for trees to grow—the more rapidly will be your advancement on this subject. When I came among you as a stranger I was very much struck with that peculiar notion in regard to fruit growing in Nova Scotia. I had heard a great deal about the marvellous climate of Nova Scotia and I had ample evidence of it from the exhibits at the Colonial exhibition, and when I came down to begin my examination of this province and of the other provinces in connection with the work which I then had specially in hand, I enquired at Amherst about the apples and fruits grown in the country. "Oh," I was told "we don't grow apples here. You must go to the Annapolis Valley for apples." I found that the same idea prevailed, to a very large extent, throughout the counties of Cumberland and Colchester, and I thought that the people of these counties were too easily discouraged.

When I got into the Annapolis Valley I was told about the cherries, but I was also told that I must go to Bear River if I wanted cherries. "But," I said, "I really think that cherries can be grown just as successfully in the Annapolis Valley." However, I went to Bear River where the trees were well laden with this delicious fruit. I enquired as to the variety of cherries and the origin of cherry culture in that district. I learned that cherry culture was introduced there by the earliest inhabitants, bringing with them when they first settled there a number of trees from New York. I failed to recognize any of the varieties that are ordinarily in cultivation now. I did not find a single cherry in the Bear River District of any variety such as you will find now in the nurseries in England or the United States. There were very few instances at Bear River where you could find cherries duplicated. As to the character of the fruit there were some very poor cherries and some remarkably good ones. Bear River cherries are not all alike by any means, and range in color from black up to nearly white. No special attention has been given to the propagation of the better sorts, although there is beginning to appear an awakening among the people as to the importance of this consideration. Nearly all the Bear River cherries are seedlings grown from the original stock introduced after the American war, more than one hundred years ago. They have been produced by sowing the seed of the cherries introduced at that time. This is perhaps one of the largest experimental cherry plots to be found anywhere. I took home a quantity of seed from the better class of cherries, and I hope to have some Bear River cherries at Ottawa some day.

Your position here with regard to the ocean is an immense advantage in disposing of your fruit. We heard a good deal to-day about the embarrassments which attend your efforts at fruit growing and fruit exporting, but if you lived 700 miles away from the ocean you would find your difficulties in those respects considerably greater. Nova Scotia is particularly favored in this respect, and with the West India market so near at hand and the open ocean so easily available, the people here could advantageously send their products to Europe, the New England States, the West Indies and South America. I have no doubt that you will find in a short time that even if the English market is glutted there are other outlets which will give you good returns for your labor in the production of fruit. I do not think

there is any prospect of any permanent over-glutting in the market. When the price is reduced the consumption is increased to such an extent as to bring the demand up to the supply. Those of us who look back twenty or twenty-five years and recall what fruit growing was at that time and compare the small consumption of fruit then with its consumption at the present time, can realize that there is some force in the statement which I have just made. Within that time nearly all the small fruit trade has been developed. There were no cultivated strawberries which then could be bought in the market here, and we had none in Ontario. The better varieties of blackberries and raspberries have been introduced since that time, and also a number of larger fruits. Now with the increased demand which has arisen from the cultivation of these fruits there have been also better prices. The wild fruit once sold in our markets rarely commanded the same prices although the collection of them entailed so much labor. In fact the agricultural population have reason to be proud of the increased comforts which surround the farmer's home and which may, to a large extent, be attributed to the fact that the public having once tasted of the delicious fruits now so extensively grown, are using them more largely every year, and are not likely to give up the use of them as long as they have the means to pay for a good supply. Since I was with you two years ago the progress in the work I have had on hand has been very considerable, and the experimental farm scheme has been considerably developed. At that time you will remember I spoke to you about the experimental farm at Ottawa. I have travelled over the whole Dominion since then and farms have been selected at Nappan, in Cumberland; in Brandon, Manitoba; and in Agassiz, British Columbia. There has not been time since to do much more than get these farms in operation, but they are now pretty well organized and are fast getting into working order. Fruit growing at first is, of course, necessarily slow. Buildings must be constructed and orchards planted, and time is required in developing the other departments which it is deemed desirable to test, encourage, and carry forward.

Since the last time I attended a gathering of this Association we have accumulated at the central farm about 400 varieties of the larger fruits, including a very full selection of those hardy varieties of apples known as Russian apples. Our climate at Ottawa is not as favorable as yours for fruit growing, and we expect to fail with many

of the varieties, especially the highly flavored and more tender kinds, and to be obliged to fall back on the Russian varieties, which are not equal in quality to those grown here, but which will be useful products for those settlers in the cooler parts of the Dominion who have not been favored with much fruit. In addition to these Russian apples some 69 varieties of pears have been planted, and about the same number of varieties of plums and cherries. The cherries are principally the Morella cherries, and come chiefly from Poland and Silesia. These promise to be very hardy and endured last winter very well, even in the severest cold. I am in hopes that these cherries will be quite an addition to the fruits of this great Dominion of ours. Among the small fruits we had quite a number of new seedlings, which fruited last summer, some of which were very promising, especially the raspberries, some hybrids between the Gregg and Cuthbert, were in some instances superior in form to Schaefer's Colossal. However we have had only one season's trial as to these. There are also several promising seedlings from black currants. The strawberries which were planted the year before last have yielded a very good crop this year, and would have done even better but for the dry weather which prevailed at the time of gathering and made the berries much smaller than ordinary. While speaking of strawberries I may say that you have a country admirably adapted for the cultivation of the strawberry, and I include the province generally in this statement. A very profitable business could be done with the Boston and Portland markets. Your fruits come in later than those furnished from the United States to these markets and would come at a time when the glut was over, and command better prices than if they were brought in earlier in the season. With the moderate heat you have in summer the season for the ripening of these fruits could be protracted so as to give you control of that market after the fruits from other sections had ceased to compete with you.

The North-West Farm at Indian Head was begun early enough in the season to admit of some fruit planting. Two hundred apple trees were planted there, of 60 varieties. Also plum trees, and pears, currants, gooseberries, raspberries, blackberries, and the grape vine. The hardy plums which grow in many parts of the North-West, have been culled and transferred to the orchard where they will have careful cultivation and care.

The study of chemistry is a study of the greatest importance to the agriculturist and fruit grower. It is not always easy to find a sufficient quantity of barn yard manure with which to cover your orchards. The three important elements which the soil parts with most freely are nitrogen, potash, and phosphoric acid. These three are found in stable or barn yard manure in just about the right quantities. On light soils these can be produced by artificial means much more readily than they can by barn yard manure, and as you have a light soil it is therefore desirable to ascertain exactly what these fertilizers are. We are not prepared at the present time to make any positive statements, but analyses have been made of the fruit from which we learn that a large proportion of potash is consumed in the growth of apples, but the relative proportions have not yet been determined, and careful analyses will be required of different parts of the tree before we can precisely estimate what elements of fertility the apple tree takes from the soil in which it is planted. Having ascertained these elements it certainly comes within the range of probability that we may eventually be able to supply from some of the commercial fertilizers something better than can be accomplished by barn yard manure. I say this without desiring to lessen your estimate or appreciation of barn yard manure, because so far as our present experience goes nothing is as good. The phosphoric acid can be supplied in unlimited quantities from the large deposits of phosphate of lime which are to be found in different parts of the Dominion. Large quantities of this phosphate of lime are exported to Europe annually, while comparatively few of the farmers of the Dominion have used it to any extent. We hope to test its value on our experimental farms so as to be able in a short time to speak more positively on the subject. It is not surprising that farmers look upon such things with suspicion when it is considered that they have been so often deceived by recommendations of substances which have been found too often of no value. Oyster shells here are cheaper than bones, and in using bones any deficiency may be made up by adding the former. Unfortunately farmers have frequently spent money on fertilizers and have had so little result that it makes them doubt the use of these substances as a whole. This suspicion we want to remove by demonstrating the value of them. As an illustration of this I may mention that on the experimental farm we have

twenty plots of wheat which are being treated with different fertilizers and some are left without any. At the end of a certain number of years we will obtain a result as to the relative effect of fertilizers in growing a crop. This idea will be carried out not only as regards cereals but on small fruits and other products, so that we hope to get very much useful information in this connection. The phosphoric acid is also supplied by the ground bones of commerce, but unless special treatment is given the action of the fertilizer is slow. So far as I have been able to see there is not a great deal of effect produced on crops by using the mineral phosphate untreated, even although reduced to a powder. There is, however, a slight difference between such crops as compared with unfertilized ones, but when treated with sulphuric acid the benefit is very much more marked. It has been the custom in Ontario to ship away our wood ashes, which is a very pernicious custom, and will require an antidote some of these days in the shape of an importation of a similar kind. Wood ashes should be preserved as they make an admirable combination with the mineral phosphate. In order to supplement the supply of wood ashes it may be desirable to import these fertilizers which are rich in potash. The chief of these are muriate of potash and sulphate of potash. The supplies of nitrogen and other elements to which I have referred are more expensive as a rule. Nitrogen is contained in barn yard manure and also in ground bones and dried blood, and in a more concentrated form it is supplied to the soil by the use of nitrate of soda and sulphate of ammonia. It is sold in the West at the rate of fifty dollars a ton. The proportion is from 50 to 100 pounds to the acre. Sir John Lawes in his experiments has found nitrate of soda and superphosphate of lime in the proportion of about 150 pounds of superphosphate of lime to 50 pounds of the nitrate of soda, to be very useful, especially for grasses. It will be very necessary for you, if you wish to carry on satisfactorily these two departments of grass growing and fruit growing, that you supply the soil with those ingredients to keep up its fertility. This department of chemistry will be worked out at the experimental farm by a very competent chemist. Some work has already been done in that line, but much more will be done during the coming year. Besides this chemical work we have much entomological and botanical work before us. With regard to botanical questions I have seen the injury done by

the black spot to the apple, and have been interested in the statements made as to that black spot increasing when your apples were in your cellars. This spot was fungus propagated by spores found in the air and developing rapidly. This was a new feature with regard to its appearance in the apple after barrelling, and I would make the following suggestion with regard to it. I found in examining fruit which had been kept in barrels in cellars, and which subsequently came out in bad order, that the black fungus is overlaid with another species attaching itself to this original fungus and injuring the appearance of the fruit. It has been found that sulphuric acid, wherever it can be applied, promptly destroys the germs from which these spots originate. I think it would be a very simple matter to tighten the ventilation in the cellar and burn a little sulphur there, and thus permeate the air, and while this plan will not relieve the apples of the black spot it will prevent the extension of the trouble. If the sulphuric acid, with which the air would be saturated, would not pass into the barrels the heads of the barrels might be removed, or if the apples were preserved in bins, I think the remedy would be most effectual in checking the growth of the scab or these fungoid growths. If this plan was not found practicable the apples might be immersed in a solution of salicylic acid and water. The acid has no taste and would not be objectionable in any way. No process, however, is as satisfactory as the first plan suggested, where the air is charged with sulphuric acid which finds its way among the fruit.

The weather has a great deal of influence on fruit growing, and while we cannot control the weather it is an advantage to know the effect the weather has had in times past so as to be in a position to avail ourselves of such information. It is proposed at each of these experimental farms to have meteorological establishments, recording the amount of temperature, the effect of winds and other similar points, and I think this will be a useful feature of our work. With regard to insect records it happens occasionally that a new insect crops up or an old one becomes worse. These entomological studies were formerly regarded as very absurd, and a man with a butterfly net was then looked upon as a fit subject for a lunatic asylum. In the Middle Ages these insects were looked upon in a very peculiar light, and one which would seem to us ridiculous at the present time. When an insect plague occurred it was, in those days, the practice to

introduce legal proceedings against them and lawyers pleaded in their behalf, their case being fully heard, and they were afterwards threatened with all sorts of punishment if they did not immediately depart. This practice prevailed as regards a number of animals, and frequently bugs were tried for breaches of the peace. However people finally began to regard these plagues as visitations of Providence, and they would look on and quietly let the grasshoppers ravage and other insects destroy. But at the present day we regard these visitations of swarms of insects as the result of the operation of certain natural laws which we may very properly attempt to limit and control in every way we can. Hence the study of entomology has become a practical one and has conferred much benefit on communities. When the Colorado potato beetle first invaded the country and increased to such a marvellous extent as to become a scourge, a great many experiments were tried for the purpose of destroying it, but the use of Paris Green was not generally adopted until after some years of experimenting. These experiments were conducted by those hitherto despised individuals, the entomologists, whose observations were recorded and who succeeded in finding in Paris Green a very useful remedy for this particular insect, and a remedy which possessed the peculiarly important characteristic of insolubility. It is now recognized as the most useful of all poisons in destroying this as well as some other insects. Paris Green is a sovereign remedy for canker worm and should be showered on the foliage of trees with a spray pump. The codling moth is also destroyed in the same manner. The gooseberry saw-fly is an insect which can be controlled by the use of hellebore. This information has almost all been obtained by studying the life of these insects and endeavoring to ascertain how, where, and when we can best attack them. Hence the usefulness of an official such as a chemist in an institution like the experimental farm. Our entomologists and botanists will be glad at any time to render any aid they can as regards their respective subjects, and if samples of fungoid or moths and other insects are forwarded them they will endeavor to ascertain and publish the best remedies for their destruction. Every suggestion will be attended to, because the object sought is to make the institution a bureau of information for farmers and fruit growers over the whole Dominion. I will just refer briefly to the cut worms which are very troublesome to our cabbages and eat corn and wheat. The moths or millers, as they are called, deposit their eggs usually about

the roots of grasses in the autumn. These little creatures hatch in the autumn. We are generally more enthusiastic in the spring about weeding than in the autumn, and hence these insects find plenty of food. They burrow in the soil, remaining all winter buried in the ground in a state of torpidity. Having fasted so long they commence to feed in the spring on any green thing which they can find. The gardens are usually well weeded and there are no weeds for them to feed on. Being very rapid travellers they quickly get over considerable ground, and not being visible you may wake up some morning and be surprised to find your cabbage plants eaten. There is an advantage when cut worms are plentiful in not being too particular about weeds. I am not an advocate of the culture of weeds, but it is not a bad plan to leave them in little heaps on the ground. They flock around these heaps, which make very good traps for them. Mixing coal oil with sand and strewing a little of that mixture around the plants will prevent the worms from attacking them, or if the plants are dipped in a mixture of soot and water so as to coat the plants, it will keep the worms off.

In travelling through your province I have noticed that a large proportion of the trees you have are European, but you will permit me to point out that the landscape might be, in many instances, improved, and the homes of the people beautified by the addition of a little more variety in the character of the trees. The Evergreens grown here have been of spruce native to the country and of Norway spruce. I have not seen many specimens of the pines, but as the Scotch pine and the Swiss Mountain pine and the Dwarf Mountain pine are very beautiful, I would commend them to your notice and suggest that you give them a trial in beautifying your homes in this lovely valley. There are also some smaller evergreens, some of which I have seen growing in the Public Gardens at Halifax, and which should be better known throughout the provinces, as your climate is excellently adapted to the growth of such varieties as I have mentioned. There has not been much attention paid to the growth of nut trees in the Maritime Provinces, although a few may be found in New Brunswick. I have not seen the Black Walnut here at all. Japan nut trees have fruited in Boston, and we have tried them in Ottawa successfully. I believe the seed can be got without much trouble. That sent us was from the Agricultural College at Tokio, and we have

grown these trees from the seeds thus obtained. I must not forget to mention that the Cut Leaved birch is a hardy and graceful tree, and would be a most charming ornament for any lawn. I have not seen the Catalpa here. It is a very beautiful tree with large foliage, and bears an abundance of large, white flowers, spotted with purple and very pretty. This tree is quite hardy, it grows at Ottawa and stands the climate very well, and is the subject of general admiration. Besides these I must not omit to mention the native Basswood, the blossoms of which the bees are accustomed to visit and where they make a large amount of honey, so that this tree besides being ornamental is useful as supplying the bees with a portion of the nectar which they use. The Norway maple is another most graceful tree. Besides these trees there are a number of hardy shrubs and perennial plants giving flowers from year to year.

As the hour for adjournment has already passed I must close my remarks, but I cannot conclude without first expressing my gratification at being with you on this occasion. It always affords me pleasure to visit the Annapolis Valley and meet my friends here, and I wish you every prosperity in your undertakings, and hope to see you often in the future. (Applause.)

R. W. STARR moved the following resolution :

Resolved, That we appoint a standing committee of five persons to be called the Small Fruit Committee. Their duties shall be to report upon the growth, nomenclature, and values of the various small fruits grown throughout the province.

The motion passed unanimously.

The PRESIDENT named the following persons to compose the Small Fruit Committee : T. H. Parker, G. C. Miller, T. E. Smith, F. M. Borden, and J. E. Lockwood.

The meeting adjourned.

THE DINNER.

The Annual Dinner of the Nova Scotia Fruit Growers' Association took place at the American House, Wolfville, a very large gathering of ladies and gentlemen being present.

The President, DR. CHIPMAN, occupied the chair, and after the good things on the table had been thoroughly discussed called upon the President of Acadia College to address the assemblage.

REVD. DR. SAWYER said:—The honorable President of the Association has called upon me to address the Association on its particular work—to give a disquisition on “picking and packing”—and as that is something I know nothing about, I have therefore a qualification to speak on the subject possessed by many speakers in dealing with their particular subjects. (Laughter.) I hardly know why my name was called this evening unless it be that I have some general interest in the community. I deem it proper to express an interest in this great and growing business. I can remember the day of small things in fruit growing in this province. My memory reaches back some thirty years, a-time when there were only two or three farmers engaged in fruit growing, and these were raising a few pippins, fruit being looked upon as a wonder by the people all around, and the question was then gravely discussed as to whether it would be advisable to go into anything like fruit growing as a business. But from that small beginning there has been a constant growth. In the presence of so many gentlemen here to-night who are well qualified to give instruction as to this particular industry, I am not prepared to indulge in many practical observations on the subject. It has, however, occurred to me that it might be worth while to give a few moments attention to some consideration of the relation of this business of fruit growing to other interests. I would ask the question—Can this business be the exclusive business of the country?—And I take it for granted that we are all ready to say “No” in answer to that question. It cannot be the exclusive interest of the country—other interests must be attended to. Following out the suggestion of the honorable

President of the Association, I agree with him that it would be a charming sight to travel all the way to Digby,—“in the leafy month of June,”—through a country covered by orchards. I think it would be even a more magnificent spectacle to travel over the same ground in the month of September and observe all the trees thickly laden with fruit. But would it be desirable that this whole country should be taken up with this business of fruit growing! I speak with becoming modesty, but I am strongly of the opinion that it would not be desirable. The orchard takes a great deal from the ground and returns comparatively little to it. Other forms of agriculture will have to be pursued in order that the soil may be kept up for this particular occupation. Again, the number of persons engaged in the pursuit would be comparatively small, and the tendency would be for a few persons to absorb and control the whole business. This condition would, no doubt, give these few persons a very comfortable feelings but would not be desirable in the interests of the community.

I would ask also,—Is fruit growing one of the fundamental businesses of the country? On that point I have my doubts. With reference to fishing, for instance, it is well to remember that while there seems to be a great deal of uncertainty about this pursuit, yet nature brings there stores to our shores, and those who follow the occupation of fishing can repeat the operation of taking fish year by year and yet not hurt the supply. And so with the working of our mines. The vast iron stores that nature has placed in our soils for the use of generations yet to come may be drawn upon indefinitely without calling upon any intermediary. But the particular industry of fruit growing comes in as resting on others, which are really fundamental. Then again the question may be asked,—Are we, in pursuing this occupation, ministering to the luxury of the people or are we ministering to their natural needs? I think we may say that we are ministering to the natural needs of the people in carrying on this pursuit. Even if we were ministering to the luxury of the people it would not be a harmful luxury, but the natural needs of the people in this connection give promise of an increased demand for fruit. I rather think that we promote a better style of life among the people if we encourage a taste for the free use of fruit among them, and taking that view of the question it seems to me that we should be highly gratified at the progress which is so noticeable in all that pertains to fruit growing.

If we could raise ourselves to a position which would permit us to take a bird's-eye view of the extent of this business in relation to other kinds of business, certain probabilities would arise which might be worthy of discussion. One point is in regard to the proportion of territory that should be covered by orchards as compared with forest trees. Is it wise that the ground should be denuded of the forest trees and be covered by orchards? I do not feel able to answer the question, but it must very materially affect the conditions of the soil to have the forest so stripped off as is the case in many localities, and yet it is a gratification to see so many trees yet remaining. It must make a great difference in regard to the agricultural conditions of this valley whether the crest of the land shall be stripped of trees or left densely wooded.

Again, the question occurs to me,—Would it not be well to study this business in its relation to the population of the country? The honorable President has referred to the æsthetic side of the question, its effect on the character of those engaged in it, and the effect generally on the people of the country. But to take a more practical view,—Does it affect the population of the country—numerically? Kings, Hants, and Annapolis have a combined population of about 70,000, just about enough to make a comfortable and progressive town. But of course such a population over such a scattered situation must be sparse, and a sparse population cannot work up to that high state of civilization that would otherwise be possible. Hence the question arises, Is our business tending to increase the inhabitants of the country or to diminish the number of its population? I know that probably one-half of the students who are educated in our institutions here pack their trunks on completing their studies and leave the province for other countries. That is a great loss. The same process is going on in regard to other institutions, so that our young people are being drawn away in large numbers. Now it might be desirable to call in, by means of large manufactories, cheap labor. But would we be improving our country on the whole by such an operation. We might discover as a result of such an operation that we had inaugurated a series of "strikes," and a civil war between capital and labor, between ignorance and education, between coarseness and refinement, might rapidly ensue. Such results have invariably manifested themselves under such conditions thus far in the history

of civilization, so that taking all these matters into consideration I do not find it hard to reconcile myself to the absence of the class of people I have referred to. But I ask myself the question whether it may not be possible for those who have prospered in this business of fruit growing, and who have reached the time of life when a successful business should have given them a comfortable income,—would it not be possible and advisable and becoming on the part of these elder persons to study the problem of attempting to keep our young men at home to engage in that business in which they themselves have had a personal interest. My reflections lead me to ask this question, and it has occurred to me that possibly we might be a little more thoughtful and careful in opening the way for our young men to take positions here among us instead of settling down at the ends of the earth to help aliens and strangers. (Applause.) I make these remarks because I feel deeply interested in this important branch of the subject, and I know that you are all interested in it in the same way.

A day or two ago I saw in a newspaper a letter written by J. G. Whittier, the poet, to an Agricultural Society that had sent a congratulatory letter to him on his eightieth birthday. You may not be aware that the poet Whittier was raised on a farm and remained a farmer until his fiftieth year. He may not be counted among the great poets of the world, but so far as purity of thought and a soul that responds to the aspirations of a cultivated and moral community are concerned, I would place him among the best of poets, and I ascribe his possession of such qualities largely to the fact of his Quaker parentage and his training among farmers and on a farm. On this account, and because the sentiments expressed so exactly apply to our own farming communities, you may be pleased to hear the letter read :

OAK KNOLL, DANVERS, 12 Mo. 30, 1888.

DAVID W. LOW, Esq.,

Secretary Essex County Agricultural Society.

Dear Friend.—Thy letter conveying the congratulations and kind wishes of the Essex County Agricultural Society at its meeting on the 28th inst., I have received with no common satisfaction. No birthday has given me more pleasure. My ancestors since 1640 have been farmers in Essex County. I was early initiated into the mysteries of farming as it was practiced seventy years ago ; and

worked faithfully on the old Haverhill homestead until at the age of thirty years, I was impelled to leave it, greatly to my regret.

Ever since, if I have envied anybody it has been the hale, strong farmer, who could till his own acres, and if he needed help could afford to hire it because he was able to lead the work himself. I have lived to see a great and favorable change in the farming population of Essex County. The curse of intemperance is now almost unknown among them; the rum-seller has no mortgage on their lands. As a rule they are intelligent, well-informed, and healthily interested in public affairs, self-respectful and respected, independent land holder, fully entitled, if any class is, to the name of gentlemen. It may be said that they are not millionaires and that their annual gains are small. But on the other hand, the farmer rests secure while other occupations and professions are in constant fear of disaster, his dealing directly and honestly with the Almighty is safer than speculation; his life is no game of chance, and his investments in the earth are better than in stock companies and syndicates. As to profits, if our farmers could care less for the comfort of themselves and their families, and if they could consent to live as their ancestors once lived, and as the pioneers in new countries now live, they could, with their present facilities, no doubt double their incomes. But what a pitiful gain this would be at the expense of the decencies and refinements which make life worth living. No better proof of real gains can be found than the creation of pleasant homes for the comfort of age and the happiness of youth.

When the great English critic, Matthew Arnold, was in this country as returning from a visit in Essex County, he remarked that "while the land looked to him rough and unproductive, the landlords' houses seemed neat and often elegant, with an air of prosperity about them. But where, he asked, do the tenants, the working people live?" He seemed surprised when I told him that the tenants were the landlords and the workers the owners.

Let me return my sincere thanks to the Essex Agricultural Society for the kind message conveyed in thy letter, and with the best wishes for its continued prosperity and usefulness.

I am truly thy friend,

JOHN G. WHITTIER.

Thanking you for your kind attention while I have endeavored to give you these crude reflections, I will close by expressing my sincere desire for the bountiful prosperity of the Nova Scotia Fruit Growers' Association as one of the important factors in the general prosperity of our country. (Loud applause.)

COLONEL BLAIR was next called upon by the Chairman, and on rising said that in view of the fact that the Association had had such interesting meetings during the last two days, and so many excellent speeches had been delivered, and such very clever papers had been read, he thought it would not be wise for him to offer very many remarks. Indeed if it were not for the fact that some of the members of this Association, including the President and Secretary, thought it very desirable that he should give some account of the practical operations of our Nova Scotia experimental farm, which was conducted, at the present time, under the direction of Professor Saunders, but more immediately under his own supervision, he would not indulge in any remarks this evening. Professor Saunders, this afternoon, had treated his audience to a very admirable address on the aims and objects of these institutions, and if the gathering of ladies and gentlemen assembled to-night felt disposed to listen to him, (Col. Blair,) for a few minutes, he would endeavor to give some account of the practical work on the farm at Nappan. He was told by the people living there, when he took possession of the farm last spring, and some boxes of fruit trees began to arrive at the station, that it was utterly useless to attempt to grow fruit in Nappan. He said to them then that he was there for the purpose of trying the experiment, and he proposed to try not only the hardy varieties of the country, but some of the finer sorts. He succeeded in setting out some two acres of apples of various and very different varieties, and some plums. The land on the farm was not in very good order, there having been only 6 acres of the whole 300 under cultivation, but he took the only available land on the farm and went to work to make some of the fields fit for the reception of the trees. All the apple trees grew remarkably well, but they will have the difficulties of a hard winter to contend with. The pears and cherries also grew well. The land had a slight coat of manure last year. He found that those that took root grew remarkably well, so much so that in one variety of grape—the Clinton—they formed a charming bunch. Taking

everything into consideration he felt very much encouraged. He did not imagine, however, that they would be under the necessity of building a wine press to dispose of the surplus grapes for some years to come, (laughter,) but had every confidence that the experimental farm would prove a success. They had 30 plum trees with 14 varieties, and a thousand strawberry trees of 10 varieties, and these trees grew very well. They had also planted 100 gooseberry trees, which all grew remarkably well. 375 raspberry trees were also planted, but owing to the fact that some of them came out of the box mildewed, they were a partial failure, but those that did grow grew very well and were very strong. He planted 150 currant trees and 75 blackberry trees of three varieties, and was very much pleased with the planting of the blackberries. They also did very well with oats, and hoped next year to carry on their experiments in that particular to a much greater extent. The grain as it grows it is proposed to send out to the farmers of the country, who will be supplied with a small bag each and asked to grow it, so as to give us their knowledge of the productiveness of the different kinds to place alongside of our own knowledge and experience on that point. As to the drained land on the farm it is, to a certain extent, exposed, and they were breaking up some land which was more sheltered. A good many people had set out fruit trees in the County of Cumberland, but so far had not succeeded very well, but in his judgment the reason was, to a large extent, that they did not take sufficient care of them. Of course it would require a great deal of work on this land to make a farm such as is really wanted for their operations, but he hoped that by perseverance they would succeed in making improvements and securing information that would be beneficial to the country. A good many persons had made application to have their sons attend the experimental farm, but it was necessary for the people to understand that the farm at Nappan was not a teaching institution but purely an experimental station organized for the purpose of testing the relative value of different fertilizers, and by a series of practical operations to endeavor to furnish information which it was hoped would possess peculiar value for the farming population. The farm at Nappan had been frequently confounded with the farm at Truro, organized by the local government, and which was essentially a teaching institution, having for its chief

purpose the teaching of the operations of practical farming to the youth of the country. The people in New Brunswick did not appear to understand the objects of the farm at Nappan at first, but when its objects were explained to them they immediately manifested a great interest in it, and many have applied for some of the grain grown there. If any persons in this valley would like to get a few bushels of the grain they can be supplied on application next year. The farm is composed of about 300 acres, there being about 10 acres of hay, and about 104 acres of pasture, and 6 acres of cultivated upland. A large amount of dyke has been put up, but notwithstanding that fact the tide caused some injury recently, though now it is shut out again. The construction of buildings has been carried on under the supervision of the Department of Public Works, and the institution now boasts of a barn one hundred and eleven feet long and fifty feet wide, and has in connection with it all the requisite horses and cattle, and all the stabling that is necessary. It is at present, of course, slow and up-hill work, as we are undertaking to do what the farm hitherto had never been supposed to be capable of doing. It is hoped, by a succession of various experiments, to ascertain the cash value to farmers of the different fertilizers, and if a satisfactory conclusion could be arrived at on that point the farming population would be largely benefited. Although there are a good many people skeptical as to the advantage of these farms, the managers of the farm at Nappan hope to be able, after a few years, to show that some practical benefit can be derived from such institutions. It is not easy to make very positive statements as to what will be achieved, and the speaker always prefers to speak of what had been done in any undertaking rather than theorize as to what would or could be done in the future. The information that would be obtained by the experiments at the Cumberland farm will be published for the benefit of the people of the country. If after carrying on a certain line of operations in any branch of farming at Nappan, it is discovered that success does not attend their efforts in that particular branch, it would be the duty of the managers of the farm to advise the farmers of the provinces as to the result, so that the non-successful as well as the successful experiments will be noted. Some remarks have been made on a previous occasion as to the location of the farm, but as it is a farm peculiarly for the benefit of the three provinces it was desirable to so locate it as

to make it easy of access to the people of the three provinces; and while in some respects a locality like Wolfville or Windsor might have special features to render it suitable, it was, nevertheless, considered that a locality which would be a central one as regards the three provinces, was, on the whole, entitled to a preference over any other, and would be more likely to commend itself to a majority of the farmers in the three provinces. The situation at Nappan is fairly good, and it was considered undesirable to have a place for such experiments which would be better than an average farming locality in any of the three provinces.

We have no desire to detain those present with any further remarks as the hour is very late. There was a movement on foot in New Brunswick to amalgamate the Dairymen's Association of that province with the Nova Scotia Association, and there is also some talk of building an agricultural college in the province, and it has occurred to some Nova Scotians and to some gentlemen in New Brunswick that it might be desirable to unite forces. Here in the Annapolis Valley the people have arrived at the pink of perfection in fruit growing, and we would suggest to the Nova Scotia Fruit Growers' Association to invite the kindred Association in New Brunswick to join with them in their gatherings, as he thought the fusion of the two Associations would be productive of special benefit. Some of the members of the Nova Scotia Association think that the western section of the country is badly used by the government, but he saw no good reason why all the fruit grown could not be successfully transported by water, and his own impression was that such transportation would prove the most satisfactory. We had heard remarks made about the western section of the country not being as well treated by the government as the eastern portion of the province, but think it unwise to complain too much as there is very little doubt that the government will eventually take over the western roads.

We feel much obliged to the ladies and gentlemen present for the kind attention which they have given to these few observations, and conclude by wishing the Association every success, and hope that in another year we shall have the opportunity of giving to the Association observations which will be of more practical value. (Applause.)

DR. YOUNG, the United States Consul at Windsor, was next called upon by the chairman, and spoke briefly and in a very pleasant mood of the political relations between the United States and Canada.

DR. BORDEN, M. P., being called upon by the chairman for a few remarks—there being no formal toast list—said that he had been flattering himself that he would escape, but that he now supposed that having been called upon it would be necessary for him to say a word or two. He felt greatly pleased in listening to the very eloquent and deeply philosophical address with which the Reverend President of Acadia College had favored the audience. Many of the remarks of the reverend gentleman were full of deep thought and sound sense, and when at the conclusion of his remarks the reverend gentleman had asked if there was not some way of keeping our young men home in Nova Scotia, the thought had occurred to him, (Dr. B.,) that if that speech of the Reverend President of Acadia College could be published and placed in the hands of the young men of the province, it would have an excellent effect in making the young men properly appreciate their own country. He considered that the whole proceedings of the Association should be published and circulated broadcast throughout the country, so as to teach every native of Nova Scotia the value of his own province, and how with a very small expenditure any Nova Scotian could be assured of a very fair return for his exertions and labor. He dissented from the view that the occupation of fruit growing, if extensively carried on, might get into the hands of monopolists, and on the contrary was inclined to think that as time rolled on and the business of fruit growing increased the fruit farms would grow smaller, and he would suggest to any young man starting out in life to buy a farm of not more than ten acres and work it economically, and it would be found that at the end of ten or twelve years the young man would find himself, as a result of his industry and economy, in a position to retire on a competence. Ten acres of land could now be obtained for one hundred dollars. He knew himself that within a quarter of a mile of a place which would soon be a railway location, five hundred and fifty acres of land could be now bought for fifty-five dollars. It was his opinion that the Fruit Growers' Association by giving their proceedings the widest circulation and publicity, and by bringing home to the young men of the country the salient facts in connection with the fruit growing industry and its advantages, would be doing incalculable good to the youth of the country.

The audience had been entertained by his friend, Col. Blair, with a statement of the doings at the experimental farm at Cumberland.

If his friend had not, in the course of his remarks, mentioned the fact that there were differences of opinion as to where that farm should be located, he, (Dr. B.,) would not have referred to the matter at all, but as the discussion had been entered upon it seemed necessary for him to follow the subject a little further. He had been given to understand from his friend's remarks that the reason that the farm was located at Nappan was, that as the farm was intended for the benefit of the three provinces it was deemed advisable that it should be placed in an easily accessible district. But his friend had also stated just before that the farm was not a teaching farm for young men, and that being the case the reason given for its location at Nappan did not seem entitled to much weight. If it was only a farm for experimental purposes, and the results of the experiments were to be published, it did not seem to matter whether the farm was in one end of Nova Scotia or the other. It had occurred to him, while listening to his friend's remarks, that the twenty-five years which this Association had existed had been practically lost when it was considered desirable to-day in Nova Scotia to equip a farm and indulge in a number of expensive experiments for the purpose of ascertaining whether or not the information attained during all that time was worth anything. Here we have in the valley tried out the question already as to exactly what fruit we want. We knew that we did not want more than twelve varieties of apples at the most. He ventured to think that his friend, the manager of the farm at Nappan, would get some very valuable information if he were to examine the proceedings of the Fruit Growers' Association during the past twenty-five years. It was said that our people here were grumblers, but it should be remembered that not only were the people here discriminated against and the people in the east given lower rates, but the government were starting an experimental farm in the east also. He would not trouble the audience with any further remarks except to say that he himself was strongly impressed with the fact that the valley was one of the best, if not the best place on the face of the globe for the growth of the apple. He did not believe that there was another spot under the sun that could surpass this valley in that respect. That being the case, it was our duty to do our utmost to impress these facts upon the young men of the country in order to induce them to stay at home and develop this grand industry, which is only wanting to be so

developed that it will return to our people millions and millions of wealth. (Applause.)

COL. BLAIR said that the first reference as to the location of the experimental farm had been made by the Reverend President of Acadia College. If it could be demonstrated by the operations at the farm that the people of the east could succeed in growing apples for their own use a great deal would have been accomplished.

PROFESSOR SAUNDERS said that in selecting the location of the farm at Nappan the main idea had been to select a place which would fairly represent an average farm in an average district, and one which would possess the average conditions of the farms throughout the three provinces. In his opinion the district where the farm was located fulfilled these conditions.

The Professor, referring to a remark of Rev. Dr. Sawyer as to the inadvisability of denuding the sides of the mountain in order to extend the cultivated land, said that this question was one of the utmost importance. The trees were admirably adapted for the breaking of strong winds, and the people should be careful not to destroy their trees injudiciously or too quickly, as the presence of the trees added to the comfort of the people and to the favorable conditions existing in this part of the country for the growth of fruit. In conclusion he said he was very glad to have enjoyed the opportunity of being present at the meetings of the Association, and wished it continued success in all its objects. (Applause.)

MR. J. W. BIGELOW, who was next called upon by the chairman, said that two years ago he had given some figures to the Association showing, as he then contended, that a thousand apple trees could be bought and cultivated in this country and the land drained and fenced at an outlay of \$3,000, and in eight years with everything paid for, its cash value then would not be estimated at less than from five thousand to ten thousand dollars. He was unable at that time to give absolute proof of the correctness of his assertion, but after the expiration of two years he now felt that he was within the mark in his statement on that occasion. He purchased, last year, and set out the trees, and the first year had netted much more than fifty per cent. of the entire cost. He wished further to say that on that occasion two years ago he had noticed quizzical glances directed at him when he had also asserted that waste lands were preferable for

the experiment in contra-distinction to old fertile lands, and that was the kind of land he had bought. His advice now to Col. Blair was to try the experiment with one acre of the meanest kind of land, and if the Colonel did not afterwards agree with him that that was the best land for orchard purposes then he was very much mistaken. That land, in his opinion, gave a better growth of tree and produced a better fruit, and could be purchased at from \$20.00 to \$30.00 an acre. He had had some trees on old cultivated land, but those trees did not look half as vigorous or well grown as the other trees about which nurserymen from Ontario and Rochester say that they had never before seen such marvellous growth in such a short time.

To-day the Association was celebrating the twenty-fifth anniversary of its organization. All honor to the men who originated and carried on the Association at considerable trouble and expense. He thought that it must be evident to every one who seriously considered the matter, that the fruit growing industry has reached such proportions in this country that it must now assume a new shape, and as other industries are going into "trusts" and pulling together for their own common interests, the fruit growers of the province should unite and pull together, the Fruit Growers' Association being a perfect medium for the purpose of carrying out the wants of those engaged in the industry. Such a "trust" would afford a solution of many of the difficulties the fruit growers now contended with. By means of a "trust" their work would be simplified and their difficulties solved. Imagine such an Association with a capital of one hundred thousand dollars, able to charter a ship which would suit the necessities of the fruit growers, and able to remove all the obstacles which at present exist to the disadvantage of those who now export fruit to foreign markets. When fruit growers became determined to carry on the business unitedly it would be a success. It could be arranged that the ship used by the Association should have on board a supercargo whose duty it should be to take charge of the fruit exported and see that the fruit went directly into the hands of the consumers, so that we would no longer be cheated by middlemen. He thought he was justified in saying that the financial result of the fruit produced this past year had been equally divided, the fruit grower getting one-half, and the middlemen and railway and steamship companies the other half. It is certain that if the Nova Scotia Fruit Growers' Association did not

take hold of the scheme suggested this evening another company would be formed to take hold of it.

The Association had the pleasure of enjoying some very instructive and excellent papers during the last two days, and he certainly thought that the young gentleman who read the excellent paper on "Apples vs. Oranges," had demonstrated that Nova Scotia was good enough for Nova Scotians, and that apple growing was good enough for Kings County men. Why any young man, whose father owned land in Kings County, should leave the province, was always a mystery to him. In his opinion any young man with reasonable industry and economy, and who could get a fair quantity of land, could easily be the possessor of five thousand dollars in ten years. Some time ago I said to a young man, then earning twenty dollars a month, "Did it ever occur to you that you might be worth from two to five thousand dollars?" "No," said he. "Would you like to be worth \$5000?" "Yes." "If I tell you how will you follow my advice?" "Yes." I told him to get ten acres of land—borrowing it on mortgage if necessary—and to set out 1000 apple trees at his leisure. I said to him "Plant your trees as you can afford to buy them, instead of fooling away your leisure time devote it to your young orchard, and in from five to seven years you can sell it for \$5000." His father gave him 25 acres of land and he has followed out my suggestion, and I firmly believe that he will be worth five thousand dollars in the course of time. It would be imposing on your good nature for me, at this late hour, to take up further time, so I will without further observations resume my seat. (Applause.)

The chairman next called upon A. McN. PATTERSON, who in responding said it was too late in the night to allow any tongue to get loose, especially such a tongue as his, which had been used a good deal during life. It was pleasant to observe that while so much attention was paid by the various speakers to the subject of fruit, there were other even more important matters which were not forgotten. The Reverend President of Acadia College in his address had referred to the young men of the country and the desirability of keeping them in their native province, and it would be indeed a grand thing if our young men could fully realize the great resources of their country, which sixty millions of people alongside of us were beginning to envy. He had been studying all his life how to make men out of boys, and how to give them that mind and

heart which would enable them to battle with life. He had concluded that there were two things which militated largely against our people in this beautiful valley. One thing was the hugging to our farms the cultivation of the potato, a drudgery more intense than Southern slavery. Give us anything but this eternal pawing potatoes over in a cellar, and hauling them along over muddy roads, and handling them with frozen fingers. And the other thing was that newspapers, that should be circulating nothing but good concerning our country, were constantly declaring that ruin was before us. He was glad to notice that all the speeches delivered this evening had the right sound about them in that respect. He felt that in Kings County—notwithstanding the fact that the government farms were located in other parts of the province,—there were advantages which would enable the residents of this county to regard themselves as a body of men who need look alone to Providence for the success of their toil. He would say to the parents present at this meeting to-night that if they wished to ruin their sons the best plan was to keep nursing them with their daughters, with no self-reliance and no ambition, but if better things were desired for the sons then give them a fair opportunity to cultivate a self-reliant spirit by placing them on their own feet. The men that rule the world to-day have won their high position by individual exertion. The excellent display of apples made by some members of the Association to-day was a proof that this county had advanced in apple culture, and that advancement has been attained by our own effort. He felt proud of the record of the Nova Scotia Fruit Growers' Association which had accomplished splendid work, but which should not rest content with what had already been achieved, but should aim to secure even greater results and even a more brilliant record in the future. (Applause.)

Vice-President W. H. BLANCHARD was called upon, but the hour being very late declined to make any remarks.

On motion of the Secretary, C. R. H. Starr, seconded by W. H. Blanchard, a vote of thanks was unanimously offered to Professor Saunders for the highly interesting and instructive addresses which he had delivered to the Association during the last two days, and for the very valuable information imparted in these addresses.

PROFESSOR SAUNDERS briefly responded, and the proceedings, which were in every sense a brilliant success, terminated by the entire audience rising and singing "God Save the Queen."

APPENDIX.

The following paper by Prof. A. J. Cook of the Agricultural College of Michigan, seems so well suited to the wants of our people just now, that we have taken the liberty of reproducing it in full :

SPRAYING WITH THE ARSENITES.*

MR. PRESIDENT :—

Nine years ago, at the first meeting of this society, I presented a paper upon the use of Paris green as a specific against the codling moth.

In that paper I gave the results of careful and elaborate experiments, which settled two facts which were very important in economic entomology : First, that Paris green was efficient as a preventive of the ravages of the codling larva ; and secondly, that such use was entirely safe in respect to poisoning the fruit. To-day, less than a decade from the date of the discovery of this remedy, this method to combat the worst insect pest of the apple grower is generally adopted by the more intelligent orchardists of our country. Its value is now universally conceded. Easy and cheap methods to apply the insecticide are now known and generally adopted.

For several years myself and others have been experimenting, in hopes to find that this same insecticide was equally efficient to destroy the plum curculio. For six or seven years I have sprayed plum trees once and even twice with no apparent good. Test trees, close beside the trees sprayed, and that were not treated, were as free from attack as were the trees that were sprayed, and the trees treated were no more exempt from attack than the others. Thus I was convinced that this insecticide was of no value in this curculio warfare. Several of my horticultural friends, in whose ability to experiment and observe correctly I had great confidence, had tried this remedy with *very satisfactory* results. In 1888 I studied this matter very closely, and concluded that as the plum is a smooth fruit, with no calyx cup like that of the apple, in which the poison may lodge, and as the curculio lays its egg anywhere on the smooth rind,

* Read at Toronto, August 26, before the Society for the Promotion of Agricultural Science.

the poison would be very easily washed off, or even blown off by the wind. I thus concluded that my want of success was very likely due to a want of thoroughness. In 1888 I sprayed certain trees three times, at intervals of eight days, and omitted to treat other trees close along side. The benefit from spraying was very marked.

I also found that carbolized plaster—one pint of crude carbolic acid to fifty pounds of plaster—was quite as efficient to repel the curculio as was the arsenites. This was also applied three times. The season was very dry, and there were few or no rains to wash off the insecticides. This year I repeated the experiments both with the London purple and with the carbolized plaster, but with no success. All the trees were severely attacked, and all the plums lost. This year we had almost daily rains, which were frequently quite severe.

I believe I am warranted in the following conclusions: The arsenites, and carbolized plaster will protect against the plum curculio if they can be kept on the tree or fruit. But in case of very frequent rains the jarring method will not only be cheaper, but much more effective. Again, as our wild fruits are more cleared away we must have plums in our orchards to protect the apples from the curculio. When apples are seriously stung they become so gnarled and deformed as to be worthless. It will pay, then, to set plum trees near by or among the apple trees. Then we will escape mischief among our apples from the curculio, and will only need to spray our apples once, to destroy the codling moth, and can treat the plum trees three or four times with Paris green or carbolated lime in case we have only occasional showers, or can jar the trees when the rains are very frequent. For the apples we can use London purple, one pound to 200 gallons of water. For the plums we must use Paris green, one pound to two or three hundred gallons of water. If the carbolated plaster is preferred, we use one pint of crude carbolic acid to fifty pounds of land plaster. This is thrown freely over the trees, so as to strike every plum on the tree, which is being treated.

Another very important practical point has been suggested by the past season's experience with these insecticides: I refer to the danger of applying them before the blossoms fall. Bees are quite as susceptible to these poisons as are the codling larvæ and curculio. In their good work of collecting nectar and fertilizing the blossoms, they are very certain to take the poison as well, if the trees have been sprayed. Of course there is no excuse for spraying at so early a date, as neither the curculio or codling larvæ commence their attack till the blossoms fall. Thus for the object in mind, as well as for the safety of the bees, delay should be insisted upon. I think we as scientists and all educated men should pronounce vehemently and with one voice against spraying our fruit trees with the arsenites till the blossoms have all fallen. We should

even go farther : We should secure the enactment of laws which would visit any such offense with fine and imprisonment. Such laws would prove a ready and active educator.

In the past season, many bee keepers have lost severely from the neglect of their fruit growing neighbors to observe this caution. I will only mention two cases : Mr. John G. Smith, Barry, Illinois, writes : "One of my neighbors owning an orchard of about one hundred acres of apple trees, sprayed the trees with Paris green and water just as they were in full bloom. The result is that ten or twelve bee keepers are ruined." The imago no less than the larvæ and pupæ were destroyed. Mr. J. A. Pearce, Grand Rapids, Mich., was also a heavy loser from the same cause. His bees likewise died in all stages of development.

It is well to remember and to urge that this loss is not confined to the bee keeper, for the fruit grower as well as the apiarist needs the bees and their work to insure his best success. It only requires, then, that our people know the truth, to insure against loss in this direction.

INJURY TO THE FOLIAGE.

Another practical question of no small moment in this use of the arsenites refers to injury to the foliage of the trees treated. In an elaborate series of experiments the past season, we desired to learn the effect on different trees of the different arsenites, and whether the date of treatment and atmospheric condition had any influence. The following is a tabulated statement of the experiments :

Date.	Variety Treated.	Poison Used.	Date of Second Application.	Time after Treatment	Weather.	Effect.
May 20...	6 plum trees...	Lon'n purple 1 lb. to 200 gal.	June 5...	Ten days	Rain 21, 23	No injury.
May 20...	2 cherry trees...	" "	" "	" "	" "	" "
May 21...	4 apple "	" "	May 23...	" "	" "	" "
May 23...	5 cherry "	1 lb. to 150 gal.	" "	" "	" "	" "
June 7...	3 willow "	1 lb. to 100 gal.	June 12...	" "	" "	" "
June 7...	3 elm "	" "	" "	" "	" "	Some.
June 7...	2 h. maple "	" "	" "	" "	" "	" "
June 7...	5 apple "	" "	" "	" "	" "	None.
June 7...	5 cherry "	" "	" "	" "	" "	Some.
June 7...	5 plum "	" "	" "	" "	" "	Much.
June 12...	3 elm "	" "	" "	" "	" "	" "
June 12...	3 plum "	" "	June 17...	" "	" "	" "
June 12...	3 apple "	" "	" "	" "	" "	" "
June 12...	3 cherry "	" "	" "	" "	" "	" "
June 24...	3 apple "	" "	" "	" "	" "	" "
June 24...	3 peach "	" "	" "	" "	" "	None.
June 24...	3 plum "	" "	" "	" "	" "	Very bad.
July 5...	5 peach "	" "	" "	" "	Rain 25th	" "
July 8...	2 peach "	" "	" "	" "	" "	" "
July 8...	1 cherry "	" "	" "	" "	" "	" "
July 10...	1 pear "	" "	" "	Five days	" "	Great injury.
July 10...	3 peach "	" "	" "	" "	" "	" "
July 10...	1 plum "	" "	" "	" "	" "	Slight.
July 11...	2 peach "	" "	" "	" "	" "	Some.
July 11...	2 peach "	Paris green, 1 lb. to 100 gal.	" "	" "	" "	" "
July 11...	2 peach "	1 lb. to 200 gal.	" "	" "	" "	Very bad.
July 11...	2 peach "	" "	" "	" "	" "	Quite bad.
July 11...	2 peach "	250 gal.	" "	" "	" "	Slight.
July 11...	2 peach "	" "	" "	" "	" "	None.
July 11...	2 peach "	300 gal.	" "	" "	" "	" "
July 11...	2 peach "	London purple water.	" "	" "	" "	Great injury.
July 15...	3 peach "	White arsenic 1 lb. to 200 gal.	" "	" "	" "	" "
July 15...	3 peach "	Lon'n purple 1 lb. to 200 gal.	" "	" "	" "	" "
July 15...	3 peach "	Solution aniline	" "	" "	" "	None.

I think we are warranted in the following conclusions: First, London purple is more injurious to the foliage than is Paris green; and white arsenic—arsenious acid—is more harmful than is either London purple or Paris green. This is doubtless owing to the soluble arsenic which is quite abundant in London purple, and almost absent in Paris green. In experiment No 29 (See table) it will be noticed that the colored water after London purple fully settles is very destructive to foliage, while aniline (See experiment No. 32) is not at all harmful. This agrees with the experiments of Prof. C. P. Gillette, made in 1888, where white arsenic was found very destructive to foliage.

Secondly, Peach foliage is especially susceptible to injury, and cherry foliage the least so of any of the kinds treated.

Thirdly, It would seem that London purple and white arsenic, used just before a rain, are more harmful than when used during a drought. We not only saw greater injury when a rain followed spraying within two or three days, but secured the same results by spraying, soon after treatment, with pure water. This also accords with the view that the injury comes from the presence of soluble arsenic.

Fourthly, It would seem that spraying soon after the foliage puts out, is less harmful than when it is delayed a few days, or better a few weeks. For ten years I have sprayed both apple and plum trees in May, and for several years with London purple; and often used a mixture as strong as one pound to a hundred, or even fifty gallons of water. Yet in most cases no damage was done. This year I sprayed several trees in May, using one pound to 100 gallons of water with no damage. In June and July spraying the same trees with a mixture only one-half as strong did no slight injury. This fact, if fact it be, accounts for the few reports of injury in the past, even with a stronger mixture, and the frequent reports of damage within a year or two, even with a dilute mixture. Then the spraying was confined to May; now it reaches to June, or even to July.

Fifthly, London purple may be used on apple, plum, cherry, pear, and most ornamental trees, but on these should never be stronger than one pound to two hundred gallons of water. If the application is to be repeated, as it must be for the curculio, to prove effective, or if it is to be used in June or July, Paris green should be used, in the same proportion as above, or else we should only use one pound of London purple to three hundred gallons of water. I now think that this necessity is more due to time of application than to the fact of increased quantity of the poison.

Sixthly, If the arsenites are to be used on the peach, to defend against the curculio, Paris green only should be used, and that not stronger than one pound to three hundred gallons of water. With the peach the poison is not only absorbed, coloring the tissue purple or brown, but even the petiole or stem of the leaf is weakened, and the leaf falls. Thus in several cases where we used London purple one pound to two hundred gallons of water, or white arsenic, the peach leaves all fell off. White arsenic colors the tissue the same as does the London purple, showing once more that it is the soluble arsenic, not aniline, that does the mischief.

Seventhly, The injury done to the foliage is never immediately apparent. It usually shows somewhat the second day, but the full injury is frequently not manifest till the fifth day, and often not till the tenth.

POISONING THE PASTURE UNDER THE TREES.

Another important practical question which I have tried to settle this season—1889—concerns the danger of pasturing under trees which have been sprayed with the arsenites.

A gentleman wishing to spray his orchard, in which he was pasturing seventy-five hogs, consulted me as to the wisdom of doing so without first removing the swine. I told him I believed there was no danger. I said use a mixture, one pound of London purple to two hundred gallons of water, watch your hogs closely and if any seem affected remove all at once, and I will be responsible for damages to the amount of twenty-five dollars. The gentleman did so and reports no damage.

In the following experiments I used the mixture of twice the strength which should be used, that the experiment might be the more convincing. I used one pound to one hundred gallons of water. In every case the spraying was very thoroughly done. Care was taken that every twig and leaf should be drenched.

In tree No. 1 a thick paper was placed under one-half of a rather small apple tree. The space covered was six by twelve feet, or seventy-two square feet. The paper was left till all dripping ceased. As the day was quite windy the dripping was rather excessive. In this case every particle of the poison that fell from the tree was caught on the paper. Dr. R. C. Kedzie analyzed the poison and found four-tenths (.4) of a grain. Tree No 2 was a large tree with very thick foliage. Underneath this tree was a thick carpet of clover, blue grass and timothy just in bloom. The space covered by the tree was fully sixteen feet square, or equal to two hundred and fifty-six square feet. As soon as all dripping had ceased, the grass under the tree was all cut, very gently and very close to the ground. This was taken to the chemical laboratory and analyzed by Dr. R. C. Kedzie. There was found 2.2 grains of arsenic. Now as our authorities say that one grain is a poisonous dose for a dog, two for a man, ten for a cow, and twenty for a horse, there would seem to be small danger from pasturing our orchards during and immediately after spraying, especially as no animal would eat the sprayed grass exclusively. To test this fully, I sprayed a large tree over some bright tender grass and clover. I then cut the clover carefully, close to the ground, and fed it all to my horse. It was all eaten up in an hour or two, and the horse showed no signs of any injury. This mixture, remember, was of double the proper strength, was applied very thoroughly, and all the grass fed to and eaten by the horse. This experiment was repeated with the same result. I next secured three sheep. These were kept till hungry, then put into a pen about a tree under which was rich, juicy June grass

and clover. The sheep soon ate the grass, yet showed no signs of any injury. This experiment was repeated twice with the same result. It seems to me that these experiments are crucial and settle the matter fully. The analyses show that there is no danger, the experiments confirm the conclusion.

Thus we have it demonstrated that the arsenites are effective against the codling moth, that in their use there is no danger of poisoning the fruit, and when used properly no danger to the foliage, nor to stock that may be pastured in the orchard.

August 17, 1889.

A. J. COOK.

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